

# Workplace policy and management practices to improve the health of employees

## Evidence Review 3

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## Executive summary

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The National Institute for Health and Care Excellence (NICE) has been asked by the Department of Health to develop guidance on management practices to improve the health of employees, with a particular emphasis on the role of line managers and organisational context. The guidance will cover support for managers, their training, and awareness of employee health issues including managing sickness absence, as well as policies and the organisational context.

The Institute for Employment Studies (IES) in partnership with The Work Foundation (TWF) and Lancaster University have been contracted to undertake a series of evidence reviews of relevant effectiveness and qualitative studies and an economic analysis to support the production of this guidance.

This report presents the third of these evidence reviews and is a qualitative review of non-intervention studies which explore the workplace factors that facilitate or constrain the ability of line managers to enhance the well-being of the people they manage. The first review examined the evidence on the effectiveness of interventions taken by supervisors that could enhance the well-being of the people they manage and the second examined the evidence on the effectiveness of organisational interventions that aim to support line managers to enhance the well-being of the people they manage.

### Method

It was agreed with NICE that a joint search strategy would be adopted for all three research questions which would include:

- A search of key literature databases
- A search of the websites of relevant organisations
- Citation searches of material included in the reviews
- A review of material submitted through the NICE Call for Evidence

- Writing to any known researchers and experts in the field not already contacted during the Call for Evidence to ask for relevant material.

All the papers were reviewed against agreed inclusion and exclusion criteria. Included studies were those that were published in English since 2008, set in an OECD country which examined the factors affecting the ability of line managers to enhance the health and well-being of the people they manage.

The 10,105 titles and abstracts identified through the initial search were screened through a two-stage sifting process to identify papers that should be considered for full paper screening, using a checklist based on the inclusion/exclusion criteria. These papers have been supplemented by additional material identified through the website searches, Call for Evidence and citation searching.

Following the screening process 532 papers were identified for full paper screening and 525 have been retrieved. Retrieved papers were appraised by two members of the review team using the full inclusion/exclusion checklist to assess the content of the articles and whether they should be included in the review (see Appendix 2).

Of the 532 papers identified for full paper screening, five were included in the first review and 12 in the second review. Some 372 were identified as potentially relevant for Review Question 3. These went through a further screening process and as a result of which 58 were identified for inclusion in this review and these have been supplemented by a further seven from the citation reviews making a total of 65 included papers. In addition three good practice guides and 21 systematic literature reviews were identified (and summarised) and 21 literature review also identified as relevant, 13 of which passed the inclusion and exclusion criteria and the key points extracted for this review.

The 65 papers identified for inclusion in this review were assessed for quality and the data extracted and presented in an evidence table by two separate review team members. Papers were assessed using a checklist based on the quality assessment in the NICE Public Health Guidance Methods Manual (NICE, 2012). Depending on how they met the criteria behind the checklist papers were graded either: '++', '+' or '-'.

## Findings

A series of evidence statements have been identified from the papers included in this review. It is important to emphasise that the evidence is based on observational studies which identify associations between variables and do not establish causality.

## Supervisory support

Fourteen studies examined, inter alia, the relationship between employees' job satisfaction and the general support they received from their supervisor by asking employees whether they agreed or disagreed with statements about, for example, whether their supervisor cares for their well-being or was supportive of their concerns.

### Evidence Statement 1a: Supervisor support and well-being

There is strong evidence from 14 studies, based on multivariate analysis of survey data, seven set in the USA (one (++) , five (+), one (-)), two based in Australia (both (+)), one set in the Netherlands (+), one in Finland (+), one in Germany (-), one in the UK (-) and one in Italy (-) in a variety of workplace settings (mainly health-related) that there is a small to medium positive relationship between supervisory support and employee well-being (generally measured by job satisfaction but also employee emotional exhaustion and self-reported health), although effect sizes are generally small. The evidence is partially applicable to the UK.

- A study of social workers in the USA found that perceived supervisor support was negatively related to emotional exhaustion ( $p < .01$ )<sup>1</sup>.
- A study of nursing assistants employed in nursing homes in the USA found that supervisors' support was one of a number of factors that positively affected job satisfaction ( $p < .01$ )<sup>2</sup>.
- A study of nurses in aged care facilities in a medium to large Australian healthcare organisation found the support received by nurses from their supervisor was related to well-being ( $p < .01$ )<sup>3</sup>.
- A study of employees and supervisors at a community-based healthcare organisation in Australia found that there was an association between supervisory support and job satisfaction but there was a significant mediating effect via leader identification for the associations between supportive leadership and job satisfaction ( $p < .01$ )<sup>4</sup>.
- A study of university employees in the Netherlands found that even low levels of support from supervisors had a small positive association ( $B = .12$ ) with the job satisfaction of older (>55) workers ( $p < .05$ )<sup>5</sup>.
- A study of new recruits to 12 telemarketing companies across the USA found that supervisory support (including guidance on how to perform their role) had a statistically significant direct effect on job satisfaction<sup>6</sup>.
- A study of Certified Nursing Assistants in the USA found that there was a positive relationship with a medium effect between supportive supervision and job satisfaction (OR 4.09) and a positive relationship with a small effect between supportive supervision and intent to leave (OR 0.53)<sup>7</sup>.

- A study of workers in the medical sector in the USA found that supervisor support was statistically significantly associated with psychological distress among medical workers, but with a small effect ( $\beta = .19, p < .01$ )<sup>8</sup>.
- A study of middle managers in an Italian mail delivery company found that perceptions of the immediate supervisor were related to job satisfaction ( $p < .01$ )<sup>9</sup>.
- A study of managers and employees in the care sector in North East USA found that employees with low and mid-range supervisory support scores experienced more pain at work than employees with managers who reported high levels of supervisory support. Controlling for socio demographic characteristics of the employee only, the lowest supervisory support scores were associated with roughly twice the risk of pain at work (compared with a mid-range supervisory support score)<sup>10</sup>.
- A study of industrial workers in Germany found a small but significant association between lack of supportive leadership and self-rated health (OR 1.6)<sup>11</sup>.

However a large-scale survey of working adults in the USA (+) found that neither self-reported health, lower exhaustion or less pain was significantly associated with supervisor support<sup>12</sup> and a study based on two surveys of Finnish fire fighters (+) found no association between supervisory relations (a concept which included supervisor support) with work ability (ie health-related capability for work)<sup>13</sup>.

One study (-) based on the UK NHS staff survey, found that the influence of social support on job satisfaction was in turn positively associated with the quality of senior management<sup>14</sup>.

<sup>1</sup> Campbell (2013) (++)

<sup>2</sup> Bishop (2009) (+)

<sup>3</sup> Rodwell and Martin (2013) (+)

<sup>4</sup> Hobman (2011) (+)

<sup>5</sup> Bos (2009) (+)

<sup>6</sup> Sluss and Thompson (2012) (+)

<sup>7</sup> Choi and Johantgen (2012) (+)

<sup>8</sup> Minnotte et al. (2013) (+)

<sup>9</sup> Borgogni (2011) (-)

<sup>10</sup> O'Donnell et al. (2012) (-)

<sup>11</sup> Schmidt et al. (2013a) (-)

<sup>12</sup> Trieber and Davis (2012) (+)

<sup>13</sup> Airila et al. (2012) (+)

<sup>14</sup> Buttigieg and West (2013) (-)

Further evidence of the positive relationship between supervisory support and employee well-being comes from three literature reviews. One meta-analysis (+) of 40 studies found that job satisfaction exhibited a medium positive relationship with perceived supervisory support (the weighted  $r$  value was .54,  $p < .001$ ). The review also found that the relationship between perceived supervisory support and job satisfaction was stronger for jobs where most of the interaction was with other employees rather than external suppliers or customers<sup>1</sup>. A qualitative review (+) of a total of 153 studies relating to the adult care sector in Australia cited two studies that reported a positive staff perception of a manager's leadership and support was associated with improved job satisfaction and workforce retention<sup>2</sup>. A review of eight studies, mainly from the USA, found an inconsistent relationship between supervisory support and job-related stress. For example two studies in the review found supervisory support was significantly related to job stress, but another found a negative and non-significant relationship<sup>3</sup>.

<sup>1</sup> Edmudson and Boyer (2013) (+)

<sup>2</sup> Jeon (2010) (+)

<sup>3</sup> Finney 2013 (+)

### Supervisor support and sickness absence

A number of studies examine the various forms of support that supervisors can offer employees in more detail together with the circumstances in which that support is offered. Four focussed on sickness absence.

### Evidence statement 1b: Supervisor support and sickness absence

There is strong evidence from four studies (one (++) , two (+) and one (-) from Norway, Australia, the Netherlands and the UK) that there is an association between supervisor support and sickness absence. However the direction of the relationship depends on the context and precise nature of supervisory supportive behaviour. The evidence is partially applicable to the UK.

- A study of sickness absence in a Norwegian health trust (++) found that four leader behaviours were related to employee sickness absence: ‘task monitoring’ was related to lower sickness absence, whereas ‘loyalty to superiors’ and ‘social support’ were related to high absence levels. However, the effect of ‘social support’ was no longer significant when the line manager also displayed high levels of ‘problem confrontation’. ( $p < .05$ )<sup>1</sup>.
- A survey of call centre workers in a large unionised telecommunications company in Australia found that the presence of both an absence culture among an employee’s co-workers and permissive attitudes towards absence-taking by team leaders lessened the impact of a high work-load on emotional exhaustion ( $p < 0.01$ ). A permissive attitude to absence-taken by team leaders in situations of perceived high job demands reduced job strain<sup>2</sup>.
- A survey of employees with chronic illnesses in the Netherlands (+) found that higher levels of supervisory support were associated with lower levels of sick leave<sup>3</sup>.
- A study in a private health care company in the UK (-) found that feeling under pressure from line managers, senior managers and colleagues to come to work when unwell and work related stress, were two of the biggest predictors of presenteeism. Pressure from managers, alongside the existence of mental health conditions, ( $p=0.002$ ) was also a predictor of sickness absence<sup>4</sup>.

<sup>1</sup> Bernstrom et al (2012) (++)

<sup>2</sup> Deery et al (2010) (+)

<sup>3</sup> Boot (2011) (+)

<sup>4</sup> Ashby and Mahdon (2010) (-)

### Work/family conflict

A number of studies examined the role of line managers in mitigating the consequences of work/family conflicts.

### Evidence statement 1c: Supervisor support and work/family conflict

There is mixed but generally positive evidence from four studies (one (++)), one (+) and two (-)) that managerial support in helping employees handle conflicts between work and family life is positively associated with employee well-being. The evidence is partially applicable to the UK.

- A survey of local authority employees in the UK found that managerial support for work-home issues had a significant impact on employees' well-being ( $p < .05$ ). This effect took place indirectly for women, by influencing their level of work-home conflict, and operated both directly and indirectly for men<sup>1</sup>.
- A survey of employees and supervisors in the care sector in the USA found that supervisor openness and creativity in handling work/family issues was significantly associated with a lower risk of cardiovascular disease ( $p < .05$ )<sup>2</sup>.
- A nationwide survey of employees in the USA found that employees reported that supervisory support was a significant predictor of lower ratings on work interfering with family but, contrary to expectations, supervisor support served to significantly increase family interfering with work ( $p < .01$ )<sup>3</sup>.
- A survey of employees in a large US employer found that family supportive supervisor behaviours were not significantly related to sleep insufficiency, insomnia or waking after sleep onset<sup>4</sup>.

<sup>1</sup> Beauregard (2011) (++)

<sup>2</sup> Berkman et al (2011) (+)

<sup>3</sup> Beutell (2010) (-)

<sup>4</sup> Crain et al (2014) (-)

### Supervisor employee relationships

Three studies (all +) focussed on the quality of the supervisor-employee relationship and in particular leader-member exchange (LMX), a theory which argues that an element of the supervisor/supervisee relationship involves a mutual exchange of support, information, trust, participation in decision-making and respect.

### Evidence statement 1d: Supervisor relationships and well-being

There is consistent, but moderate evidence from three studies, (all +), one based in Australia, one in Germany and one in the USA in a mix of sectoral settings, that a strong relationship based on a reciprocal exchange between supervisors and employees is positively associated with job satisfaction and other measures of well-being. The evidence is partially applicable to the UK.

- A survey of nurses in two Australian hospitals and police officers in two districts found a significant positive relationship between LMX and employees' subsequent perceptions of well-being that was stronger among nurses than police officers<sup>1</sup>.
- A two-wave survey of employees in a large information technology company in Germany found a positive relationship between LMX and job satisfaction at both time points ( $p < .01$ )<sup>2</sup>.
- A survey of nurses in two hospitals in the USA found a significant correlation between supervisor-subordinate relationships and well-being ( $p < .001$ ). Supervisor relationships, teamwork and well-being explained almost half of nurses' commitment to their hospital and their intentions to leave<sup>3</sup>.

<sup>1</sup> Brunetto et al. (2011) (+)

<sup>2</sup> Volmer et al. (2011) (+)

<sup>3</sup> Brunetto et al. (2013) (+)

### Consistency of support

One study examined whether employee perceptions of the support provided by senior, line, and human resource managers.

#### Evidence statement 1e: Consistency of management support

There is evidence from one study (+), based on a survey of employees in 10 firms in Australia that employees who perceived the level of support from both line and senior management was appropriate and consistently offered, experienced greater work satisfaction and were less inclined to quit their jobs. Line and senior management relationships were strengthened when communication between senior managers and human resource managers was frequent<sup>1</sup>.

<sup>1</sup> Frenkel et al. (2013) (+)

### Leadership style and behaviours

A number of studies examined the relationship between the style of leadership shown by supervisors and line managers and employee well-being. Nine focused on transformational leadership (associated with an open, visionary and empowering approach), some of which also explored other approaches including a more transactional approach (which includes the use of contingent rewards and management by exception).

## Evidence Statement 2a: Leadership style and well-being

### Transformational leadership

There is moderate and consistent evidence from nine survey-based studies (one (++)), six (+) and two (-)), three based in Germany, two in Turkey and the others based in the Netherlands, Denmark, Western Europe and the USA, that there is a positive relationship between transformational leadership styles (embracing an open visionary and empowering approach) and employee well-being. Three of the studies (two (+) and one (-)) indicate that the relationship is affected by other factors including trust in one's supervisor, affinity with the organisation and the existence of work-life conflict. The evidence is partially applicable to the UK.

- A survey of supervisors and employees in a German university found a positive correlation between transformational leadership and job satisfaction ( $p < .01$ ). Trust in the supervisor mediated the positive relationship between perceptions of supervisors' transformational leadership and employees' job satisfaction<sup>1</sup>.
- A cross-sectional survey in a Dutch hospital (+) found that nurse managers with a leadership style characterised by high relationship and high task behaviour had lower short-term absence among their nursing staff<sup>2</sup>.
- A survey of employees in a wide range of hotels in Turkey (+) found a significant ( $p < .01$ ) positive relationship between transformational leadership and quality of working life<sup>3</sup>.
- A small scale survey of academics at an unidentified Western European university (-) found that individual consideration and intellectual stimulation (both characteristics associated with transformational leadership) were in the first case positively and in the second case negatively associated with employee well-being. Management by exception (a characteristic associated with transactional leadership) was negatively associated with well-being<sup>4</sup>.
- A survey of employees in two Turkish hospitals (+) found one transformational leadership dimension (articulating a vision), two job satisfaction dimensions (pay and supervision) and two organisational commitment dimensions (affective commitment and normative commitment) were significantly related to organisational trust<sup>5</sup>.
- A survey of owners of 52 small family businesses and their employees in Germany (+) found that the link between transformational leadership and affective commitment, job satisfaction, and turnover intentions was partially mediated by psychological ownership of (defined as affinity towards) the organization ( $p < .01$ )<sup>6</sup>.
- A survey of employees in a care environment in Denmark (+) found a significant relationship between transformational leadership and job satisfaction ( $p < .01$ ). However the relationship between transformational leadership and psychological well-being, unlike with job satisfaction, was mediated by work-life conflict<sup>7</sup>.
- A survey of employees in a German professional services company found a small negative association between transformational leadership and psychological strain ( $\beta = 0.28$ ,  $p = 0.00$ ) with reported stress higher when transformational leadership was perceived to be low<sup>8</sup>.

- A survey of professional employees in a US industrial company found that trust in their supervisor fully mediated the effects of procedural and informational fairness and transformational leadership on employee job satisfaction<sup>9</sup>.

<sup>1</sup> Braun et al. (2013) (++)

<sup>2</sup> Schreuder et al. (2011) (+)

<sup>3</sup> Kara et al. (2013) (+)

<sup>4</sup> Zineldin and Hytter (2012) (-)

<sup>5</sup> Top et al. (2013) (+)

<sup>6</sup> Bernhard and O'Driscoll (2011) (+)

<sup>7</sup> Munir et al. (2012) (+)

<sup>8</sup> Schmidt et al. (2013b) (+)

<sup>9</sup> Gilstrap and Collins (2011) (-)

Three studies (all (+)) examined the concept of authentic leadership (ie acting in a way consistent with their values and ethical standards) and its relationship to employee well-being.

### Evidence Statement 2b: Leadership style and well-being

#### Authentic leadership

There is moderate evidence from three studies, partially applicable to the UK, including two separate surveys (both (+)) of nurses in Ontario Canada, and from a large-scale survey of adult employees in the USA (+) that an authentic leadership style (involving acting in a way consistent with espoused organisational values) is positively associated with job satisfaction and well-being.

- A study based on a survey of nurses working in acute care hospitals across Ontario, Canada, found that an authentic leadership style among line managers significantly and positively influenced staff nurses' feelings of empowerment, which in turn increased job satisfaction and self-rated performance ( $p < .01$ )<sup>1</sup>.
- A study based on a survey of nurses in Ontario, Canada found that when new graduate nurses were paired with supervisors who demonstrated high levels of authenticity, they felt more engaged and more satisfied with their work ( $p < .01$ )<sup>2</sup>.
- Analysis of the results of a nationwide survey of employed adults in the USA found that a manager's behavioural integrity was positively related to job satisfaction ( $p < .001$ ) and negatively related to stress and absenteeism ( $p < .01$ )<sup>3</sup>.

<sup>1</sup> Wong and Laschinger (2012) (+)

<sup>2</sup> Giallonardo et al (2010) (+)

<sup>3</sup> Prottas (2013) (+)

## Specific positive leadership behaviours

### Evidence Statement 2c: Positive leadership behaviours

There is moderate evidence of partial applicability to the UK from five studies (four (+) and one (-)) that identifies specific leadership behaviours associated with employee well-being. These include:

- Regularly consulting with staff on daily problems and procedures
- Flexible or modified work scheduling
- Highly visible and accessible senior management
- Providing praise and recognition for a job well done<sup>1</sup>
- Giving the information to employees that they need
- Pushing through and carrying out changes
- Explaining workforce goals and sub-goals thoroughly
- Giving employees sufficient power in relation to their responsibilities
- Taking time to be involved in employees' personal development<sup>2</sup>
- Ethical and relational behaviours<sup>3</sup>
- Professional commitment
- Creating an emotionally supportive environment<sup>4</sup>
- Critical thinking<sup>5</sup>

<sup>1</sup> Duffield et al (2010) (+)

<sup>2</sup> Nyberg et al (2009) (+)

<sup>3</sup> Rubin and Brody (2011) (+)

<sup>4</sup> Jenkins and Stewart (2010) (+)

<sup>5</sup> Zori et al (2012) (-)

There is further evidence from four literature reviews that also identified the leadership behaviours that are positively associated with employee well-being.

- A good quality meta-analysis of 27 studies in the health and care sectors found various supervisory tasks (task assistance, social and emotional support and supervisory interpersonal interaction) to be positively and statistically significantly related to employee well-being (variously measured through job satisfaction, retention, organisational commitment, job stress, burnout, psychological well-being and worker effectiveness). However the effect sizes were moderate: task-assistance:  $r = 0.40$ ; social and emotional supervisory support:  $r = 0.33$ ; supervisory interpersonal interaction:  $r = 0.33$ <sup>1</sup>.
- A qualitative review of the association between leaders' behaviours and employee wellbeing showed that positive leader behaviours, including providing support, feedback, trust, confidence and integrity, were positively related to employee affective well-being and low stress levels among employee. Whereas the opposite was the case for negative leader behaviours<sup>2</sup>.
- A review focussed on the adult care in Australia found that the attributes of good leadership in middle management included: hands-on accessibility and professional expertise in nurturing respect; recognition and team building, along with effective communication and flexibility<sup>3</sup>.
- A meta-analysis of 49 studies which examined the impact of humour in the workplace found a small positive association between positive humour among supervisors and good physical and mental health. ( $p = 0.39$ ,  $SDp = 0.26$ ). Supervisor humour was also positively related to subordinate satisfaction with supervisor ( $p = 0.16$ ,  $SDp = 0.22$ )<sup>4</sup>.

<sup>1</sup> Mor Barak et al. (2009) (++)

<sup>2</sup> Skakon et al. (2010) (+)

<sup>3</sup> Jean et al. (2010) (+)

<sup>4</sup> Mesmer-Magnus et al. (2012) (+)

### Supervisors' safety behaviours

Three studies in the review specifically examined the role of line managers in encouraging safe behaviour in the workplace.

#### Evidence Statement 2d: Supervisors' safety behaviours

There is evidence from three studies (one (++)), one (+) and one (-)) from a range of settings, that supervisors and managers play an important role in creating a safer working environment by prioritising safety issues, correcting unsafe working practices and empowering employees to raise safety concerns. This evidence is of partial applicability to the UK.

- A large-scale survey in a hospital in Japan found that reductions in the incidence of needle stick injuries was positively correlated with the protection of staff being a high management priority ( $p = 0.008$ ), managers helping to protect staff from blood

borne exposures ( $p = 0.024$ ) and unsafe work practices being corrected by supervisors ( $p < .05$ )<sup>1</sup>.

- A survey of nurses at four hospitals in USA found that the incidence of workplace injuries was associated with the perceived integrity of managers safety behaviour and supervisors' 'psychological integrity' (feeling safe to voice concerns and mistakes toward one's supervisor) ( $p < .01$ )<sup>2</sup>.
- Analysis of a survey of workers in a nuclear plant in Spain found that managers influenced employees' safety behaviour through the workplace safety climate and when leaders were perceived to behave as empowering leaders, they produced an appropriate safety climate which resulted in a greater number of safety behaviours among workers<sup>3</sup>.

<sup>1</sup> Smith et al (2010) (++)

<sup>2</sup> Halbesleben et al (2013) (+)

<sup>3</sup> Martinez-Córcoles et al. (2011) (-)

## Negative leadership behaviour

Further studies looked at more negative leadership styles, eg a self-centred style (ie non-participating, asocial and loner) and their relationship with employee well-being.

### Evidence Statement 2e: Negative leadership style and well-being

#### Self-centred leadership

There is moderate evidence from two studies, one based on a nationwide employee survey in Sweden (++) and another multi-national survey of hotel workers (-), that a self-centred leadership style is negatively associated with employee well-being. The evidence is partially applicable to the UK.

- Analysis of the Swedish Longitudinal Survey of Occupational Health found that self-centred leadership significantly predicted depressive mood ( $p = 0.004$ ). Self-centred leadership was still a significant predictor of negative well-being when psychological demands and decision latitude were added to the equation although with reduced strength ( $p = 0.041$ )<sup>1</sup>.
- A survey of hotel workers in three European countries found that self-centred leadership was significantly associated with poor mental health, low vitality, and high behavioural stress ( $p < .01$ )<sup>2</sup>.

<sup>1</sup> Theorell et al (2013) (++)

<sup>2</sup> Nyberg et al (2011) (-)

One study (+) of negative supervisor behaviour identified the specific actions that were associated with presenteeism<sup>1</sup>.

### Evidence Statement 2f: Negative leadership behaviours

There is evidence from one study (+) of employees in the health sector in Australia which found that negative supervisor behaviour was a significant predictor of presenteeism ( $p < .01$ )<sup>1</sup>. The study is partially applicable to the UK. The specific supervisor behaviours that had the highest correlation with employee presenteeism were:

- failing to properly monitor and manage group dynamics,
- making decisions that affect employees without seeking their input,
- showing no interest in employees' ideas and projects,
- being easily threatened by competent employees,
- remaining aloof from employees,
- ignoring employees' suggestions,
- tending to be guarded in communications<sup>1</sup>.

<sup>1</sup> Gilbreath and Karimi (2013) (+)

Further evidence comes from two literature reviews. In a meta-analysis of studies about workplace aggression, one review found that supervisor aggression was negatively associated with job satisfaction with a moderate effect sizes: (corrected  $r$  ( $rc$ ) =  $-.38$ ,  $SD$ :  $.07$ ), general health / psychological distress ( $rc$  =  $-.28$ ,  $SD$ :  $.15$ ), emotional exhaustion: ( $rc$  =  $.35$ ,  $SD$ :  $.12$ ), depression ( $rc$  =  $.26$ ,  $SD$ :  $.07$ ), and physical well-being ( $rc$  =  $-.20$ ,  $SD$ :  $.13$ )<sup>1</sup>. Another found that negative behaviours such as control, low support and abuse were associated with stress and poor well-being<sup>2</sup>.

<sup>1</sup> Hershcovis and Barling (2009) (+)

<sup>2</sup> Skakon (2010) (+)

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<sup>1</sup> Gilbreath and Karimi (2013) (+)

## Other work context factors

A number of studies examined other work context factors that directly or indirectly affect the ability of line managers to enhance the well-being of the people they manage.

### Organisational justice

#### Evidence statement 3: Workplace justice

Two studies (both (+)) in different sectors in Denmark and Canada found that higher level of perceived organisational justice and fairness was positively associated with employee well-being. Two other studies (one set in the French health sector (+) and one in a US industrial company (-)) show that the effects of organisational justice are mediated by other workplace factors including the existence of organisational support and trust in supervisors.

- A cohort survey (+) of public sector workers in Denmark showed that a work environment characterised by low levels of justice is a risk factor for depression. The risk of depression increased with lower levels of procedural/relational justice. Adjusted OR = 2.96 for procedural justice and OR = 4.84 for relational justice<sup>1</sup>.
- A wide-scale survey (+) of managers in the pulp and paper, consumer and food services and the public sectors in Canada found that distributive and procedural justice were positively related to organisational satisfaction ( $\beta = .03$  for distributive justice and  $\beta = .56$  for procedural justice  $p < .01$ )<sup>2</sup>.
- A survey of (+) nurses working in haematology or oncology units from cancer centre units in northwest France found that procedural justice and supervisor autonomy support were positively and significantly ( $p > 0.05$ ) related to work satisfaction ( $\beta = 12$ ), organisational identification ( $\beta = 16$ ) and job performance ( $\beta = 28$ ) through their effects on need satisfaction and perceived organisational support<sup>3</sup>.
- A survey of professional employees in a US industrial company (-) showed that trust fully mediates the effects of procedural and informational fairness and transformational leadership on employee job satisfaction<sup>4</sup>.

<sup>1</sup> Grynderup (2013) (+)

<sup>2</sup> Tremblay (2013) (+)

<sup>3</sup> Gillet (2013) (+)

<sup>4</sup> Gilstrap and Collins (-)

## Other work content factors

Although not the prime focus of this review, a few studies did focus on work content issues such as work demands, job design and reward systems.

### Evidence statement 4: Job demand and control

There is moderate evidence from two studies (one (+) and one (-)), both of health care employees and one set in Australia and one in the UK, that excessive job demand and work overload was negatively related to job satisfaction and well-being. A third study (-) set in Australian hospitals found that increased job control and autonomy were positive predictors of job satisfaction. This evidence is partially applicable to the UK.

- A survey of nurses in an Australian healthcare organisation found that job demands were negatively related to well-being and positively related to depression indicating a main effect on mental health, as well as negatively relating to job satisfaction ( $p < 0.01$ ). The differential and curved effects of job demands on well-being or job satisfaction meant that when demands were either too low or too high, well-being and satisfaction were negatively affected<sup>1</sup>.
- An analysis of staff survey data in the NHS in the UK showed that job design and too much work were significant influences on job satisfaction ( $p < .001$ )<sup>2</sup>.
- A survey of nurses in Australian hospitals found positive predictors of job satisfaction were control over their nursing practice, nurse autonomy and the presence of strong nursing leadership on the ward<sup>3</sup>.

<sup>1</sup> Rodwell and Martin (2013) (+)

<sup>2</sup> Buttigieg and West (2013) (-)

<sup>3</sup> Duffield et al (2009) (-)

### Evidence statement 5: Rewards

There is evidence from one (+) wide-scale survey of a survey of managers in the pulp and paper, consumer and food services and the public sectors in Canada that the use of contingent rewards (such as praising good performance) was more effective in promoting positive attitudes at work than using contingent punishments (eg reprimanding poor performance)<sup>1</sup>. This evidence is partially applicable to the UK

<sup>1</sup> Tremblay (2013) (+)

## Conclusions

This review has found a clear positive relationship between the degree and form of line management support and style and employee well-being. While the effect sizes are generally small the influence of the line manager on employee well-being may still be important, although as the studies in this review show, that influence is mediated and moderated to a greater or lesser extent by other workplace factors. The studies in this review also identify some of the key characteristics and behaviours associated with supportive line management including: having an open approachable style; regularly consulting employees treating employees fairly; being flexible about work content organisation and scheduling, placing a high priority on safety and recognising good performance. Negative behaviours such as being aggressive can have a detrimental effect employee on well-being.

# 1 Introduction

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The National Institute for Health and Care Excellence (NICE) has been asked by the Department of Health to develop guidance on management practices to improve the health of employees, with a particular emphasis on the role of line managers and organisational context. The guidance will cover support for managers, their training, and awareness of employee health issues including managing sickness absence, as well as policies and the organisational context. It will be based on the best available evidence and will provide recommendations for good practice for line managers, professionals, commissioners and managers with public health as part of their remit working within the NHS, local authorities and the wider public, private, voluntary and community sectors.

The Institute for Employment Studies (IES) in partnership with The Work Foundation (TWF) and Lancaster University have been contracted to undertake a series of evidence reviews of relevant effectiveness and qualitative studies and an economic analysis to support the production of this guidance.

This report presents the third of these evidence reviews and is a qualitative review of non-intervention studies which explore the workplace factors that facilitate or constrain the ability of line managers to enhance the well-being of the people they manage. The first review examined the evidence on the effectiveness of interventions taken by supervisors that could enhance the well-being of the people they manage and the second examined the evidence on the effectiveness of organisational interventions that aim to support line managers to enhance the well-being of the people they manage.

## 1.1 Background

The health of the working population is vital to the economy and to society, but due to changing demographics of the workforce, western societies are facing great challenges to maintain economic growth and competitiveness. The workforce is ageing with more people living with a longstanding health problem or disability and musculoskeletal disorders (MSDs) and mental health problems account for more than half of all short and long-term disability

([www.realising-potential.org/stakeholder-factobox](http://www.realising-potential.org/stakeholder-factobox)). In the UK, around one in three adults (30 per cent) reported in 2009 that they had a longstanding illness or disability, compared with around one in five adults (21 per cent) in 1972 (ONS No 41; 2009). It is likely that chronic disease rates will continue to rise; much of this is due to an increase in poor life style factors, such as poor diet, smoking and lack of exercise.

Ill-health represents a major economic burden for society due to increased healthcare costs, loss in productivity and sickness absence. Although absence rates have been falling in recent years, it has been estimated that annual cost of sickness absence for UK businesses is nearly £14 billion a year (Vaughan-Jones & Barham 2009). In addition, it is likely that presenteeism, defined as reduced performance and productivity due to ill-health while at work, could cost employers two to seven times more than absenteeism (Hemp 2004).

It has been recognised that improved workplace health has the potential to make a significant contribution to the economy, to public finances and to reducing levels of disease and illness in society (Waddell and Burton 2006). Employers play a key role in helping to protect health and prevent future ill health of working population and the NICE Public Health Guidelines (2009) recommend strategic and coordinated approach to promote employees' mental health well-being.

The health of employees is a major factor in an organisation's competitiveness. Employees in good health can be up to three times as productive as those in poor health; they can experience fewer motivational problems; they are more resilient to change; and they are more likely to be engaged with the business's priorities (Vaughan-Jones & Barham 2010). In Dame Carol Black's review of the health of Britain's working age population it was calculated that improved workplace health could generate cost savings to the government of over £60 billion – the equivalent of nearly two thirds of the NHS budget for England (Black 2008).

An employer's attitude to workplace health is likely to depend on the culture of the organisation and their motivation for investment. According to a large world-wide survey involving 378 organisations (GCC 2013), the main reasons for employers developing wellness strategies were improving employee health (69 per cent), improving work engagement (68 per cent) and also reducing sickness absenteeism (36 per cent) and increasing productivity (27 per cent).

Workplace interventions are usually grouped in two main categories:

- Interventions that aim to improve health safety or managing ill-health of employees, such as sickness absence management programmes, vocational rehabilitation, and return to work schemes.

- Health promotion programmes, which focus on overall well-being, for example smoking cessation, healthy diet and exercise programmes (PriceWaterHouseCoopers LLP Feb 2008).

Reasons why employers invest in workplace health can be:

- legal (to comply with health and safety requirements)
- economic (reducing costs or add value to the business) and/or
- ethical (the sense that is the right thing to do) (Vaughan-Jones & Barham 2010).

It is, however, difficult for employers to measure the extent to which a particular workplace health intervention has had an impact. There is surprisingly little evidence on what the total costs, both direct and indirect, are to business (Bevan 2010). That so few businesses spend time calculating the costs could be one explanation for why relatively few of them are investing in employee health measures (Black 2008). Similarly, academic systematic reviews examining the effectiveness of interventions on sickness absence management and job retention have found programmes to be effective, but may be highly biased due to small number and size of the studies and their moderate or low quality (Palmer et al. 2012; Hamberg-van Reenen et al. 2012).

Workplace health interventions are more likely to be effective in organisations that promote good quality work (Vaughan-Jones and Barham 2010) and producing good quality work is beneficial for physical and mental health resulting in better self-esteem and quality of life (Waddell and Burton 2006). Promoting good quality work involves giving consideration to issues of working practices and job design (Bevan 2010). The Macleod Review on employee engagement (July 2009) has revealed how this 'feeling good' factor is strongly influenced by good leadership. The main factors influencing good quality of work are:

- leaders who support employees see where they fit into the bigger organisational picture
- effective line managers who respect, develop and reward their staff
- consultation that values the voice of employees and listens to their views, and
- concerns and relationships based on trust and shared values.

The HSE's Management Standards also highlight the association between line management and employee ill-health (HSE, 2007). The standards cover six key areas of work design that, if not properly managed, are associated with poor health and well-being, lower productivity and increased sickness absence:

- **Demands** – this includes issues such as workload, work patterns and the work environment.
- **Control** – how much say the person has in the way they do their work.
- **Support** – this includes the encouragement, sponsorship and resources provided by the organisation, line management and colleagues.
- **Relationships** – this includes promoting positive working to avoid conflict and dealing with unacceptable behaviour.
- **Role** – whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles.
- **Change** – how organisational change (large or small) is managed and communicated in the organisation.

### 1.1.1 Good practice guidelines

Most good practice guides related to workplace well-being cover the management of the mental health of employees (including NICE guidance, on promoting mental health at work, NICE (2009)). However some good practice guides have the potential for wider applicability and to some extent cover the role of line managers.

#### British Heart Foundation

The British Heart Foundation (2012) advises that training for managers should aim to enable them to:

- Develop skills to recognise when a person needs support at work and gain confidence in handling associated management situations
- Identify sources of potential stress and put systems and practices in place to reduce its impact on staff
- Achieve reduced levels of stress for staff and enhanced effectiveness of teams
- Lead successful teams contributing to a productive and profitable organisation
- Recognise potential problems in themselves and their staff and know what to do
- Communicate more effectively when handling challenging management situations
- Recognise how management style and the culture of the organisation can impact on the well-being of staff
- Apply learning to reduce levels of stress and enhance the effectiveness of the team

## Chartered Management Institute

The Chartered Management Institute believes that an holistic approach to management can generate lower sickness absence levels among employees<sup>2</sup>. Such an approach takes into account job design, management styles and working environment to improve the productivity of an organisation.

### *Job Design*

Good job design increases the employee's perception of 'control' over their working environment. Research suggests that employees who feel externally controlled have a less positive attitude to their work than those who have a higher degree of role autonomy and thus in greater control of their working environment.

### *Management Styles*

A high level of reciprocal trust between manager and employee and innovative and accessible management styles are beneficial in helping to reduce absence rates. CMI research shows that an authoritarian style of management significantly depresses all aspects of job enjoyment and has a negative impact on motivation health and productivity levels.

### *Environment*

A well-managed work environment also contributes to well-being in terms of good ventilation, appropriate temperature, noise and light control, and good hygiene of air and water.

## XpertHR

According to XpertHR<sup>3</sup>, line managers are likely to have an impact on the mental well-being of employees in their team in the following ways:

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<sup>2</sup> Chartered Management Institute Best Practice: Healthy Workplace, Healthy Workforce – Guidance for Managers <http://www.managers.org.uk/page/best-practice-healthy-workplace-healthy-workforce-guidance-managers>.

<sup>3</sup> Source: XpertHR, Good practice manual : well-being [www. Xperthr.co.uk](http://www.Xperthr.co.uk)

- **Direct impact:** Line managers can influence how employees feel about coming to work, particularly if they do not make clear what they expect employees to do.
- **'Gatekeeper'.** Line manager can influence whether employees are protected from, or exposed to, excess pressure.
- **Identifying problems:** A line manager who knows the individuals in his or her team well is best placed to identify whether or not an employee is struggling with his or her work or showing symptoms of stress or another mental-health problem.
- **Taking action:** Line managers have an important role in addressing mental-health issues, particularly in managing sickness absence and return to work following sickness absence.

Employers should strengthen the ability of line managers to foster mental well-being among their team by helping them to build a supportive culture and management style. This means promoting a culture that encourages participation, delegation, constructive feedback and coaching. Training is key, because it helps line managers to understand how their management style and practices can promote, or impair, the mental well-being of their employees.

Training for line managers should also cover dealing with mental ill health, including enabling them to:

- identify and respond sensitively to workers' concerns;
- recognise symptoms of mental ill health, including when an employee is having more than just a 'bad day';
- understand the impact of employees' mental-health issues on the workplace and colleagues;
- have difficult conversations with employees who may be experiencing difficulties in or beyond work; and
- understand when to refer a worker to other sources of help and support, including occupational health.

## 1.2 Aim of this review

The aim of this third review is to answer the following central research question:

*What workplace factors facilitate or constrain the ability of line managers to enhance the well-being of the people they manage*

As in the previous two reviews our search strategy focussed on evidence covering line managers (ie an employee with direct responsibility for the performance, development and/or welfare of one or more other employees) at any level and the impact they have on employee well-being. Well-being was defined as the emotional, physical and mental health and happiness of individuals as it is affected by a number of factors in the workplace which could include organisational, managerial, social and physical dimensions.

### 1.3 Structure of the report

This report covers:

- The methodology we adopted to conduct this review
- The findings from the review
- A discussion of the evidence.

In addition a series of Appendices provide further information on our approach and a bibliography of the studies included and excluded from this review.

## 2 Methodology

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In this chapter we set out our approach to conducting this review.

### 2.1 Overall search strategy

It was agreed with NICE at the outset that a joint search strategy would be adopted for all three research questions which would cover:

- Effectiveness studies (for Review Questions 1 and 2)
- Qualitative studies (for Review Question 3)
- Economic studies (for the economic review and modelling report)
- The search for relevant evidence covered a number of elements:
  - A search of key literature databases
  - A search of the websites of relevant organisations
  - Citation searches of material included in the reviews
  - A review of material submitted through the NICE Call for Evidence
  - Writing to any known researchers and experts in the field not already contacted during the Call for Evidence to ask for relevant material.

### 2.2 Inclusion and exclusion criteria

All the papers were reviewed against agreed inclusion and exclusion criteria. The agreed criteria are set out below.

#### 2.2.1 Inclusion criteria

##### Populations included:

- All adults over age 16 in full or part-time employment, both paid and unpaid

- All employers in the public, private and 'not for profit' sectors who employ at least one employee.

#### Questions to be addressed by included studies:

- What is the role of the organisational culture and context in supporting line managers, and in turn their employees? What is the role of organisational policy and processes? [Covered by Review 2]
- How can line managers promote the health and well-being of employees? Which interventions or policies are most effective and cost effective? [Covered by Review 1]
- Are there actions or activities by line managers that discourage or hinder the health and well-being of employees? How can line managers support and motivate employees? [Covered by Reviews 1 and 3]
- How can line managers be best equipped to identify any employee health and well-being issues? How can line managers identify and support distressed employees? [Covered by Reviews 1, 2 and 3]
- How can high-level management promote a positive line management style that is open and fair, that rewards and promotes positive behaviours and that promotes good working conditions and employee health and well-being? [Covered by Review 2]
- How can line managers be best supported and provided with good line management themselves? [Covered by Reviews 1 and 2]
- Which types of support and training for line managers are effective and cost effective? [Covered by Review 2]
- What is the role and value of occupational health services in supporting line managers? Are these services effective and cost effective? [Covered by Reviews 1 and 2]
- What is the business or economic case for strengthening the role of line managers in promoting the health and well-being of employees? [Covered by Reviews 1 and 2]

#### Locations included:

- Developed/OECD countries
- Workplace settings.

**Time period considered:**

- 2009 onwards

**Study types included:**

- Qualitative studies including those based on:
  - Document analyses
  - Focus groups
  - Interview studies
  - Observation and participant observations
  - Cross-sectional surveys, with a minimum response rate of 25 per cent.
- Good practice guides

**2.2.2 Exclusion criteria****Excluded population groups**

- Self-employed individuals
- Sole traders
- Unemployed individuals.

**Interventions and policies excluded**

- Intervention or support that employees access on their own, without input from the employer, organisation or line manager
- Statutory provision to employees
- The effectiveness of specific interventions to promote physical activity, mental well-being and smoking cessation in the workplace, and to manage sickness absence and the return to work of those who have been on long-term sick leave.

**Locations excluded:**

- Developing or non-OECD countries

**Study types excluded:**

- Non English language studies
- Dissertations

## 2.3 Searching literature databases

A series of databases were searched by an Information Scientist at the Lancaster University library between 19 October and 4 November 2013, see Table 2.1.

**Table 2.1: Literature databases searched**

Database Name	No. of title and abstracts downloaded to EndNote database
MEDLINE	1,998
PsycINFO	2,999
Academic Search Complete	1,067
Business Source Premier	1,858
ABI Inform	102
Proquest Digital Dissertations	62
EconLit	106
Social Policy and Practice	340
Web of Science	1,500
EMBASE	73
	10,105

*Source: IES/Work Foundation/Lancaster University, 2013*

The search strategies were designed to cover: the workplace, the role of line managers and supervisors, health and well-being, organisational culture, and management style. Examples of the strategies used are set out in Appendix 1 and the results set out in Table 2.1. The titles and abstracts identified through the searches were recorded in an EndNote database.

### 2.3.1 Initial screening

The titles and abstracts identified through the search were screened through a two-stage process to identify papers that should be considered for full paper screening.

### Initial sift (Sift 1)

The titles and abstracts of the 10,105 papers identified through the search were initially screened by the Information Scientist at Lancaster University using the population, setting and relevance inclusion and exclusion criteria and to exclude studies not published in English. Those that passed were marked for further consideration. The first 200 papers identified through the initial search were screened by a second member of the review team to ensure that the inclusion/exclusion criteria were being applied consistently and no discrepancies were identified. Sift 1 resulted in 2,286 papers being identified for more detailed title and abstract screening.

### Second sift (Sift 2)

The titles and abstracts of the 2,286 references selected for further consideration were screened in more depth by five members of the review team at IES and the Work Foundation, using an inclusion/exclusion checklist based on the Public Health Guidance Methods Manual (NICE, 2012) (see Appendix 2). Half the references were screened by two different researchers and any differences resolved in discussion with a third. As a result of this process, 532<sup>4</sup> references were identified for full paper screening. At this point papers were categorised as relevant to either Review Question 1, 2 or 3, although 30 failed to be categorised.

### 2.3.2 Full paper screening

The full papers of all the studies that came through the initial screening process were ordered and by the time of writing 525 of the 532 identified for full paper screening had been retrieved<sup>5</sup>. As part of the retrieval process the authors of papers unobtainable through the Lancaster University library were contacted and asked to send a copy of their paper to the research team. Retrieved papers were appraised by two members of the review team using the full inclusion/exclusion checklist to

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<sup>4</sup> This figure includes papers identified through the Call for Evidence website searches and citation searching not otherwise included which had been full paper screened

<sup>5</sup> Where possible, the research team have written to the authors and/or publishers of papers unobtainable through Lancaster University library to request a copy of their full paper.

assess the content of the articles and whether they should be included in the review (see Appendix 2).

Given the number of potential papers the inclusion and exclusion criteria were revised for Review Question 3 to exclude papers published prior to 2009 (when the previous NICE workplace review was published, Blake et al, 2009) and to exclude survey-based studies with response rate less than 25 per cent and dissertations.

As for the other two reviews, where there was a discrepancy between the assessments of the two reviewers, a further review was conducted by an additional member of the team. The progress of papers through the full paper screening process was tracked using a spreadsheet adapted for this project from one devised by the University of Kent.

The spreadsheet was used to identify the first exclusion reason for those papers excluded.

## 2.4 Website searches

In addition, the following websites were searched for relevant material and seven items were identified as potentially meeting the inclusion and exclusion criteria and allocated for full paper screening.

### UK

- Acas
- British Chambers of Commerce (BCC)
- British Psychological Society
- Centre for Employment Studies Research
- Centre for Mental Health
- Chartered Institute of Environmental Health
- Chartered Institute for Personnel and Development
- Chartered Institute of Management
- Department of Health
- Department for Work and Pensions
- Engineering Employers Federation

- Health and Safety Executive
- Institute for Occupational Safety and Health
- London Health Commission
- NICE (including former Health Development Agency document search) and NICE Evidence
- Oxford Health Alliance
- Public Health Observatories
- Scottish Government
- UK Commission for Employment and Skills / Investors in People
- Welsh Government
- Xpert HR

#### International:

- EU-OSHA
- Eurofound
- EuroHealthNet
- European Commission
- Finnish Institute of Occupational Health
- Institute for Work and Health
- International Commission of Occupational Health
- Liberty Mutual Research Institute for Safety
- Organisation for Economic Co-operation and Development
- The National Institute for Occupational Safety and Health
- World Health Organisation

Seven reports and papers were identified as potentially relevant to at least one of the review questions and a copy obtained for full paper screening.

## 2.5 Citation searching

A further element of the search process involves checking whether the papers included in each review have been cited by subsequent researchers and screening those references to ensure the review covers the most up-to-date material. Citations of the 58 papers included in this review were searched and 69 additional references were screened which resulted in seven additional papers being included in this review.

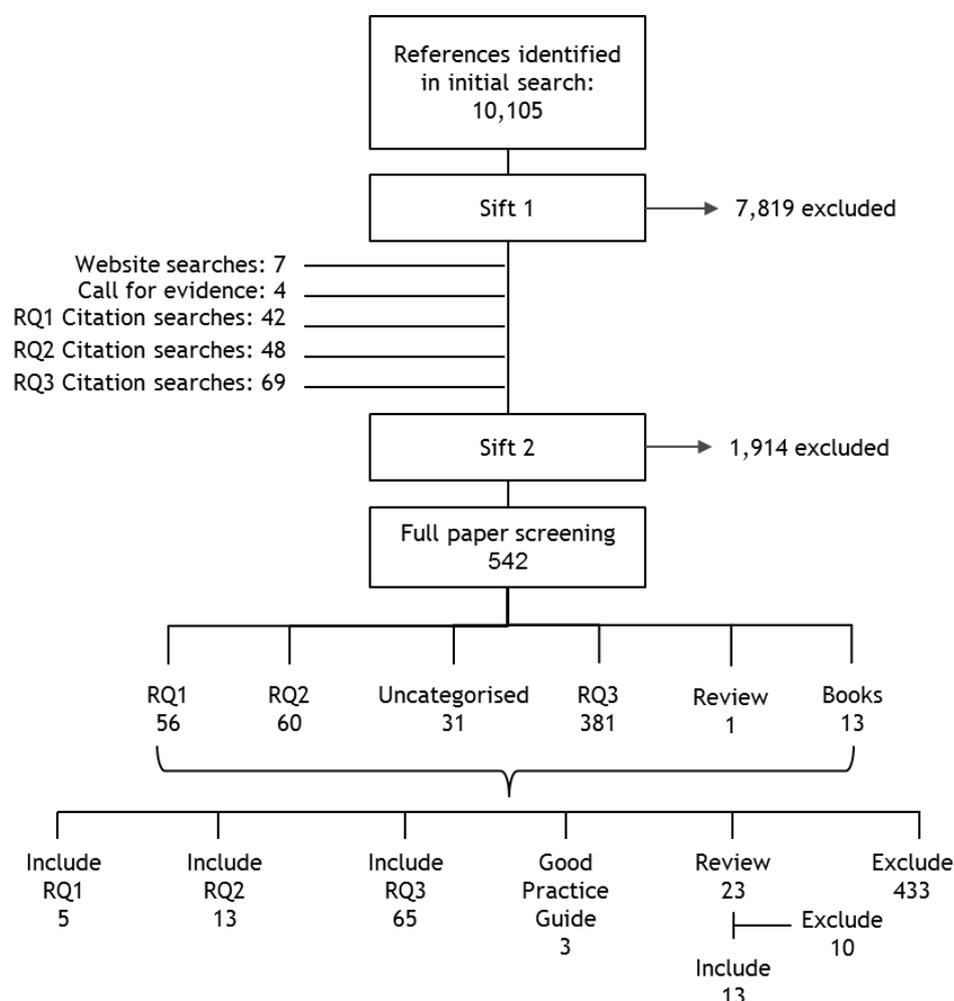
## 2.6 Call for Evidence

A further process involved a Call for Evidence issued by the NICE review team. The call was issued on 13 September 2013 and closed on 16 October 2013 and asked for interested parties to send in evidence of relevance to the reviews. This material has been reviewed by the research team and two of the studies identified were found to be relevant to this Research Question (in addition to the two that were included in the previous). These papers were screened following the same process outlined above and one was subsequently included in this review.

## 2.7 Outcome of the search process

Following the searching and screening process a total number of 532 papers were identified for full paper screening. All but seven of these papers have been obtained and screened and the results are summarised in Figure 2.1. Five papers were included in the first review, 12 in the second review and 65 have been included in this third review. In addition 21 literature reviews were identified as being relevant to this review and screened for potential inclusion as a separate element of the review from the primary evidence papers. The results of this aspect of the review are set out in Chapter 4.

Figure 2.1: Outcome of search process for Review Question 3



Source: IES, TWF, Lancaster University

## 2.8 Data extraction

The 58 papers identified for inclusion in this review were assessed for quality and the data extracted and presented in an evidence table. The evidence from each paper was extracted and the quality of the paper appraised by a member of the IES/TWF review team and then checked and re-appraised by another. The narrative statements of evidence were written by a third member of the team.

### 2.8.1 Quality appraisal

Papers were assessed using a checklist based on the quality assessment in the NICE Public Health Guidance Methods Manual (NICE, 2012). As a result papers were graded either:

- ++ All or most of the checklist criteria have been fulfilled; where they have not been fulfilled the conclusions are very unlikely to alter
- + Some of the checklist criteria have been fulfilled, where they have not been fulfilled, or not adequately described, the conclusions are unlikely to alter and
- Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

The checklist is included in Appendix 2.

### 2.8.2 Data extraction

For each paper the evidence table, which follows the format set out in Public Health Guidance Methods Manual (NICE, 2012) summarises:

- the key research aims
- the study quality rating
- the research design and methodology
- the findings that contribute to the research questions
- limitations and gaps
- summary information about authors, publication etc.

## 2.9 Evidence synthesis

The results of the data extraction and quality assessment for each of the included effectiveness studies are presented in a narrative summary and an evidence table (Chapter 3). The findings from studies have been synthesised and where appropriate grouped thematically and an evidence statement(s) generated for each theme (Chapter 4).

The synthesis and evidence statements were initially drafted by one member of the review team, circulated to all other members of the team and revised on the basis of comments received. At this point the relevance of the findings to the UK context was also assessed, based on the following criteria:

- The population involved
- The setting, including the country or countries and type of workplaces in which the study took place

- The intervention and whether it would be appropriate for the UK
- The reported outcomes.

## 2.10 Excluded studies

Appendix 4 provides the reference details of 286 excluded studies from the full paper screening for Review Question 3. Studies were excluded because they failed to meet at least one of the inclusion criteria. As soon as they failed to meet one of the criteria they were excluded. In the appendix the references are ordered by the criterion by which they were excluded. They may have failed against other criteria too.

One hundred and seventy three papers were excluded because they were published prior to 2009, and 37 because they were dissertations did not cover the right population (eg were not employees). Five were in the wrong setting (ie not based in the OECD or a workplace), 10 did not have a clear well-being measure and 20 were rejected on grounds of relevance, eg they did not study the influence of line managers' actions on the health and well-being of the people they managed. A further 21 were excluded because the surveys on which they were based had a response rate of less than 25 per cent. Finally eight were opinion pieces or otherwise not a study, eight were unobtainable (including one book) and four were duplicates of papers included elsewhere.

## 3 Findings

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A total of 58 studies met the criteria for inclusion in this review and focussed on workplace policies, practices that influenced the ability of line managers to enhance the well-being of the people they managed. The studies are summarised below and the implications of the findings and evidence statements are discussed in Chapter 4. The evidence tables for each of the included studies are in Appendix 1.

### 3.1 Summaries of the included studies

#### 3.1.1 Airila et al. (2012)

The central aim of the study based on two surveys of Finnish fire fighters was to examine whether work engagement, as a motivational well-being concept was associated with work ability after adjusting for age, life-style and work related factors, and the baseline work ability 10 years earlier.

##### Method

A questionnaire was conducted with Finnish fire fighters in 1999 (when the baseline work ability index (WAI) was measured) and in 2009 (other variables present in the study were measured). The study focused on both the physical and mental conditions of fire and rescue work, and the well-being of professional fire fighters. The 10 year interval between data collection was based on practical decisions and financial arrangements and could not be influenced by the researchers.

Work ability was measured twice by the WAI questionnaire, the most widely used and validated measure of workability. The survey looked at seven dimensions of work ability: subjective estimate of current and lifetime's best of work ability, subjective work ability in relation to job demands, the number of current diseases diagnosed by a physician, subjective estimation of working impairment due to diseases, sick leave during the past year, own prognosis of work ability two years from now, and psychological resources.

Lifestyle variables including alcohol consumption, BMI, smoking and sleep problems were studied.

Working conditions were measured with four scales: physical workload (four items), job demands (three items), supervisory relations (five items covering supervisory support, supervisory control, and relationships between employees and supervisors.) and task resources (three items).

Work engagement was measured with a Finnish translation of the short version of the Utrecht Work Engagement Scale, the most widely used and validated measure for work engagement (nine items of three sub-scales: vigour, dedication and absorption).

The sample consisted of male fire fighters who had responded to the questionnaires in both 1999 and 2009 and were still employed in 2009 (n=403). In 1999, 1,124 questionnaires were posted, and 72 per cent (n=794) returned the questionnaire. In the follow up 10 years later, 68 per cent (n=721) returned the questionnaire.

A total of 148 of the respondents from 1999 did not answer in 2009. The drop outs were older, had lower education, smoked more often, had a lower WAI, and their medical condition was slightly weaker than those who responded both times, indicating a slightly better lifestyle and work ability among the remaining sample for this study. In 2009, the average age of the study population was 48.5, 80.9 per cent (n=321) had primary or elementary school education, and 19.1 per cent (n=76) had secondary education. A large majority (n=315) had a fire fighter qualification, 29.4 per cent (n=105) had a sub-officer qualification, and 9.8 per cent (n=35) a fire chief qualification. Mean work experience in the fire and rescue services was 25.3 years.

Exploratory factor analysis was used to examine whether the different scales of working conditions could be distinguished from each other. Linear regression analysis was used to examine whether lifestyle and work related factors and work engagement were related to the WAI.

## Outcomes

All variables, except alcohol consumption, were significantly correlated with the total WAI score. Work engagement was significantly related to the total WAI score and all its sub-dimensions, except number of diseases.

Antecedents of the total work ability index: sleep problems were negatively and physical exercise positively related to work ability. Alcohol consumption, BMI and smoking were not related to the total WAI score. The results also showed a positive

relationship between work engagement and work ability. Work engagement was positively related to three sub-dimensions of the WAI: good current work ability, good work ability in relation to job demands, and higher levels of psychological resources.

However, supervisory relations were not associated to any of the sub-dimensions of the WAI.

### Limitations

The study was assessed as (+). It was based on self-report measures, which may cause systematic measurement errors – although baseline work ability was controlled for in the study.

Like life-style and other work-related variables work engagement was only measured once and therefore the analysis was cross-sectional and no causality between work ability and work engagement can be determined.

### Applicability to the UK

The study was set among fire fighters in Finland and therefore has only partial applicability to the UK.

### 3.1.2 Ashby and Mahdon (2010)

The aim of this mixed methods study was to explore the effect of different employee and work-related factors on sickness presence and critically to establish if sickness presence was associated with manager-assessed and self-reported levels of performance.

### Method

The study took place in a private health care company in the UK and involved a survey of employees and interviews with employees and managers.

A total of 501 employees took part in the survey, from four offices. The response rate was not stated. The majority were female (68 per cent) of white ethnic origin (98 per cent) and worked full-time (86 per cent). Employees were aged between 20-69 years, with a median age of 36 years. Just under half were married or in a civil partnership (45 per cent) and a further 24 per cent lived with their partner (unmarried). Almost half of the sample had customer service or sales occupations (49 per cent), 30 per cent were managers or professionals and 13 per cent had administrative or secretarial occupations. Just over a quarter of respondents (26 per cent) had a

supervisory role. Seventy-five per cent of employees reported currently suffering from one or more health problems. In terms of the co-prevalence of health problems, of the 75 per cent of employees reporting health problems, 34 per cent suffered from one condition, 28 per cent suffered from two, 19 per cent suffered from three, seven per cent suffered from four and 12 per cent suffered from five or more.

In the survey:

- Three items were used to create the perceived pressure to attend work when unwell measure ( $\alpha = 0.83$ ), low score (1) indicated strongly disagree, and high score (7) strongly agreed. Sickness performance was adapted from the Stanford six score, based on six items ( $\alpha=.83$ ), high score indicated strongly agreed, and low score indicated that they strongly disagreed
- Ten items were averaged to create the measure of line manager support ( $\alpha=.95$ ) High scores indicated positive view of line manager, low score they disagreed
- Four items were averaged to create the measure of team and colleague support ( $\alpha=.73$ )
- Three items averaged to create measure of complexity of work ( $\alpha=.81$ )
- Four items were averaged to create measure of skills use and development opportunities ( $\alpha=.74$ )
- Five items were created to measure control and autonomy ( $\alpha=.89$ )
- Three items were averaged to create the self-reported anxiety and psychological well-being measure ( $\alpha=.75$ )
- Four items were averaged to create the measure of people experiencing financial difficulties ( $\alpha=.85$ )
- Social contact and support was measured by two items
- The perceptions of the organisation caring for the health and well-being of employees was ( $\alpha=.94$ ).

Unless otherwise stated, high numbers indicated positively agreeing with the statement and low scores indicated strongly disagree.

In addition, interviews were conducted with 25 employees (including managers) from three teams drawn from different departments within the organisation and with different demographic profiles in terms of age and gender. Detailed demographic and role information was not provided.

## Outcomes

The key factors identified by employees in the qualitative results that increased the likelihood of coming to work unwell were:

- The type and severity of the illness (including a distinction between psychological and physical health conditions)
- Pressure from senior managers, line managers, team and/or self to come into work when unwell to prove their illness
- Responsibility towards the team – the idea of not letting the team down, and to be viewed in a positive light as showing their commitment
- Ability to adjust when unwell, was the extent to which the illness affected the employee's ability to carry out their specific role and whether this affected attendance at work
- There was no one to cover their workload and feeling under stress at work, so high workload affected sickness presence especially by those who felt under a great deal of stress at work
- Commission and pay made some employees reluctant to take time off work when unwell because this could adversely affect their individual performance targets and financial rewards.

Employees' views on managerial and organisational support for their health and well-being varied across and within teams. Positive perceptions of managerial support were linked to line managers supporting the work-related conditions of workplace well-being. Positive perceptions of organisational support for employees' health and well-being included provision of employment benefits, pay, staff voice, opportunities for progression. Negative perceptions included lack of control, strict sickness absence procedures and aspects of the work environment.

The key quantitative results related to health and well-being were, that:

- 31 per cent of employees reported that their work had a negative impact on their health
- 54 per cent of employees agreed that as an organisation AXA PPP cared about the health and well-being of its employees, however 24 per cent disagreed
- 35 per cent reported there was no one to cover their work if they were absent
- 71 per cent they were worried about placing an extra burden on the team

- 41 per cent felt under a great deal of stress at work
- 27 per cent said they put themselves under pressure to come to work when unwell
- 28 per cent felt under pressure from senior managers
- 43 per cent were unable to adjust their work if unwell.

Self-reported sickness absence was low (18 per cent), one or more days off in the previous four weeks. Mean sickness absence was 8.15 days. Forty-five per cent of employees reported one more day of sickness presence in the last four weeks. Number of days sickness presence reported ranged from 0-25 days.

People with a higher number of days of sickness absence also had a higher numbers of days sickness presence.

Sickness presence was significantly related to performance – those with fewer days' sickness presence had higher performance ratings. Physical health conditions compared to mental health conditions were a better predictor of sickness presence.

Feeling under pressure from line managers, senior managers and colleagues to come to work when unwell and work related stress, were two of the biggest predictors of sickness presence and sickness performance.

Personal finances ( $p=0.033$ ), work related stress ( $p=0.002$ ) and pressure from managers ( $p=0.005$ ) were significant predictors of sickness presence. The perceived impact of sickness presence on performance was significantly predicted by: gender ( $p=0.001$ ), ability to adjust work ( $p<0.001$ ), pressure from managers ( $p=0.001$ ).

Two variables were significant predictors of perceived sickness absence: presence of physical health conditions ( $p=0.03$ ), and pressure from managers ( $p<0.001$ ). Employees with a physical health condition and who felt under pressure from senior managers, line managers and the team to come to work when unwell were significantly more likely to report a higher number of days of sickness absence compared with those without a physical health condition and less pressure to come to work when unwell. This model also included the presence of mental health conditions (although not a significant individual predictor in itself) and explained six per cent of the variance in self-reported absence.

Two variables were significant predictors of recorded sickness absence: pressure of mental health conditions ( $p=0.01$ ), and pressure from managers ( $p=0.002$ ). Employees with a mental health condition and who felt under pressure from senior managers, line managers and colleagues to come to work when unwell were significantly more likely to report a higher number of episodes of sickness absence

compared with those without a mental health condition and less pressure to come to work when unwell. This model explained 10 per cent of the variance in the number of episodes of sickness absence.

### Limitations

The study was assessed as (-). The review team noted that some of the detail of the survey administration was unclear. The study was based in just one organisation and little was known about the general culture of that organisation. In addition the data were not analysed by occupation.

### Applicability to the UK

Although just based in one organisation this study is applicable to the UK.

### 3.1.3 Beauregard (2011)

This study tested a model which investigated the direct and indirect routes by which work-home culture may affect employee well-being. It used a survey of local authority employees in the UK to empirically examine three hypotheses: work-home culture predicting employee strain directly; the effect of work-home culture on strain may be mediated by work-home interference; or work-home culture may moderate the relationship between work-home interference and employee strain. The study also investigated the presence of sex differences in the relationship between home-work culture.

### Method

All employees in a local government organisation in the south of England were sent a postal survey. The questionnaire was designed to measure:

- *Employee strain*: using Gotlieb et al. (1998) 10 item scale (extent to which respondents experience anxiety, fatigue, depression and overall strain the last six months, using a Likert scale with a Cronbach's alpha of 0.95).
- *Organisational work-home culture*: using Thompson's et al., (1999) three component scale (measuring managerial support, negative career consequences and organisational time demands, with Cronbach's alpha scores of 0.91, 0.92 and 0.94 respectively).
- *Work interference with home*: measured using the six time-based and strain-based items from Carlson et al. (2000) multidimensional measure of work and family conflict. Items assessed the extent to which respondents experienced both time

and strain based interference from the work to the home domain. The reliability alpha for this scale was 0.92.

- *Home interference with work* – measured using the six time-based and strain-based items from Carlson et al. (2000) multidimensional measure of work and family conflict. Items assessed the extent to which respondents experienced both time and strain based interference from the home to work domain (Cronbach's alpha 0.84).

## Outcomes

The response rate was 29 per cent (N= 224). The majority of respondents were women (62.3 per cent).

Men reported significantly higher levels of organisational time demands ( $t=2.09$ ,  $p<0.05$ ) than women. Men also worked significantly longer hours than women ( $t=3.68$ ,  $p<0.001$ ).

Work interference with home fully mediated the effects of organisational time demands on strain for women, and partially mediated the effects of organisational time demands on strain for men. Neither managerial support nor negative career consequences were mediated by either work interference with home or home interference with work.

The two-way interaction between work interference with home and managerial support was significant ( $\beta = -0.16$ ,  $p<0.05$ ). The relationship between work interference with home and employee strain was weaker in the presence of high levels of managerial support ( $\beta = 0.29$ ,  $p<0.01$ ) than in the presence of low levels of managerial support ( $\beta = 0.65$ ,  $p<0.001$ ). Managerial support did not moderate the link between home interference with work and strain.

A significant three-way interaction predicting strain was found among sex, managerial support and work interference with home ( $\beta = -0.17$ ,  $p<0.05$ ), the positive relationship between work interference with home and strain was weaker in the presence of high managerial support, more so for women than men. There was also a significant difference between the slopes for high managerial support women and low managerial support women ( $t = -2.71$ ,  $p<0.01$ ). Significant interactions were found between sex, organisational time demands and both work interference with home ( $\beta=0.18$ ,  $p<0.05$ ) and home interference with work ( $\beta=-0.21$ ,  $p<0.05$ ). The positive relationship between work interference with home and strain was stronger in the presence of high organisational time demands, more so for men than women. There was a stronger link between home interferences with work and strain for women rather than men, when organisational time demands were high.

The author concluded that an organisation's support for work-home issues had a significant impact on employees' well-being. This effect took place indirectly for women, by influencing their level of work-home interference, and operated both directly and indirectly for men.

### Limitations

This study was assessed as (++). The authors thought that a larger sample size would have produced better results and would also help to ensure greater accuracy and generalisability in the future, as would a higher response rate than that obtained by the present study.

As the respondent sample was composed entirely of public sector employees, it is debatable as to whether the findings obtained can be generalised to other populations such as individuals employed in the private sector.

In addition, the review team noted that the study was located in south of England, different regions in the UK have different ethnic/age/household characteristics, so it may not be representative of the UK as a whole.

### Applicability to the UK

This study was based in a public sector organisation in southern England and while similar conditions may be found in other parts of the UK public sector, the findings may not be applicable to private sector workplaces or a workforce with a different ratio of men to women.

#### 3.1.4 Berkman et al. (2011)

This face-to-face survey of 392 employees and 56 matched managers in four care homes in Massachusetts sought to determine whether employees in extended care settings whose managers are supportive, open, and creative about work-family needs, such as flexibility with work schedules, have lower cardiovascular disease (CVD) risk and sleep longer than their less supported counterparts.

### Method

The study employed three forms of data collection: qualitative analysis of semi-structured face-to-face interviews with managers to establish a score for openness and creativity in relation to work/family needs, using a mixture of closed questions about existence of policies and open questions about managers' use of them; data from a face-to-face administered employee survey; and blood tests.

Management scores for openness and creativity in addressing work/family needs were assessed by two interviewers independently coding qualitative elements of manager interview transcripts:

- **Openness.** Each manager received a score of either 0 or 1 according to whether they reported that they did (1) or did not (0) do the following: (a) help employees with their jobs when needed, (b) adjust employees' schedules to suit their work-family needs, and (c) discuss family leave with job security.
- **Creativity.** Each manager received a score of either a 0 or 1 according to whether they reported that they did (1) or did not (0) do the following: (a) acknowledge the possibility of creativity in applying current policies, and (b) report experience applying formal policy creatively.

Employee outcome measures were:

- CVD risk factors covering self-reported current smoking, obesity measured via combining self-reported height and weight measurements
- Average sleep measured over a seven day period through a wrist monitor
- High total cholesterol measured during clinical tests, and presence of either a diagnosis of diabetes or high blood sugar
- Blood pressure reading measured during the survey interview.

Control variables used for employees were age, gender, education, race/ethnicity, hours worked per week, hourly wage, regular night work, and work site.

The sample had a mean age of 41 years, and 84.5 per cent were women. They were predominantly low-wage employees, with a mean hourly wage of \$15.73. The employees were from diverse racial and ethnic backgrounds, with about 60 per cent from Black, Hispanic, or another minority groups. About eight per cent of the interviews were conducted in Haitian Creole, just over half of employees had a child under 18 in the household and over a quarter had two or more CVD risk factors.

The response rates were 76.6 per cent (employees) and 92 per cent (managers).

The study examined the bivariate relation between manager score and employee characteristics and outcomes and correlation between manager score and employee-reported assessment of their jobs and workplace policies in relation to work/family concerns. Multilevel regression analysis was carried out on the relationship between exposure to a manager with low-middle work/family balance score compared to one with a high score and the outcomes.

## Outcomes

Manager score on openness/creativity in handling work/family issues was significantly associated with employee CVD risk. Among employees with managers who scored low on the scale, 28.6 per cent had two or more risk factors, whereas only 18.5 per cent of employees whose managers scored high had two or more risk factors ( $p = .02$ ).

Employees with managers who scored low or in the middle had odds ratios of 2.11 (95 per cent CI [0.90, 4.90]) and 2.03 (95 per cent CI [1.02, 4.02]), respectively, of having two or more CVD risk factors compared with employees whose managers had high scores on creativity and openness with dealing with work/family issues.

Employees whose managers scored low on openness and creativity slept almost 29 minutes less per day than employees whose managers scored high ( $p = .03$ ).

There was no evidence that these risks were elevated among employees who had children under 18 living in the household, nor were they mediated by employee perceptions of work/family spill over or job strain.

## Limitations

This study was assessed as (+). The study is cross-sectional so absolute causality cannot be confirmed.

The four extended care facilities were used because they volunteered to take part in the study – the researchers did not conduct a systematic selection of facilities.

It is possible that non-respondents were different from study participants in ways that may have caused bias.

Managers were not asked about openness and creativity with regard to how they applied other work policies (career advancement, etc.), so we cannot say that this attribute is specific to work/family issues. Such managers may be more open and creative in many situations, and we may have identified a more general attribute of managers.

It is possible that employees with better health and more resources learn of the attitudes and practices of managers and move roles to work in improved settings.

The review team noted that the authors stated that they approached all full-time employees in the nursing homes. However the data show that 25 per cent of respondents worked part-time. This inconsistency is a cause for concern. Equally if

all employees approached were full-time this might miss the potentially different perspective on work/family needs that part-time employees may have.

### Applicability to the UK

This study was based in the USA with a large proportion of the sample from specific immigrant groups and therefore partially applicable to the UK.

### 3.1.5 Bernhard and O'Driscoll (2011)

This study investigated the emergence and consequences of ownership feelings among employees in different leadership style environments in 52 small companies in Germany. Specifically, the study examines the relationship of leadership style with psychological ownership and the mediating role of psychological ownership in creating favourable organisational attitudes and behaviours.

#### Method

The study was based on a survey of owners of 52 family businesses with 20 employees or fewer and their employees.

Questionnaires were distributed and voluntarily completed by non-family employees. It measured:

- *Psychological ownership of the organisation*: a seven item instrument developed by Pierce et al. (1992), and translated into German. Seven point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha of .91.
- *Psychological ownership of the job*: Four-item measure translated into German, with a Cronbach's alpha of .88.
- Family business owner-managers' *Leadership styles* assessed by non-family employees on Avolio and Bass' (1995) Multi-Factor Leadership Questionnaire. Testing the scale's internal validity yielded Cronbach's alphas for transformational, transactional and passive leadership of .96, .76 and .85 respectively.
- To measure *affective organisational commitment* Allen and Meyer's (1990) scale was used – German version had already been validated. Contains five items on a Likert scale ranging from strongly disagree (1) to strongly agree (7). Cronbach's alpha of .90.
- A global rating of employees' *job satisfaction* using two items from a validated translated survey. Cronbach's alpha for this measure was .82.

- *Turnover intentions* were assessed by three items compiled by Adams and Beehr (1998). Rated on seven point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The internal reliability was alpha of .91.
- Family business owner-managers independently provided an evaluation of employees' *in-role performance and OCB*. Five items were used from 1 (never) to 5 (always). The five item measure displayed an alpha of .90.
- One factor model was used for *OCB*, for which the internal reliability coefficient for *OCB* was .90.

Responses were received from 50 out of 52 owner-managers and 229 non-family employees, of which 224 were matched. On average business had 9.8 employees, all employed in white collar jobs. The mean age of participating employees was 39 years (SD = 12.04 years, range 18-64). Average length of tenure was 9.1 years (SD = 10.47 years) and 76 per cent of the employees were female.

Interclass correlation (ICC) used to assess the proportion of variance in the outcome that can be attributed to organisational membership.

Hierarchical linear modelling (HLM) was used to test study hypotheses. Sobel test was used to measure the significance of the mediation effects.

## Outcomes

Transformational and transactional leadership styles have a significant positive relationship with feelings of psychological ownership for both the organisation and the job. Employees who experienced transformational behaviours by their leader, such as providing a vision, being a role model, and developing followers, were likely to develop strong ownership feelings for their organisation and their job. Similarly, employees who described the owner-manager as a transactional leader (setting goals, controlling them, and providing rewards) also reported high levels of psychological ownership of the organisation and the job. On the other hand, passive leadership, reflected by owner-managers who were described as reluctant leaders and waiting for problems to arise before addressing them, appeared to have a negative relationship with psychological ownership of the organisation but was not significantly associated with psychological ownership of the job.

Psychological ownership of the organisation and of the job, were both correlated with affective commitment, job satisfaction and turnover intentions.

Of the three leadership styles, extra role behaviour was significantly correlated only with transformational leadership. There were no significant relationships between

in-role behaviour and any of the leadership styles. Transformational leadership was positively related to psychological ownership of the organisation ( $B = .75, p < .01$ ) and the job ( $B = .52, p < .01$ ) as was transactional leadership ( $B = .60, p < .01$  and  $B = .33, p < .01$ , respectively). Passive leadership showed a significant negative relationship with psychological ownership of the organisation ( $B = -.36, p < .01$ ). Transformational leadership to psychological ownership of the organisation was significantly different to that between transactional leadership and psychological ownership ( $p < .05$ ). Differences between the two leadership styles were not significant when correlated with psychological ownership of the job. There were no significant differences between the standardised regression coefficients of transformational leadership on psychological ownership of the organisation and on psychological ownership of the job.

The modelling results suggested that the link between transformational leadership and affective commitment, job satisfaction and turnover intentions were partially mediated by psychological ownership of the organisation and psychological ownership of the job. Full mediation effects were found between both types of psychological ownership and extra role behaviour. These were all statistically significant except that for psychological ownership of the job and extra role behaviour. Psychological ownership was a partial mediator between transactional leadership and affective organisational commitment, job satisfaction as well as turnover intentions.

Psychological ownership of the organisation partially mediated the relationship between passive leadership and affective commitment, job satisfaction and turnover intentions. No mediation effects of the psychological ownership of the job were found in the relationship between passive leadership and the attitudinal behavioural variables.

### Limitations

The study was assessed as (+). It is based on cross-sectional data, which pre-empt judgements of causality. Whether leadership style causes psychological ownership, nor whether psychological ownership causes any of the other behavioural or attitudinal constructs cannot be tested. It is impossible to rule out the possibility of reverse causality.

### Applicability to UK

The study was set in small businesses in part of Germany and is of limited applicability to the UK.

### 3.1.6 Bernstrøm et al. (2012)

This study examined how the line manager's behaviour related to sickness absence in a Norwegian health trust during major restructuring. The study, based on a survey of employees and sickness absence data, was set in a large Norwegian health trust undergoing major restructuring, including a move to new premises and the implementation of a new organisational structure. The questionnaire was administered shortly after the establishment of the nursing division as an independent unit, allowing for the use of flexible beds. Seven months after the questionnaire was administered, the health trust moved to its new premises.

#### Method

Employees from 35 departments at three divisions (surgery, medicine, and nursing) and two support centres (laboratory and picture diagnostics) took part in the survey. They were asked to assess their line manager's behaviour through a questionnaire consisting of 91 items, formulated as statements, in addition to background variables. Respondents were asked to evaluate their line manager's behaviour by assessing, on a five-point Likert scale, to what degree they agreed with the statements, from 1 ('to a small extent') to 5 ('to a large extent'). The study used the data relating to the line manager's behaviour towards employees, which covered: social support ( $\alpha = .94$ ), task monitoring ( $\alpha = .89$ ), negative leader behaviour ( $\alpha = .92$ ), problem confrontation ( $\alpha = .93$ ), loyalty to supervisors ( $\alpha = .73$ )

Data on sickness absence were collected from the health trust's own register. Sickness absence was measured at two times: Time 1: average sickness absence from 1–6 months after the survey; and Time 2: average sickness absence 7–18 months after the survey. Due to concerns about the participants' anonymity, the statistics on sickness absence were aggregated to department level by the health trust before they were given to the authors. Employee responses were aggregated to department level as well and analysed differences in level of sickness absence between departments.

#### Outcomes

The survey response rate was 40 per cent (N=1,008). Eighty-six per cent of the respondents were female, about 10 per cent had managerial responsibilities, about 14 per cent were doctors, and 45 per cent were nurses or midwives.

Aggregated department scales were created by averaging the individual scales, giving five continuous variables ranging from 1 to 5. Finally, these variables were standardised for the linear analyses. Registered sickness absence measured in days of absence was divided by man-days, giving a department average of days missed.

At Time 1, three leader behaviours were significantly related to sickness absence. Task monitoring ( $\beta = -0.69$   $p < 0.01$ ) was related to lower levels of absence, whereas loyalty to superiors ( $\beta = 0.36$   $p < 0.05$ ) was related to higher absence. Social support was also related to higher absence ( $\beta = 0.69$   $p < 0.01$ ). An interaction between social support and problem confrontation was identified which was correlated to lower absence. The interaction did not remain significant when controlling for division affiliation ( $\beta = -0.26$   $p = 0.058$ ).

At Time 2, three leader behaviours were significantly related to sickness absence. Loyalty to superiors ( $\beta = 0.42$   $p < 0.05$ ) had a positive relationship to absence. The interaction variable between social support and problem confrontation ( $\beta = -0.34$   $p < 0.05$ ) remained significant, even when controlling for division affiliation.

The study concluded that much of the variance in sickness absence between departments during organisational change can be predicted by the line manager's behaviour prior to change. Four leader behaviours were related to employee sickness absence: 'task monitoring' was related to lower sickness absence, whereas 'loyalty to superiors' and 'social support' were related to high absence levels. Problem confrontation was related to lower sickness absence only in departments where the leader also displayed high social support. Further analysis suggested that social support's effect was no longer present when the leader also displayed high levels of problem confrontation.

## Limitations

This study was assessed as (++). The authors said although this study looked at some specific changes occurring in 2008, it is important to add that the health trust had been in a state of change for quite some time prior to the study period.

The response rate could have been affected by the fact that questionnaires were administered by email and that most employees had limited access to email during the workday. If the non-respondents had answered significantly differently than the respondents did, there would have been a non-response bias. The authors were unable to directly control for factors such as age, work tasks, and education, as collecting these data was deemed as jeopardizing respondents' anonymity.

The relationship between leader behaviour and sickness absence might therefore be mediated by both motivation and ill health.

The study did not use a previously validated questionnaire to measure leader behaviour; instead, the authors used data collected as part of a leader evaluation.

### Applicability to the UK

This study was based in Norway and therefore is only partially applicable to the UK.

#### 3.1.7 Beutell (2010)

This research examined health, supervisory support and workplace culture as predictors of work interfering with family, family interfering with work and work/family synergy and the relationship with employee mental health. One goal of the present study was to consider the prediction of work/family synergy in addition to the other two more widely used interference measures, work interfering with family and family interfering with work. This study also examined the importance of examining informal organisational support including supervisory support in decreasing work/family conflict and turnover intentions.

#### Method

The study analysed data from the 2002 National Study of the Changing Workforce which was a telephone survey of a nationwide cross section sample of employed adults which included the following measures:

- *Work interfering with family, family interfering with work and work/family synergy:* Factor analysed to the work and family items from the National Study of Changing Workforce for all wage and salary participants. 14 items were found to converge on the three factors.
- *Mental Health Index:* derived through a principal components analysis of items measuring stress and depression. Respondents indicated how frequently they experienced minor health problems, sleep problems affecting job performance, feeling nervous or stressed, unable to control important things in life etc., the scale came as a standardised score with a mean approximating zero and a SD of 1. High scores indicate poor mental health. (Cronbach's alpha = .78).
- *Self-rated health:* measured by a one item scale (on a four point Likert scale), high scores indicate better physical health.
- *Supervisory support:* measured using a nine item scale with a four point response. The items were summed so high scores indicated more support. Coefficient alpha was .90.
- *Work/family culture: career concerns:* This variable was measured with a four item scale on which respondents rated how much they believed attempts to balance

work and family responsibilities would negatively affect their careers. Coded so that higher numbers indicated higher support (ie a more family-supportive workplace).

Of the telephone numbers called, 3,578 were determined to represent eligible households and interviews were completed with 3,504 (a 98 per cent completion rate).

The present sample included 2,796 wage and salary workers including 1,361 women (48.7 per cent) and 1,435 men (51.3 per cent). The average length of time with current employer or in current line of work was 7.6 years (SD = 8.4). The largest proportion of respondents worked for a private for-profit business (67.1 per cent), 22.1 per cent for government, and 9.8 per cent worked for a non-profit organisation (accounting for 99 per cent of the sample). The mean age of the participants was 41 years (SD = 12.9).

Factor analyses were conducted to see if the items in the scale were correlated. Regression analyses were then used to test the hypotheses.

## Outcomes

The hypothesised relationship between supervisory support and work interfering with family ( $\beta = -.38, p < .01$ ) was strongly supported. However, the relationship between supervisory support and family interfering with work was significant ( $\beta = .09, p < .01$ ). This finding indicated that increased family to work interference is reported as supervisory support increased. The hypothesised relationships between supervisory support and work/family synergy were confirmed ( $\beta = .19, p < .01$ ).

Mental health symptoms were positively and significantly related to work interfering with the family ( $\beta = .29, p < .01$ ) and family interfering with work ( $\beta = .28, p < .01$ ), while mental health symptoms were negatively related to work/family synergy ( $\beta = -.12, p < .01$ ; ie as mental health symptoms decreased, work/family synergy increased).

As self-rated health decreased, work interfering with family ( $\beta = -.09, p < .01$ ) and family interfering with work ( $\beta = -.1, p < .01$ ) increased, but as health scores increased, the synergy of work and family also increased ( $\beta = .12, p < .01$ ).

## Limitations

The study was assessed as (-). The authors state that although the data came from a well-conducted national probability sample, all the measures were self-reports collected as ratings in one interview. Such self-reports and cross-sectional designs

can inflate correlations and causal inferences are not possible, including the direction of possible causality.

Cross-sectional self-report measures do not afford the ability to rule out the fact that measured constructs share a common cause. A portion of the variance in any observed relation is likely to be spurious.

Cross-sectional designs to assess synergy are subject to temporal effects in work and family issues that vary by time of day or day of week.

There were no external or independent behavioural measures from either the work or family domain.

In addition the review team noted that other factors that that could be important were not measured, such as family size.

### Applicability to the UK

The study covered a wide range of workplaces but was set in the USA and therefore is only of partial applicability to the UK.

#### 3.1.8 Bishop et al. (2009)

The purpose of the study was to estimate the impact of nursing home/work practices on the job satisfaction of nursing assistants employed in nursing homes in the USA, and the extent to which they were affected by supervisor support. The study used data from a national survey of nursing assistants conducted in 2004.

#### Method

The national survey had 3,017 respondents from a potential sample of 4,274 nursing assistants working in 582 nursing homes (a response rate of 70.6 per cent), drawn at random from the 1,500 nursing homes in the sample for the 2004 National Nursing Home Survey (NNHS); The sample used in this analysis consisted of 2,252 of the original respondents who were still working at the nursing home at the time of the interview and who provided complete information of the variables of interest. Respondents reported their satisfaction with their jobs, using a four point scale.

Independent variables included:

- Supervisor support: based on a question asking whether individual supervisors were a reason why they remained employed in their particular jobs

- Compensation: eg whether they received extra pay for working on holidays, paid personal days and paid sick-leave, job demands, job design and organisational context
- Personal characteristics: such as age, gender, race and ethnicity, education, immigrant status, marital status, and care giving responsibilities
- Local Labour Market Conditions.

The main form of data analysis was ordered logistic regression.

### Outcomes

The study found that supervisors' support was one of a number of factors that positively affected job satisfaction ( $p < .01$ ). Nursing assistants with higher hourly wages were more likely to be satisfied. They were significantly less likely to be dissatisfied when the nursing home provided paid personal days and paid sick leave. Retirement benefits and extra pay for working in holidays did not affect satisfaction. Their hours per resident day in the nursing home (job demands) were positively associated with satisfaction. An increase in licensed nurse hours per resident day increased dissatisfaction. Those who reported not having enough time for their tasks were much more likely to be dissatisfied.

Nursing assistants who reported that their supervisors were a reason to stay in their jobs had a much lower estimated probability of dissatisfaction than those who answered this question in the negative: .119 rather than .307 and a higher probability of being extremely satisfied: 0.393 compared with 0.169.

Jobs that provided opportunity for teamwork were significantly more satisfying for nursing assistants.

Nursing assistants were more satisfied when they regarded their work as challenging and when supervisors encouraged them to discuss resident care with residents' families. Those who reported feeling respected and rewarded for their work were less likely to be dissatisfied with their jobs (.132 vs. .308) as were those who reported that their employer valued their work (.163 vs. .382).

### Limitations

This study was assessed as (+). The authors point out that workplace survey (NNHS) that was combined with the satisfaction survey (NNAS) was not designed to provide information on the many aspects of human resources management practices that are likely to affect nursing assistant satisfaction. The variables used in

this analysis were measured at the nursing home level rather than for the assistant's unit.

The authors also argue that it is a challenge for any workplace to capture the philosophy of care and management held by nursing home leadership and implemented on nursing home units, which sets out the context for how work is done and how nursing assistants feel about their work. This critical organisational policy variable can only be observed indirectly, through worker's reports of respect and good working relationships.

### Applicability to the UK

This study was set in nursing homes in the USA and therefore is only partially applicable to the UK.

#### 3.1.9 Bogo et al. (2011)

This study aimed to explore practitioners' perceptions of their professional work in a large urban centre for addiction and mental health in Toronto, Canada. The centre underwent organisational change, as a result of which clinical supervision was no longer provided by senior staff in their own profession; instead clinical supervision was provided by programme managers or specially designated advanced practice nurses and clinicians from various professions.

#### Method

The study was based on 13 focus groups lasting 1.5–2 hours held throughout the organisation. Participants were recruited through email announcements, posters, flyers, and presentations at team and discipline meetings.

Seventy-six front-line practitioners participated from a range of professions. Groups comprised up to 13 participants and consisted of members from the same profession in different programmes, members of the same programme from different professions, and members from both the same programme team and same profession.

Questions were asked about participants' perceptions of clinical supervision, experiences with supervision in the setting, and organisational impacts on supervision. The meetings were recorded, transcribed and the responses coded.

After the first seven focus groups, it emerged that clinicians spoke about supervision as only one of other interacting factors that affected their sense of professional competence, development, and job satisfaction. Subsequent focus groups also

inquired in more depth about these factors; the nature of the client population, the team, and the organisation. During the analysis, it emerged that some nurses held perceptions of clinical supervision different from those expressed by most participants. Consequently, increased efforts were made to recruit nurse participants to explore their perceptions in greater depth. Five additional focus groups and one individual interview were conducted, transcribed, and analysed.

## Outcomes

Clinicians spoke about supervision as only one of other interacting factors that affected their sense of professional competence, development, and job satisfaction.

Reactions to new supervisor arrangements varied.

Negative reactions were related to experiencing supervisors as more similar to managers than to clinical supervisors. Other participants, however, experienced their current supervision arrangements more positively than before.

The emotional climate of supervision was of importance, appreciating a 'safe . . . confidential holding environment' to process the personal impact of practice experiences. Participants described disclosing their feelings and struggles about the work and its relationship to their internal dynamics and reactions, cultural or gender biases, and gaining perspective about their sense of self-competence. Also, active involvement of supervisees was valued where concerns and recommendations for improvement were part of a reciprocal partnership. Giving and receiving feedback was mutual and modelled a parallel process with clients.

Clinical supervision emerged as only one component that affected perceived competence, development, and job satisfaction.

## Limitations

This study was assessed as (-). The authors identified a number of limitations. The voluntary and self-selected nature of the participants suggested caution in generalising the findings to the front-line population and to other settings. Other participants with different experiences in their respective organisations may have offered other insights and opinions. In addition, this study offered practitioners' perceptions of their experiences, which may differ (eg due to memory recall biases) of their actual experiences.

In addition, the review team noted that the demographics of the participants was not reported and the composition of the sample changed during the course of

recruitment to increase the proportion of nurses which may have biased the findings as they are generalised.

### Applicability to the UK

This was a qualitative study of health care professionals in Canada and is therefore of limited applicability to the UK.

#### 3.1.10 Boot et al. (2011)

The main aim of this study, based on data from a national survey of working conditions in the Netherlands, was to gain insight into the contribution of work limitations, work characteristics, and work adjustments to the association between health and sick leave in employees with a chronic illness. A secondary aim was to gain insight into differences and similarities between various chronic illnesses with regard to the contribution of work limitations, work characteristics, and work adjustments to the association between health and sick leave.

#### Method

All employees with a chronic illness, between 15 and 65 years of age ( $n = 7,748$ ) were selected from The Netherlands Working Conditions Survey (NWCS), which is a large scale periodical investigation into the working conditions of employees in the Netherlands. The main sample was selected by random sampling from the 'jobs register' was carried out by Statistics Netherlands. The NWCS focuses on employees aged between 15 and 65 years of age. The sub-sample for this study comprising 7,748 (34 per cent) participants who reported at least one chronic illness were selected for analysis in the present study (average age 43 years – SD =12 – 49 per cent female). Low/middle levels of education were the most common (73 per cent). Disorders of the neck or back had the highest prevalence (28 per cent), followed by migraine and severe headache (16 per cent), problems with arms and hands (15 per cent), and asthma/COPD (15 per cent). Sixty-one per cent reported at least one episode of sick leave in the past 12 months, and the average number of episodes was 1.6. The mean sick leave was 7.5 per cent. The survey was conducted by both 'paper and pencil Interviewing and Computer Assisted Web Interviewing' and the response rate for the whole survey was 34 per cent. It is unclear what response rate was for the desired sub-sample.

Sick leave (ie sickness absence percentage) was the dependent variable in all analyses. Perceived health, work limitations, work characteristics, and work adjustments were the independent variables. Block-wise linear regression analyses were performed with the Enter method. The first block contained perceived health

with gender, age and level of education as confounders; the second block contained the limitations at work, the third block contained all work characteristics, and the fourth block consisted of the work adjustment variable. In block 1, the association between health and sick leave was examined (B 1). In block 2, the association between health and sick leave was examined again (B 2), and the difference between B 2 and B 1 for health was calculated ( $\Delta B 2-1$ ). By adding blocks 3 and 4, the Bs were calculated in a similar way, thus leading to B 3, B 4,  $\Delta B 3-2$  and  $\Delta B 4-3$  for the health variables. A change in B was considered to be relevant if the B had a P value lower than 0.05 and the change in B was at least 10 per cent.

## Outcomes

More sick leave was associated with a permanent contract (compared to a temporary contract), never working in evenings or nights, never working overtime, less autonomy, a higher emotional work-load, less social support from the supervisor, and more interference of home in the work situation. Adding the work characteristics to the multivariate model resulted in no relevant change (B change < 10 per cent) in the association between perceived health and sick leave, but the association between limitations at work and sick leave fell by 14.3 per cent.

Adding work characteristics to the multivariate model resulted in a relevant decrease in the association between perceived health and sick leave in the groups with problems with back or neck, migraine or severe headache, asthma, bronchitis or emphysema, stomach or bowel disorders, and mental disorders. Realised work adjustments only resulted in a relevant decrease in the association between health and sick leave in the group with complaints of legs/feet. Experiencing more limitations at work because of a chronic illness was significantly associated with more sick leave in all chronic illness groups. Adding work characteristics to the model decreased this association within the groups with problems with back or neck, asthma, bronchitis or emphysema, problems with legs or feet, stomach or bowel disorders, cardiovascular disease, and mental disorders.

When work adjustments were added to the model, the Bs between sick leave and work limitations and work characteristics changed from 4.5 to 3.4 for work limitations and from 2.1 to 1.9 for temporary contract and from -0.8 to -1.0 for supervisor support. Delta B of supervisor support (per cent) = 23.5.

## Limitations

The study was assessed as (+). The authors point out that the database is cross sectional which implies that cause cannot be distinguished from consequence.

Lower health status may be the cause of sick leave, but episodes of sick leave, or work disability may lead to lower perceived health, and even mortality.

The data are self-reported and self-relying on respondents to report the cause of sick leave will lead to an under-estimation of sick leave related to their chronic illness.

No distinction is drawn between short-frequent and long term sick leave. This distinction may be of added value, because it has been found that the association between sick leave and low health status and mortality applied to long-term sick leave in particular

Whilst response rate for whole survey is given, it is not possible to ascertain what the response rate of the desired subsample was.

### Applicability to the UK

This study was set in the Netherlands and therefore is only partially applicable to the UK.

#### 3.1.11 Borgogni et al. (2011)

This survey of middle managers in a mail delivery company in Italy examines the relationship between self- and collective efficacy in dealing with job responsibilities and tasks, perceptions of immediate supervisor regarding support and encouragement, perceptions of top management regarding the coordination of different units and communication, and affective organisational commitment and job satisfaction. Of interest to this review is the hypothesis that examines whether employee perceptions of the immediate supervisor are positively related to job satisfaction.

### Method

Middle managers were given a paper-based survey during normal working hours. The survey used a seven-point Likert-scale structure based around 28 items covering:

- Self-efficacy
- Perceptions of leadership (including perception of immediate supervisor). Five items measured the perception of the immediate supervisor in assigning goals, supporting co-workers, and encouraging co-workers involvement (eg, 'My immediate supervisor (a) encourages suggestions and ideas from all the members of our group, (b) takes care of our professional development, (c) allows the group

to work at its best by providing support'). Cronbach's  $\alpha$  coefficient for this scale was .91)

- Group collective efficacy
- Job satisfaction (single item was used to measure overall job satisfaction, consistent with Wanous, Reichers, and Hudy (1997)). The item was 'Overall, I am satisfied with my job.' Research has shown the validity of this item for measuring overall satisfaction (Berson, Oreg, & Dvir, 2008; Cortese & Quaglino, 2006; Wanous et al., 1997)
- Affective organisational commitment.

There were 1,149 responses, a response rate of 67 per cent.

### Outcomes

A model was developed and confirmed by the results which linked perceptions of leadership and employees' beliefs regarding the collective efficacy of their group to job satisfaction and organisational commitment. In particular, the study found that perceptions of the immediate supervisor were related to job satisfaction. The mean level of job satisfaction was 5.08 (SD = 1.23) and the perceptions of immediate supervisor had a mean score of 4.82, (SD = 1.33). The inter-correlation between job satisfaction and perceptions of immediate supervisor was 0.56 ( $p < .01$ ). The parameter estimate of perception of the immediate supervisor related to job satisfaction was 0.43.

The study also found that employees' positive perceptions of their immediate supervisor were more strongly related to the formulation of their beliefs regarding their group's efficacy than their perceptions of top management. The perceptions of top management had a mean score of 3.93, (SD = 1.15). The parameter estimate of perception of the immediate supervisor related to job satisfaction was 0.35

### Limitations

This study was assessed as (-). The authors said that the cross-sectional nature of the present data, in addition to the moderate to high inter-correlation among variables, did not allow causal conclusions.

No measures of organisational behaviour (eg, job performance) were collected and the data that were collected were based on self-report measures; hence, the responses might suffer from common.

In addition the review team noted that the recruitment and selection of participants was not reported. The demographic variables that were given were not sufficient to assess whether the sample was representative of the sample population. In particular it is unclear whether the findings were valid for those not in a middle-management position. In addition, job satisfaction is only based on one measure.

### Applicability to the UK

This study was based in Italy and therefore partially applicable to the UK.

### 3.1.12 Bos et al. (2009)

The aim of this study was to investigate (a) differences in work characteristics and (b) determinants of job satisfaction among employees in different age groups using an on-line survey of employees at a Dutch university.

#### Method

All 2,995 employees at a Dutch university who had Dutch nationality and had been employed for at least one year, were invited to take part in the survey. The questionnaire contained scales and items measuring work characteristics (ie job demands and job resources) and other relevant scales and items, which are called 'other (work) characteristics'. Most items were scored on a five-point Likert scale. The measures included:

- **Job satisfaction:** assessed using a seven item scale ( $\alpha = 0.87$ ) with questions such as 'I am satisfied with my job at the moment', 'I enjoy my work' and 'I would choose exactly the same job again'.
- **Work-home facilitation:** assessed with one single item 'I can adjust my working hours well in my private life'. 'Able to relax sufficiently at home from job demands' was measured with one single item.
- **Support from supervisor:** using a scale contained 16 items ( $\alpha = 0.96$ ), eg 'my supervisor inspires and motivates me' and 'my supervisor regularly discusses opportunities for my personal development'.

A total of 1,297 respondents returned the questionnaire (43 per cent). Age had been filled in by 1,112 respondents, which resulted in 37 per cent usable questionnaires. The sample profile differed from the population in some respects: slightly more women (37 per cent compared with 33 per cent) and older respondents ( $\geq 55$  years) (23 per cent compared with 18 per cent) returned the questionnaire. Thus (older) lecturers were overrepresented (33 per cent compared with 26 per cent), while

(younger) PhD students (20 per cent compared with 25 per cent) and faculty with temporary contracts of employment (34 per cent compared with 43 per cent) were underrepresented.

Analyses were conducted on four age groups: younger than 35, 35-44, 45-54 and 55 years and older. Differences in personal characteristics were analysed with  $\chi^2$ -tests. 'Normal job performance is impeded by poor health' was dichotomized. Impediment was assumed when the respondents indicated to agree 'slightly', 'moderately' or 'greatly' with the proposition. In order to investigate the determinants of job satisfaction, block wise linear regression analyses were used in each age group separately to investigate variables associated with job satisfaction.

## Outcomes

Job satisfaction had high mean scores in all the age groups. Higher age was associated with more job satisfaction: Aged <35 (mean = 3.7, SE = 0.05, %N with mean > 3.5 (ie satisfactory) = 72.4), 35-44 (mean = 3.8, SE = 0.04, %N with mean > 3.5 = 65.9), 45-54 (mean = 3.8, SE = 0.04, %N with mean > 3.5 = 66.9),  $\geq 55$  (mean = 3.9, SE = 0.05, %N with mean > 3.5 = 75.9). ANOVA F-value = 2.94 (significant at  $p \leq .05$ ).

However satisfaction with supervisor support was found to be relatively low and declined with age: Aged <35 (mean = 3.4, SE = 0.06, %N with mean > 3.5 (ie satisfactory) = 46.9), 35-44 (mean = 3.1, SE = 0.05, %N with mean > 3.5 = 36.9), 45-54 (mean = 3.1, SE = 0.05, %N with mean > 3.5 = 39.0),  $\geq 55$  (mean = 3.2, SE = 0.06, %N with mean > 3.5 = 34.9). ANOVA F-value = 4.10 (significant at  $p \leq .01$ ).

Linear regression analysis was used to explain the variance in job satisfaction. In the final model 'job resources' including skill discretion and to a lesser extent relations with colleagues was associated with job satisfaction ( $R^2 = .53$  to  $.65$ ). Supervisor support showed a significant positive association with age among those aged 55 and over: standardised coefficients - <35 = 0.09, 35-44 = 0.07, 45-54 = 0.07,  $\geq 55$  = 0.12. The result for the cohort  $\geq 55$  represents significance at  $\leq .05$ .

## Limitations

This study was assessed as (+). The authors point out that all the respondents in this study were employees at a university, which was a workplace setting with specific characteristics. This has implications for generalisation because autonomy is often very broad in university populations and the majority of jobs are 'white collar'. Also the sample differed in some respects from the university population as a whole.

### Applicability to the UK

The study was set in a university in the Netherlands and is of partial applicability to the UK.

#### 3.1.13 Braun et al. (2013)

This study analysed the relationship between transformational leadership, trust in supervisor and team, job satisfaction, and team performance via multilevel analysis in a large German research university. Specifically it investigated whether:

- Individual perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction
- Team perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction
- Trust in the supervisor mediates the positive relationship between individual perceptions of supervisors' transformational leadership and individual followers' job satisfaction.

### Method

Teams were recruited by means of a university leadership programme that offered a leadership profile to supervisors of academic teams. Employees working under the supervision of the same leader were considered a team. Thirty-nine teams (out of 44 approached) were recruited. Data collection from employees and supervisors took place at two points of measurement separated by approximately six weeks in 2009.

Surveys were administered online. At Time 1, team members were asked to rate their supervisor's transformational leadership behaviour, and their trust in the supervisor. At Time 2, team members rated their perceptions of trust in the team, and their individual job satisfaction.

The key measures in the survey were:

- **Transformational leadership:** with a composite score consisting of 15 items ( $\alpha = .95$ ) pertaining to the dimensions inspirational motivation (four items), intellectual stimulation (four items), individualised consideration (four items), and idealised influence behaviour (three items) from the validated German version (Felfe, 2006) of the Multifactor Leadership Questionnaire Form 5x-short (Bass & Avolio, 2000). Participants rated these items on five-point Likert-scales ranging from 1 (not at all) to 5 (frequently, if not always).

- **Participants' trust in their supervisor:** assessed using eight items ( $\alpha=.97$ ) adapted from Dirks' (2000) scale which takes both affect- and cognition-based aspects of trust into consideration. A sample item is 'If I shared my problems with my supervisor, I know (s)he would respond constructively and caringly'. Participants' ratings were based on seven-point Likert-scales ranging from 1 (strongly disagree) to 7 (strongly agree).
- **Job satisfaction:** measured with five items ( $\alpha=.83$ ) regarding satisfaction with one's supervisor, tasks, working conditions, support of one's professional career, and general job satisfaction by means of a validated job satisfaction scale (Neuberger & Allerbeck, 1978). A sample item is 'To what extent are you satisfied with your working conditions?' Participants' ratings were based on seven-point face-scales (Kunin, 1955).

Data was received from 360 members of 39 teams. The average number of participants per team was 9.2 (SD=4.5) with a range from two to 20 participants per team. The average response rate per team was 61.0 per cent. Participants in the final sample were 35.7 years old (SD=10.2 years) on average, and 67.5 per cent were female. The majority of participants were PhD students (58.1 per cent), postdocs (14.4 per cent), and non-scientific personnel (16.4 per cent).<sup>5</sup> Supervisors of the 39 teams were on average 45.6 years old (SD=7.3 years), and 69.2 per cent were male. Teams mainly worked in the fields of natural sciences (61.5 per cent) or medicine (30.8 per cent).

To analyse the data, the authors used a multilevel mediation approach based on team-mean centred analyses, also termed 'centred within context' or CWC (Kreft & de Leeuw, 1998). In the special case of CWC(M), the subtracted means of each individual-level variable were reintroduced in the Level-2 equations.

## Outcomes

The key findings were:

- Transformational leadership ( $M = 3.54$ ,  $SD = .56$ ). Correlation coefficient with trust in the supervisor = .86,  $p < .01$ , correlation coefficient with job satisfaction = .63,  $p < .01$
- Trust in the supervisor ( $M = 5.28$ ,  $SD = 1.02$ ) correlation coefficient with job satisfaction = .67,  $p < .01$
- Job satisfaction ( $M = 4.82$ ,  $SD = .61$ ).

Team membership accounted for 21.22 per cent of variance in job satisfaction. A chi-square test confirmed that variance between teams was significant ( $\chi^2(38)=101.50$ ,

$p < .001$ ). As expected, individual perceptions of supervisors' transformational leadership ( $\gamma_{10} = .73$ ,  $p < .001$ ) as well as team perceptions of supervisors' transformational leadership ( $\gamma_{01} = .64$ ,  $p < .001$ ) were positively related to individual followers' job satisfaction. Thus, the hypotheses that individual perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction, and team perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction were fully supported. The study also found that team perceptions of supervisors' transformational leadership was positively related to team performance ( $\beta = .36$ ,  $p < .05$ ).

The following mediation effects were detected: the relationship between trust in the supervisor and job satisfaction was significant at the individual level ( $\gamma_{20} = .35$ ,  $p < .001$ ), also when trust in the supervisor was introduced at the team level ( $\gamma_{02} = .14$ ,  $p = .119$ ). Sobel's  $Z$  with robust standard errors confirmed that the Level-1 mediation effect of trust in the supervisor was significant (Sobel  $Z = 5.70$ ,  $p < .001$ ). Thus, the hypothesis that trust in the supervisor mediates the positive relationship between individual perceptions of supervisors' transformational leadership and individual followers' job satisfaction was fully supported.

### Limitations

The study was rated as (++). The study was a cross-section and restricted to the positive influence of transformational leadership on team performance and job satisfaction mediated by trust. Thereby, the authors neglected (a) other forms of leadership, (b) additional mediators, and (c) potential downsides to the proposed relationships. More demographic variables could have been investigated.

### Applicability to UK

Although the study was set in a German university it appears to be applicable to the UK.

#### 3.1.14 Brunneto et al. (2011)

This study used the Harvard model of human resources management (HRM) to conceptualise how changes in stakeholder interests coupled with changes to situational factors affect public sector HRM policy choices that in turn affect HRM outcomes for different types of public sector employees (nurses and police officers) in Australia.

In particular it examined whether there was a significant positive relationship between LMX (leader-member exchange, ie supervisor employee relationships) and employees' subsequent perceptions of well-being and whether nurses experienced higher levels of satisfaction with LMX compared with police officers and therefore would also have higher perceptions of well-being and affective commitment.

## Method

Two hospitals agreed to be involved in the study. One was located in a city and the other in a regional area of south eastern Queensland. In the case of police officers, a region of south eastern Queensland comprising two districts each containing approximately 10 police stations was chosen.

In all locations, questionnaires were handed out to those nurses and police officers on day shift during a weekday.

Questionnaires were distributed to nurses in the surgical wards of the two hospitals during a weekday. In total, 180 surveys were distributed in the city hospital and 128 completed surveys were collected, and 55 surveys were distributed in the regional hospital and 36 completed surveys were collected (N = 164). In the case of police officers, 300 surveys were distributed and 178 completed surveys were collected. The police sample captured over one-fifth of the population of non-commissioned police officers (constables, senior constables and sergeants) in the region.

Responses to most of the questions were captured on a Likert scale: 1, strongly disagree to 6, strongly agree.

Leader-member exchange: This validated test-bank survey traditionally measures the satisfaction of employees with the quality of the relationship with their supervisor-subordinate relationship (Mueller and Lee 2002). In this study a seven-item uni-dimensional scale (LMX-7), developed by Graen and Uhl-Bien (1995), was used. An example of a question includes 'I am certain to what extent my line manager will go to back me up in my decision-making'.

The study operationalised psychological well-being as a function of the hedonic part (that focuses on employees' perceptions of pleasure invoking either negative or positive thoughts or feelings) in addition to the eudaimonic part (that focuses on employees' perceptions of fulfilment in achieving their goals; Grant et al. 2007). An example of a survey question aimed at capturing the hedonic part of well-being was 'Overall, I think being a nurse/police officer fulfils an important purpose in my work life'. An example of a survey question aimed at capturing the eudaimonic part of

well-being was 'Overall, I think I am reasonably satisfied with my work life'. Cronbach's  $\alpha$  for both groups = 0.87.

The demographics of the nurse population (N = 164) included 20 males and 144 females. Thirty-six were aged under 30, 72 were aged between 31 and 45 and 56 were aged over 45. The police sample (N = 178) comprised 48 females and 130 males. One was aged under 30, 122 were aged between 31 and 45, and 55 were aged over 45.

The response rate for nurses was 69.8 per cent and 59.3 per cent for police officers.

Path analysis is used to test the impact of supervision practices on first, employees' perceptions of well-being and in turn, affective commitment. In particular, path analysis using an ordinary least square (OLS) approach is used to test the hypotheses.

Factor analysis was undertaken and the correlation matrix identified many correlations exceeding 0.3, indicating the matrix was suitable for factoring.

## Outcomes

The study found a significant positive relationship between LMX and employees' subsequent perceptions of well-being. A regression analysis was undertaken. The hypothesis that there was a significant positive relationship between LMX and employees' subsequent perceptions of well-being was accepted ( $F = 251.7$   $p < 0.001$ ,  $R^2 = 42.5$  per cent) Moreover, an examination of the relevant means suggested that the relationship is direct, although weak in effect.

The hypothesis that nurses experience higher levels of satisfaction with LMX compared with police officers and therefore will also have higher perceptions of well-being and affective commitment was also supported because nurses are significantly more satisfied with both their subordinate-supervisor relationship and had a higher perception of well-being compared with police officers:

- Satisfaction with supervisor: Nurses (M = 4.5, SD = 1.8), police (M = 2.6, SD = 0.99).  $F = 2.011$ ,  $T = 16.837$ ,  $df = 340$ ,  $sig = 0.001$
- Well-being: Nurses (M = 4.27, SD = 2.95), police (M = 2.95, SD = 0.99).  $F = 0.887$ ,  $T = 12.066$ ,  $df = 340$ ,  $sig = 0.001$

## Limitations

The study was assessed as (+). The authors noted that the study was limited to public sector nurses and police officers and that self-report surveys can cause common methods bias.

There was a predominance of males in the police officer sample and a predominance of females in the nurse sample and this was not controlled for as a potential confounder. In addition the review team noted that the demographic variables were restricted to age and gender and a reliability score not given for the LMX measure.

Also the survey administration methodology was unclear and there was a different response rate (by 10 percentage points) between police officers and nurses.

## Applicability to UK

The study was set in Australia and is therefore partially applicable to the UK.

### 3.1.15 Brunetto et al. (2013a)

This study examined the relationship between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, commitment to the organisation (affective commitment) and turnover intentions in two private sector hospitals located in mainland USA. It also investigated the similarities and differences in the relationships between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, commitment to the organisation (affective commitment) and turnover intentions, for different generational cohorts.

## Method

An anonymous online survey was made available to nurses and they were invited to participate. The survey used a cross-sectional design to gather data to test the relationship between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, affective commitment and turnover intention (the dependent variable). Data were collected using a survey-based, self-report strategy (Ghauri & Grønhaug 2002).

Measures (supervisor-subordinate relationship; well-being; affective commitment; teamwork and turnover) were presented using statements rated on a six-point Likert-type scale.

The measure for generational cohorts was determined by calculating the number of nurses born within specific years, which were chosen to include: Baby Boomers (BB) (1943–64), Gen X (1965–79) and Gen Y (1980–2000).

The sample comprised 695 (95.7 per cent) females and 31 (4.3 per cent) males and included: 17 supervisors, 98 charge nurses (assigns patients to nurses), 578 registered nurses (RNs), 22 assistant nurse managers, six unit educators, and six advanced practice nurses. In terms of generational cohorts, the sample had 193 Gen Y, 260 Gen X and 273 BB nurses. The response rate was approximately 40 per cent.

Correlations and regression analyses were undertaken to test nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, affective commitment and turnover intentions. In addition, a multivariate analysis of variance (MANOVA) was used to examine the impact of generational cohort upon the variables.

### Outcomes

Supervisor–nurse relationships, teamwork and well-being explain almost half of nurses' commitment to their hospital and their intentions to leave.

The hypothesis that affective commitment is influenced by the quality of supervisor-subordinate relationships, teamwork and well-being was supported because these three factors accounted for 45.9 per cent of nurses' commitment to their hospitals ( $p = 0.001$ ).

The hypothesis that turnover intentions are affected by the quality of supervisor-subordinate relationships, teamwork, well-being and affective commitment was also supported because, these four factors accounted for 44.8 per cent of nurses' intention to leave ( $p = < 0.05$ ).

The workplace relationship variables (satisfaction with relationships) did not differ significantly between generations.

### Limitations

The study was assessed as (+). The author noted that common method bias was a possibility within self-report cross-sectional studies where common method variance may influence the significance of relationships between variables.

## Applicability to UK

The study was limited to two private sector hospitals in the USA and is therefore of only partial applicability to the UK.

### 3.1.16 Brunetto et al. (2013b)

The study compared the impact of workplace processes (perceived organisational support, supervisor-subordinate relationships and teamwork) on nurses' engagement and in turn, their psychological well-being, organisational commitment and turnover intentions among nurses working in seven private sector hospitals in Australia and the USA.

#### Method

Anonymous surveys were distributed to five private sector hospitals across Australia and two private sector hospitals in USA. The surveys were completed by 510 nurses in the Australian hospitals and 718 in the US hospitals (response rates of 31.5 per cent and 39.5 per cent respectively). The survey used previously validated scales to operationalise the constructs, measured on a 6-point Likert-type scale, from 1 = strongly disagree to 6= strongly agree and covered:

- *Leader-Member Exchange*: based on a 7 item uni-dimensional scale (Graen & Uhl-Bien, 1995).
- *Satisfaction with teamwork*: using a scale adapted by Rubin, Palmgreen and Sypher (1994) on organisational culture.
- *Perceived Organisational Support*: used a validated scale by Eisenberger et al., (1997).
- *Well-being*: measured using a four-item scale, developed by Brunetto et al., (2011).
- *Employee Engagement*: measured using a 9 item scale from Schaufeli and Bakker (2003).
- *Organizational Commitment*: measured using an 8 item scale from Allen and Meyer (1990).
- *Turnover Intention*: based on a 3 item scale adopted from Meyer et al, (1993).

The data were analysed through structural equation modelling (SEM). The study used a multi-group SEM analysis to examine the invariance between nurses in Australia and the USA. Chi-square was used to examine the invariance of the hypothesised paths.

## Outcomes

Items that did not adequately predict their variable were removed from the scale to provide a better fit of the data. Results from the chi-square difference test indicated that statistically significant differences between the Australian and USA samples, with regards to LMX to teamwork ( $\chi^2=99.3$ ,  $p<0.001$ ), engagement ( $\chi^2=38.8$ ,  $p<0.05$ ), well-being ( $\chi^2=42.3$ ,  $p<0.05$ ) organisational commitment ( $\chi^2=38.3$ ,  $p<0.05$ ) and turnover intentions ( $\chi^2=45.1$ ,  $p<0.01$ ).

In the model the path there was a small significant association between supervisor-subordinate relationships and well-being ( $B = .127$ ,  $p<0.05$ ) but it was not significant for the USA. In fact none of the paths related to supervisor-subordinate relationships was significant for the USA, and neither were the paths from teamwork to organisational commitment or turnover.

Perceived Organisational Support predicted engagement, organisational commitment, employee well-being and turnover intentions in both Australia and the USA ( $p<0.001$  level for all variables). Supervisor-subordinate relationships supported teamwork in Australia ( $p<0.001$ ) but not the USA.

Teamwork had a positive impact on employee engagement and wellbeing in both countries ( $p<0.001$ ). Teamwork was linked to organisational commitment and turnover intentions in Australia ( $p<0.001$ ) but not the USA. The study also identified a strong relationship between organisational turnover and commitment ( $p<0.001$ ).

The authors concluded that supervisors do not appear to play the mediating role for nurse turnover intentions in the USA compared with Australia.

## Limitations

The study was assessed as (+). Limitation identified by the authors included that the study was limited to one type of employee – hospital nurses, and those working in only two countries. Also self-report survey methods were used, potentially causing common methods bias (although measures were taken to attempt to reduce this).

The authors argued that the results could not be generalised internationally or even in one or two of the countries examined as the sample was limited to private sector hospital nurses.

## Applicability to the UK

Because of the nature of the sample the study is of limited applicability to the UK.

### 3.1.17 Buttigieg and West (2013)

The study aimed to investigate the relationships between the quality of senior management leadership, and social support and job design, and in turn their effects on strains (job satisfaction, turnover intention) and in the moderation of the work stressors (quantitative workload, hostile working environment) on their relationship with workplace strains.

#### Method

The study analysed data from the UK NHS Staff Survey completed by 65,142 employees in acute and specialist acute hospitals in the UK, a response rate of 53 per cent. This investigation focussed on measures of:

- *Quality of senior management leadership (QSML)*: a five item measure adapted from Transformational Leadership Questionnaire (Alimo-Metcalfe et al, 2001) with three possible responses was used to assess the quality of senior management leadership.
- *Social Support*: derived from the Job Content Questionnaire (Karasek et al., 1998). Scale contained four items, with a five point Likert scale ranging from strongly disagree to strongly agree ( $\alpha = .77$ ).
- *Job design*: scale contained five items ( $\alpha = .73$ ) adapted from the Job Diagnostic Survey (Hackman et al, 1975). Responses range on a five-point scale from strongly disagree to strongly agree.
- *Work stressors*: measured using five dimensions: three that measured quantitative overload (adapted from studies by Firth-Cozens (1987, 1998) and Cox and Griffiths (1995) and two that measure hostile environment (adapted from the Fourth European Working Conditions Survey, 2007).
- *Work strains*: measured using job satisfaction (Job Satisfaction Scale, Warr et al., 1979) – four items,  $\alpha = .87$  and turnover intentions, three items from a scale by Mobley et al, (1978),  $\alpha = .92$ . All based on Likert scales.

Some 28 per cent and 30 per cent of the sample were in the 41-50 and 31-40 year age groups respectively, and 81 per cent were women and 19 per cent were men. The occupational categories included management, all healthcare professionals, administration, and clerical and maintenance staff, with the highest being 28.4 per cent registered nurses, followed by 21.7 per cent administration and clerical staff.

The analysis was conducted in two stages to test a number of hypotheses. Structural Equation Modelling design was used to test the relationship between senior

management leadership with social support and job design and the stressor-to-strain relationships. The second stage involved testing for moderation using regression analysis.

### Outcomes

The quality of senior management leadership was positively related to social support ( $r=.33$ ) and job design ( $r=.37$ ) at  $p<.001$ , meaning that the quality of senior management leadership was associated with social support and quality of job design.

Quantitative overload was negatively associated with job satisfaction ( $r=-.14$ ) and positively associated with turnover intention ( $r=.16$ ) at  $p<.01$ . Hostility was negatively associated with job satisfaction ( $r=-.25$ ) and positively associated with turnover intention ( $r=.22$ ) at  $p<.01$ . There was also a negative correlation between job satisfaction and staff turnover intention ( $r=-.54$ ) at  $p<.01$ .

Quantitative overload and social support (which includes support from line manager) together predicted a significant portion of the variance of job satisfaction ( $R^2=.476$ ,  $p>.001$ ) and staff turnover intention ( $R^2=.187$ ,  $p<.001$ ). Hostility and social support predicted a significant portion of the variance for job satisfaction ( $R^2=.483$ ,  $p<.001$ ) and staff turnover intention ( $R^2=.193$ ,  $p<.001$ ).

Quantitative overload and job design together predicted a significant portion of the variance in job satisfaction ( $R^2=.416$ ,  $p<.001$ ) and staff turnover intention ( $R^2=.220$ ,  $p<.001$ ). Similarly hostility and job design predicted a significant portion of the variance for job satisfaction ( $R^2=.424$ ,  $p<.001$ ) and staff turnover intention ( $R^2=.223$ ,  $p<.001$ ).

### Limitations

The study was assessed as (-). The authors noted that the cross sectional nature of the study prevented the assertion of the direction of causality and the use of self-reported data highlighted the problem of 'percept-percept' bias which is associated with single source data collection.

They also pointed out that although the study had a large sample size, non-respondents may have had stronger intentions to quit, lower levels of job satisfaction and satisfaction with supervisors and senior management leaders than respondents.

## Applicability to the UK

The study was set in the UK health service which limits its applicability to other UK sectors.

### 3.1.18 Campbell et al. (2013)

The aim of this study was to investigate three forms of workplace justice (distributive, procedural, and interactional justice) and two sources of workplace support (from organisations and supervisors) as they influence the development of three dimensions of employee burnout (emotional exhaustion, depersonalisation, and diminished accomplishment) among social workers in the USA. The study also examined subsequent forms of attitudinal withdrawal (organisational commitment and turnover intentions) and behavioural withdrawal (turnover).

#### Method

Surveys were distributed to small groups of social workers during working hours employed by the state department of family and children's services (DFACS) in counties from around a large US metropolitan area in the south eastern United States of America.

The following measures were used in the data collection:

- Justice: distributive and procedural justice measured using five item scales. Interactional justice was measured with four items
- Perceived organisational support (POS): measured using a 16-item short form of the Survey of Perceived Organisational Support developed by Eisenberger et al. (1986)
- Perceived supervisor support (PSS): assessed using three items
- Burnout: used 22-item Maslach Burnout Inventory (MBI), including three subscales. The subscales were emotional exhaustion (nine items), depersonalization (five items), and personal accomplishment (eight items)
- Organisational commitment: measured using a nine-item scale
- Turnover intentions: measured on a three-item scale with a five-point Likert-type scale

- Turnover: One year after surveys were administered, the organisation provided a list of individuals who had left voluntarily. In total, 26 individuals (eight per cent) left voluntarily in that time.

There were 343 respondents with a response rate was 93 per cent. The average age of respondents was 39.8 years ( $SD = 10.5$ ) and 84 per cent were female. Some 66 per cent of respondents were Caucasian, 29 per cent were African American, two per cent were Hispanic, and three per cent selected 'Other'.

A confirmatory factor analysis (CFA) was conducted on the measurement model using LISREL. For the measurement model, the authors created three indicators for each construct and examined the chi-square test ( $\chi^2$ ), root-mean-square residuals (RMR), root-mean-square error of approximation (RMSEA), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the normed fit index (NFI), and the comparative fit index (CFI).

After confirming the fit of the measurement model, the authors evaluated the structural model, using scale scores as indicators of the measures rather than the individual items, owing to LISREL's computing limitations and calculated the measurement loadings and error variances.

## Outcomes

The study tested a series of hypotheses. Perceived supervisor support demonstrated robust significant relationships with distributive (.19,  $p < .05$ ), procedural (.22,  $p < .01$ ) and interactional (.37,  $p < .01$ ) justice. Distributive justice was found not to be related to perceived organisational support.

Procedural justice was strongly related to both perceived organisational support (.44,  $p < .01$ ) and perceived supervisor support (.22,  $p < .01$ ), but more strongly with perceived organisational support.

From anecdotal responses in an open-ended section of the survey, respondents viewed procedural justice as partly a function of organisational policy/practice and partly a function of supervisor procedures. Thus, in assessing support, fairness of procedures was apparently attributed to both organisations and supervisors.

Interactional justice was most strongly associated with perceived supervisor support, but it was not significantly associated with perceived organisational support.

Perceived organisational support had a strong, negative relationship with emotional exhaustion (-.47,  $p < .01$ ).

Perceived supervisor support was negatively related to emotional exhaustion (-.22,  $p < .01$ ), which was positively related to depersonalisation (.78,  $p < .01$ ), and in turn, diminished personal accomplishment (.39,  $p < .01$ ). Emotional exhaustion and diminished personal accomplishment both had significant negative relations with organisational commitment (-.23 and -.39  $p < .01$ ), but depersonalisation did not.

### Limitations

The study was assessed as (++). The authors pointed out that use of cross-sectional and self-report data for the predictors prevents firm conclusions about the causal nature of the relationships within this study.

The study had a relatively low base rate (eight per cent) of turnover, which may have attenuated the observed relationship of turnover intentions with turnover. Also turnover was dichotomous, so it potentially violated assumptions underlying LISREL. Also the determination for 'voluntary' turnover was made by the organisation, therefore the authors could not verify that the 26 individuals actually quit voluntarily, and they did not have access to those who left involuntarily during the time period.

The study focused on a profession that carries high risk of burnout, which may limit its generalisability.

### Applicability to UK

The study was set among social workers in the USA and is of partial applicability to the UK.

### 3.1.19 Choi and Johantgen (2012)

This study aimed to examine the relationships of work-related and personal factors to job satisfaction and intent to leave among Certified Nursing Assistants (CNAs) working in nursing homes through a nationally representative survey of 2,254 nursing assistants in nursing homes in the USA.

#### Method

A sub-sample of randomly selected nursing homes ( $n=790$ ) was selected from the databases for the previous National Nursing Assistants Survey (NNAS) and National Nursing Home Survey (NNHS). The NNHS was a nationally representative sample survey of US nursing homes, their services, and resident characteristics. The NNAS, designed as a supplement to the NNHS, was a nationally representative sample survey of CNAs working in nursing homes; CNAs responded

to questions about their working conditions and job satisfaction. The response rate among nursing homes was 75.7 per cent. The sample was a national survey and considered representative of nursing homes in the USA. Some 582 nursing homes participated and 2,254 CNAs. Sixty five per cent of the nursing homes had bed size over 100 and 59 per cent were for profit. The average age of CNAs was 38 years

The survey was conducted by telephone and the instrument was multi-topic and consisted of 10 primary sections, including Management and Supervision, Organizational Commitment and Job Satisfaction, Workplace Environment, and Demographics.

Overall job satisfaction was measured using a single item that asked about current job satisfaction. The item was scored using a 4-point Likert-type scale, ranging from 1 (extremely dissatisfied) to 4 (extremely satisfied).

Intent to leave was measured using two questions from the National Nursing Assistants Survey (NNAS): "How likely is it that you will leave this job in the next year?" and "Are you currently looking for a job?"

Supportive supervision was examined using 10 items from the NNAS that asked for CNA agreement with statements about supervisors who oversaw them on a daily basis and instructed them on job tasks. The items included: treats all CNAs equally, deals with CNAs' complaints and concerns, is open to new ideas, helps the CNAs with job tasks, supports CNAs working in teams, tells CNAs when they are doing a good job, provides clear instructions, disciplines CNAs not performing well, listens to the CNAs' concerns about residents' care, and is supportive of progress in the CNA's career. In this sample, Cronbach's alpha for this measure was estimated at 0.90. In addition, a dichotomous variable was created from a single item to reflect the CNA's perception of being valued by the employer (

Work-related injury was examined using an item from the Work-Related Injuries section of the NNAS.

A separate series of two-level logistic regression models was run in several steps for each of the outcomes, job satisfaction and intent to leave. The first level of the models was individual CNAs and the second level was nursing homes.

## Outcomes

The degree of supportive supervision and the perception of being valued by the employers were the strongest predictors of job satisfaction among CNAs working in nursing homes. Job satisfaction was significantly associated with intent to leave while controlling for the other factors in the model. For each one unit increase in supportive supervision, CNAs were 4.09 times more likely to be satisfied with their jobs (OR = 4.09 [3.22, 5.20]  $p < 0.001$ ) and 47 per cent less likely to intend to leave their

jobs (OR = 0.53 [0.43, 0.65]  $p < 0.001$ ). Satisfied CNAs were 72 per cent less likely than dissatisfied CNAs to intend to leave. CNAs who reported that they experienced at least one work-related injury at their facilities within the past year were 47 per cent less likely to be satisfied than those who did not report any work-related injury.

Moreover, insured CNAs were 35 per cent less likely to intend to leave their jobs than uninsured CNAs. The majority of nursing home-level work related factors in the model were statistically non-significant for both satisfaction and intent to leave. CNAs working in nursing homes with more than 100 beds were 43 per cent more likely to be satisfied than those working in nursing homes with fewer than 100 beds. CNAs were 30 per cent more likely to be satisfied with an hour increase in CNA hours per patient day. CNAs working in nursing homes in metropolitan areas were more likely to intend to leave than CNAs working in nursing homes in rural areas.

Age, education, and job history were significantly related to intent to leave, but none of the personal factors were significantly related to job satisfaction.

### Limitations

The study was assessed as (+). CNAs working fewer than 16 hours were not included in the survey. This might result in underestimating the percentage of part-time CNAs relative to full-time CNAs working in nursing homes. Thus, the results cannot be generalized to all CNAs working in U.S. nursing homes.

The second set of limitations relates to measurement. Job satisfaction and intent to leave were measured at the ordinal level and were combined into binary variables. Moreover, job satisfaction and CNA perception of being valued by the employer were measured using a single item. These single-item measures may have led to measurement errors.

The staffing data were self-reported by nursing home administrators, however, and covered only one week. The effect of current nursing home culture/climate on CNA job satisfaction was not tested in this study because those data were not available.

### Applicability to the UK

The study was based on a nationally representative survey of nursing assistants in the USA and is partially applicable to the UK.

### 3.1.20 Crain et al. (2014)

This study, based on a survey of employees in a large employer in the USA, examines how work-family conflict is associated with sleep quality and quantity, and how family-supportive supervisor behaviours (FSSB) operate as antecedents of sleep quality and quantity, and mediate the relationship between work-family conflict and sleep outcomes. It also examined whether family-supportive supervisor behaviours moderate the negative relationship between work-to-family conflict (WTFC) and family-to-work conflict (FTWC) and sleep quality and sleep quantity.

#### Method

The survey was completed by 823 out of 1182 employees at a large Fortune 500 firm. Sixty-one per cent of the employees were male and 39 per cent were female; 71 per cent were white; average employee age was 46 years ( $SD = 8.38$ ); 79 per cent were married or cohabitating; and 56 per cent had children living in the home.

Trained field interviewers administered 60 minute face-to-face computer-assisted personal interviews with employees. Immediately after the interviews, researchers offered the actigraphy data collection process, and consenting participants were instructed to wear the sleep monitor (Spectrum, Respironics/Philips, Murrysville PA) on their non-dominant wrist at all times for the next week except in situations where the watch could be damaged (eg, excessive impact, extreme temperatures).

The survey gathered data on a range of measures:

- Work-to-family conflict and family-to-work conflict: was measured by a 5-item subscale (Netemeyer et al. 1996) from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater conflict. WTF  $\alpha = .92$ , FTW  $\alpha = .83$ . WTF example: 'The demands of your work interfere with your family or personal time'. FTW example: 'The demands of your family or personal relationships interfere with work-related activities'.
- Family-supportive supervisor behaviours - a shortened, validated, parsimonious measure of the superordinate FSSB construct (Hammer et al 2013). Scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater FSSB.  $\alpha = .88$ . Example: 'Your supervisor makes you feel comfortable talking to him/her about your conflicts between work and non-work'.
- Self-reported (SR) sleep insufficiency: One item: 'How often during the past four weeks did you get enough sleep to feel rested upon waking up?' from 1 (never) to 5 (very often). Post-reverse scoring, higher scores indicate greater sleep insufficiency.

- SR sleep duration: Two items from the PSQI (Buysse et al. 1989). ‘Over the past four weeks, what time did you usually turn the lights off to go to sleep?’ and ‘Over the past four weeks, what time did you usually get out of bed?’ used to calculate sleep duration.
- SR insomnia symptoms: Two items from the PSQI: ‘During the past four weeks, how often could you not get to sleep within 30 minutes?’ and ‘During the past four weeks, how often did you wake up in the middle of the night or early morning?’ rated from 1 (never) to 4 ( $\geq 3$  times/week) and the two averaged. Higher scores indicate more frequent insomnia symptoms.
- Direct actigraphy measured sleep duration and quality: Sleep monitor actigraphs are wristwatch-size devices containing an accelerometer: continuous movement at a research-set threshold is a proxy for being awake (Ancoli- Israel et al. 2003, Barnes 2012).
- Control variables: Ethnicity (white/non-white), gender (male/female), children living at home  $\geq 4$  days per week and work schedule.

Intra-class correlations (ICC) were calculated to determine the degree of dependency within work groups, using manager as the nesting variable. ICCs for all sleep outcomes ranged from .01 to .03, however authors attempted multilevel modelling and experiences convergence issues in a majority of the models due to very little or no variance between managers with respect to employee sleep outcomes. Insomnia, sleep duration and total sleep models did not converge. For converging models, the random intercept was not significant for sleep insufficiency ( $B = .003$ ,  $p = .87$ ) or quality ( $B = .43$ ,  $p = .93$ ).

All analyses used standard ordinary least squares regression, ignoring the very small levels of inter-group dependency. Due to inter-predictor variable correlation (likely to lead to non-significant unique effects within a block of added predictors), the authors used hierarchical multiple regression with a particular interest on  $\Delta R^2$  and  $\Delta F$  values for each block rather than the significance of individual parameters. Therefore they assessed and focused on the incremental predictive utility of all variables in successive blocks.

## Outcomes

M minutes per night of waking time after sleep onset = 44m (SD = 16.83), moderate correlation ( $r = .41$ ) between self-report sleep time (M = 7.26h, SD = .95) and actigraphically-reported sleep time (M = 7.23, SD = .93).

Ethnicity, gender, children at home and work schedule were all significantly related to sleep variables. Work-to-family conflict and family-to-work conflict and family-supportive supervisor behaviours were all significantly correlated with each other in the expected directions. FSSB was significantly associated with sleep insufficiency, insomnia, and sleep duration in expected directions.

With regard to sleep quality, family-supportive supervisor behaviours were not significantly related to sleep insufficiency ( $\beta = -.05$ ,  $t(623) = -1.16$ ,  $p = .25$ ), insomnia symptoms ( $\beta = -.05$ ,  $t(621) = -1.12$ ,  $p = .26$ ), or waking after sleep onset ( $\beta = -.10$ ,  $t(622) = -.12$ ,  $p = .90$ ), despite the significant negative bivariate correlation between family-supportive supervisor behaviours and sleep insufficiency and insomnia symptoms. On sleep quantity, family-supportive supervisor behaviours were not significantly related to sleep duration ( $\beta = .07$ ,  $t(623) = 1.36$ ,  $p = .18$ ) or actigraphic total sleep time ( $\beta = -2.83$ ,  $t(623) = -1.01$ ,  $p = .31$ ), despite the significant negative bivariate correlation between family-supportive supervisor behaviours and sleep duration. The authors conducted additional analyses with sleep outcomes regressed on work-to-family conflict and family-supportive supervisor behaviours in the first set of models and sleep outcomes regressed on family-to-work conflict and family-supportive supervisor behaviours in the second set of models. By including work-to-family conflict and family-to-work conflict in separate models, significant relationships were found between family-to-work conflict and sleep insufficiency and sleep duration, while family-supportive supervisor behaviours were significantly related to sleep insufficiency (no results reported). The authors conclude that the results partially support the hypothesis that family supportive supervisor behaviour is positively related to sleep quality and quantity.

The authors modelled results relating to the moderating effect of family supportive supervisor behaviour on work family conflict and the results did not support the hypothesis that family supportive supervisor behaviour moderates the negative relationship between work-to family and family to work conflict and sleep quality and sleep quantity.

### Limitations

The study was assessed as (-). The authors stated that self-report and objective sleep measures were not taken from the same timeframe and could have contributed to differential effects. There were different time frames for collecting data on work-to-family conflict and family-supportive supervisor behaviours.

Additional direct or moderating effects may have been found if the four aspects of family supportive supervisor behaviour had been measured separately (emotional

support, instrumental support, role modelling behaviour, creative work-family management)

In addition the reviewers noted that some of the results were not reported and there was insufficient information about how interviewees were recruited to the study and their background including their sector.

### Applicability to the UK

The study was set in an unspecified sector in the USA and is of limited applicability to the UK.

#### 3.1.21 De Raeye et al. (2009)

The study examined the effects of interpersonal conflicts at work on three self-reported health outcomes (self-reported general health, need for recovery, and prolonged fatigue) among male employees and on organisational outcomes (occupational mobility ie, changing job function, and external mobility ie, changing employers), using an employee cohort study in the Netherlands.

#### Method

The Maastricht Cohort Study followed employees from 45 different companies through 10 consecutive self-administered questionnaires, which they received at four-month intervals. Once a year the employees received an extensive questionnaire with items on work and non-work-related factors, demographics and health factors. Twice a year the employees received a short questionnaire, capturing mainly outcome measures. Employees on whom at least baseline and one year follow-up data were available were considered for this study.

Co-worker conflict was studied in 5,582 employees, and supervisor conflict studied in 5,530 employees. Co-worker conflict participants mean age ranged between baseline and one year follow up from 40.89 years to 42.6 years. Supervisor conflict participants mean age ranged between baseline and one year follow up from 42.09 to 43.12 years. Women were excluded (n=2,606) from the study due to the limited number available for longitudinal analysis and the effects of interpersonal conflict which are different for men and women.

Conflicts with co-workers and supervisors were measured with two items from the Dutch Questionnaire on the Experience and Evaluation of Work (Dutch abbreviation VBBA). Conflicts with co-workers were assessed with the question 'Do you have conflicts with your co-workers? (no/yes)'. Supervisor conflict was assessed with the

question 'Do you have conflicts with your daily supervisor? (no/yes)'. Information on interpersonal conflicts was gathered once a year in the extensive questionnaires.

Self-reported general health was measured using one item adapted from the SF-36,27 giving an overall rating of health on a five-point scale (1=excellent, 2=very good, 3=good, 4=moderate, 5=bad). The need for recovery from work was assessed every four months using an 11-item scale from the VBBA. The items represent short-term effects of a day of work. (Cronbach's alpha 0.78). Prolonged fatigue was measured every four months with the 20-item self-reported Checklist Individual Strength (CIS) A composite CIS total score, ranging from 20 to 140 (Cronbach's alpha 0.93), was constructed by adding the item scores. A cut-off point of CIS total .76 was used for case classification.

Logistic regression analyses using generalised estimating equations were conducted for each of the dichotomous outcomes (self-reported general health, prolonged fatigue, need for recovery, internal occupational mobility (changing job function), and external occupational mobility(changing employer)), while controlling for demographic factors (age, education, living situation), the presence of a long-term illness, psychological job demands, decision latitude, social support from co-workers or supervisors and coping behaviour, and outcome at baseline.

## Outcomes

The findings indicated a possible causal relationship between interpersonal conflicts at work and self-reported health and occupational mobility. At baseline, conflicts with co-workers occurred in 7.2 per cent of the study population, while conflicts with supervisors occurred in 9.5 per cent of the study population.

The findings also showed that co-worker conflict was a statistically significant risk factor for the onset of an elevated need for recovery, prolonged fatigue, poor general health and external occupational mobility. Supervisor conflict was also a significant risk factor for the onset of an elevated need for recovery, prolonged fatigue, external occupational mobility, and internal occupational mobility. The groups reporting conflicts reported higher levels of psychological job demands, lower levels of decision latitude, less social support from co-workers or supervisors, and higher levels of emotion-focused coping.

The results showed that employees experiencing a conflict were more likely to change employers (external mobility) than to change job function (internal mobility); particularly when they experienced a conflict with the supervisor.

## Limitations

The study was assessed as (+). Interpersonal conflicts were only measured in the questionnaires that were sent out annually. This time interval does not enable identification of the exact onset and duration of the conflict. The strength of the effects found in the study might have been influenced depending on when the conflict started, whether or not it recurred, and how long it lasted.

A range of possible confounders were considered in the study, but the possible existence of unidentified confounding factors could not be ruled out. For example, negative affectivity was not included as a confounder in this study.

The results of the study applied to men only. It is possible that results for women were different. The baseline prevalence data may be somewhat biased because of the initial response rate of 45 per cent. The use of a single item measure to measure both co-worker and supervisor conflict might raise concern with respect to the validity of the study.

## Applicability to UK

The study was based on survey data from male employees only in a selection of companies in Holland and is partially applicable to the UK.

### 3.1.22 Deery et al. (2010)

This study examined how different forms of socially supportive coping behaviour at the workplace might help alleviate the effects of a high work-load on the level of emotional exhaustion experienced by call centre workers in Australia.

## Method

A questionnaire survey was conducted among 562 customer service representatives in a large unionised telecommunications company in Australia in five locations that had regional responsibilities for enquiries about accounts, charges and service difficulties.

All data, with the exception of demographic variables, were collected using a five-point Likert-type scale format (1 = strongly disagree; 5 = strongly agree) this was used to measure employees' perception of each item and covered:

- Emotional exhaustion (range: 1.00–5.00; M = 3.64; s.d. = 0.95)
- Work-load (range: 1.00–5.00; M = 4.05; s.d. = 0.76)

- Co-worker support (range: 1.00–5.00; M = 3.86; s.d. = 0.82)
- Absence culture (range: 1.00–5.00; M = 3.01; s.d. = 0.77)
- Absence permissiveness (range: 1.00–5.00; M = 2.36; s.d. = 0.70).

The response rate was 85 per cent with 480 questionnaires returned. The majority of the respondents were female (69 per cent) and worked full time (85 per cent). The average tenure with the organisation was 7.4 years.

The data were analysed using hierarchical step-wise regression. Variables (emotional exhaustion, work-load, co-worker support, absence culture, absence permissiveness) were standardised as z-scores in order to test for interaction terms prior to the analysis. A one-way analysis of variance was also used, to examine whether there were significant differences between the five locations in the study.

## Outcomes

The research shows that a supportive co-worker absence culture and team leader absence permissiveness can lessen the effects of job demands on emotional exhaustion and improve worker well-being.

The presence of both an absence culture among an employee's co-workers and permissive attitudes towards absence-taking by team leaders lessened the impact of a high work-load on emotional exhaustion ( $B = -0.099$ ;  $p < 0.01$ ). A permissive attitude to absence-taken by team leaders in situations of perceived high job demands reduced job strain.

A higher work-load had a less positive effect on emotional exhaustion for those employees who reported higher team leader absence permissiveness.

The study also identified a direct (positive) relationship between absence culture and emotional exhaustion at the same time as it found a moderating (negative) effect when workers were faced with high work-loads.

## Limitations

The study was assessed as (+). The authors were not able to collect objective absence data in the period following the survey due to the restrictions imposed on their access to organisational records; this prevented them from testing the relationship between absence culture and subsequent absence taking.

Research design was cross-sectional and the data were collected at one point in time. This prevented the authors inferring causal relationships between the variables.

## Applicability

This study was set among call centre workers in Australia and is partially applicable to the UK.

### 3.1.23 Duffield et al. (2009)

This study examined the factors impacting on nurses' job satisfaction, satisfaction with nursing and intention to leave in public sector hospitals in New South Wales (NSW), Australia, based on a survey of nurses.

## Method

Nurses in 80 medical and surgical units were asked to complete a survey. The sampling approach and data collection method were not stated. No details of the responding sample are reported. The response rate was 80.9 per cent.

The data collected included a wide range of individual nurse data from a larger Nurse Survey (NS) including the Nursing Work Index-Revised (Aiken & Patrician, 2000); shift by shift data regarding the complexity of the working environment (Environmental Complexity Scale [ECS]) (O'Brien-Pallas et al., 2004); detailed and comprehensive staffing data including skill mix variables; patient characteristics; workload data using the PRN-80 (Chagnon, Audette, Lebrun, & Tilquin, 1978; O'Brien-Pallas et al., 2004); a profile of the ward's characteristics; and adverse event patient data.

The NWI-R was analysed with a five factor structure:

- Autonomy (freedom to make patient care decisions and not being forced to do things that are against their judgement)
- Control over practice (having adequate support services that allow time with patients, having enough time and opportunity to discuss patient care problems with other nurses, and having patient care assignments that foster continuity of care)
- Nurse—doctor relationships (fostering collaboration and good working relationships between nurses and medical staff)
- Leadership (having a nurse manager/supervisor who is a good manager and leader)

- Having a good nursing philosophy that pervades the patient care environment); and resource adequacy (having enough RNs to provide quality patient care and to get the work done).

Job satisfaction questions and possible responses were:

- On the whole, how satisfied are you with your present job? (very dissatisfied, a little dissatisfied, moderately satisfied, very satisfied)
- Independent of your present job, how satisfied are you with being a nurse? (very dissatisfied, a little dissatisfied, moderately satisfied, very satisfied)
- Do you plan to leave your present nursing position? (Yes within the next six months, Yes within the next 12 months, No plans within the year).

For descriptive purposes, variables were aggregated to both the ward and total sample levels. Regression analyses were undertaken using hierarchical linear modelling (HLM), a form of analysis designed to deal with multilevel data (Goldstein, 2003). This technique was applied where some variables were measured at the individual nurse level while others were measured at the ward level. In order to compare the relative contributions of the independent variables to the models, beta ( $\beta$ ) weights were calculated where significant at the 0.05 level, using the method recommended for multilevel models by Snijders and Boskers (1999). Nursing response variables were dichotomised in order to deal with non-normal distributions and to improve interpretability. For example, in relation to job satisfaction, 'satisfied' and 'very satisfied' were classed together as were 'dissatisfied' and 'very dissatisfied'; in regard to intent to leave 'yes, within 6 months' and 'yes, within 12 months' were grouped. The remainder were classified as not intending to leave.

## Outcomes

The majority of nurses (67 per cent) were moderately or very satisfied with their present job. An even higher percentage was moderately or very satisfied with being a nurse (71.7 per cent). Positive predictors of job satisfaction were control over their nursing practice, nurse autonomy and the presence of strong nursing leadership on the ward (beta weight = 0.107,  $B = 0.033$ ,  $S.E. = 0.015$ , 95% CI = 0.013 to 0.054).

Nurses who were less likely to leave were more likely to be satisfied with their job, older, have dependents and experiencing good leadership on the ward (beta weight = 0.167,  $B = 0.052$ ,  $S.E. = 0.010$ , 95% CI = -0.065 to -0.038).

## Limitations

This study was assessed as (-). No limitations were reported by the authors, but the review team noted that the sampling and survey administration method and the demographics of sample were not reported and neither were the validity of the measures used.

## Applicability to the UK

The study was set in Australia and has a number of limitations mainly due to the absence of information about the method and therefore is of limited applicability to the UK.

### 3.1.24 Duffield et al. (2010)

The aim of this study was to examine the impact of leadership characteristics of nursing unit managers, as perceived by staff nurses, on staff satisfaction and retention in 21 hospitals in Australia.

## Method

Nurse, environment and patient data were collected for seven consecutive days in 94 randomly selected medical, surgical and combined medical/surgical wards in 21 public hospitals across two Australian states.

All nurses on the selected wards were asked to complete a survey that included a 49-item Nursing Work Index-Revised [NWI-R] together with measures of job satisfaction, satisfaction with nursing and intention to leave.

There were 3,099 potential consenting respondents across 94 wards and 2,488 nurses responded, a response rate of 80.3 per cent. Data from three wards were incomplete and therefore excluded from analyses, leaving a final sample of 2,141 nurses in 91 wards.

Most respondents (n = 1,559) were registered nurses (72.8 per cent), including a small number (n = 29) of clinical nurse educators and clinical nurse consultants. Additionally, 531 enrolled nurses or trainee enrolled nurses (24.8 per cent) and 51 assistants in nursing (2.4 per cent) returned completed surveys. More than half of respondents were employed full time (n = 1107, 51.7 per cent), with the remainder working part time (<38 hours/week, n = 696, 32.5 per cent) or casually (n = 338, 15.8 per cent).

Subscales of the NWI-R were calculated. Leadership, the domain of interest, consisted of 12 items. Wards were divided into those reporting either positive or negative leadership. The variables job satisfaction, satisfaction with nursing and intention to leave were dichotomous. Data were analysed at the nurse level for description and regression analyses.

## Outcomes

The item 'Praise and recognition for a job well done' had the strongest influence on job satisfaction and satisfaction with nursing, with an increase of one point linking to a 47 per cent increase in the odds of being satisfied with the job and a 40 per cent increase in the odds of being satisfied with nursing. This item was also associated with a 17 per cent decrease in nurses' intent to leave.

In addition, an increase of one on the item 'A nurse manager or immediate supervisor who was a good manager and leader' decreased intent to leave by 20 per cent and increased job satisfaction by 17 per cent. This factor scored highly in positive wards and also in the positive range for wards with an overall negative leadership score.

The presence of 'A clear philosophy of nursing that pervades the patient care environment' increased satisfaction with nursing and job satisfaction by 29 per cent and 26 per cent, respectively.

There were five items that distinguished between wards with positive leadership scores and those with negative scores:

- A nurse manager or immediate supervisor who is a good manager or leader
- Nurse managers consult with staff on daily problems and procedures
- Flexible or modified work schedules are available
- A senior nursing administrator who is highly visible and accessible to staff
- Praise and recognition for a job well done.

An immediate nurse manager who was perceived to be a good leader and manager by the staff was also related to job satisfaction and retention.

## Limitations

The study was assessed as (+). No limitations were identified by the authors but the reviewers noted that potential sources of bias/confounders had not been addressed.

## Applicability to the UK

The study was set in Australia and is of partial applicability to the UK.

### 3.1.25 Frenkel et al. (2013)

This study examined employee perceptions of the relationships between senior, line, and human resource managers and whether such relationships were related to employees' job satisfaction and intention to quit, based on a survey of employees in 10 firms in Australia.

#### Method

The main data-gathering instrument was an employee survey administered in 10 firms exploring employee perceptions of management influence and worker attitudes to aspects of their job and organisation. The firms had strong reputations as 'good employers' based on advanced HR policies in their respective industries in Australia. These included financial services (three organisations), hospitality (three organisations), communications (two organisations), and beverages (two organisations).

Survey participation was voluntary and confidential. Surveys were administered either online or in paper format. Based on comparisons of theoretically relevant variables and demographic data, no significant differences were found between employees responding via the different formats. Respondents had two weeks to complete the survey with one reminder. Employee perceptions of HR-line support was measured using 10 items on a five-point Likert scale (1 = not at all, 5 = very effective). Note that all 10 firms employed HR advisers or internal consultants within business units. These managers were visible and usually well-known to employees. Job satisfaction and intention to quit were both measured with three-item scales.

Several demographic variables were included to control for the effects of individual differences (Eisenberger, Cummings, Armeli, & Lynch, 1997; Tsui et al., 1997). Age was measured in years. Gender was a categorical variable with '0' representing male and '1' female. Tenure in current position, in the organisation, and in the industry, was measured by number of months. Working hours was measured as hours a week and like number of months, was treated as a continuous variable.

A total of 3,787 surveys were distributed, and 1,553 were completed. Among the respondents, 51.2 per cent were male, the mean age being 32.91 years (SD = 9.89).

The average organisational tenure of respondents was 4.88 years (SD = 5.61) and average working hours was estimated to be 42.41 hours per week (SD = 10.36).

Hierarchical linear modelling (HLM) was used to simultaneously model effects within and between organisations. Given the small number of organisations the authors used restricted maximum likelihood (REML) estimation in the different HLM analyses. They used a random intercept and clustered on organisation. Since the effects of individual level variables, employee characteristics, and employee perceptions did not differ across the organisations, all variables were treated as fixed effects.

The factor structure of the data was assessed by conducting a confirmatory factor analysis (CFA).

### Outcomes

The results indicated that employees who perceived the level of support was appropriate and consistently offered by both line and senior management, experienced greater work satisfaction and were less inclined to quit their jobs. These relationships are strengthened when communication between senior managers and human resource managers is frequent.

The study found that employees' perceptions of the relations between senior and line management were positively related to job satisfaction and intention to quit. The mean level of job satisfaction was 3.9 (SD = .74 ( $\alpha = .83$ )) and the mean level of intention to quit was 2.44 (SD = 1.08 ( $\alpha = .90$ )). The mean level of HR-support to line managers was 3.39, (SD = .83 ( $\alpha = .93$ )). The correlation coefficient between job satisfaction and HR-line manager support was .42, significant at  $p < .01$ .

The employee outcomes were then regressed on the variable representing the extent of agreement between senior and line management and the results indicate that this variable influenced job satisfaction (positively .05, significant at  $p \leq .05$ ) and intention to quit (negatively: -.09, significant at  $p \leq .01$ ).

The interaction between HR-line management support and extent of agreement between senior and line management: the results indicate significant effects for HR-line support on the two employee outcomes. The main effect of HR-line management support is significant for both job satisfaction (.32, significant at  $p \leq .01$ ) and intention to quit (.45, significant at  $p \leq .01$ ), however the interaction between extent of agreement between senior and line management as perceived by employees and HR-line management support is not significant for either dependent variable. Therefore the authors conclude that HR-line management support does

not strengthen the relationship between the extent of agreement between senior and line management and the two employee outcomes.

Finally to examine whether HR–line management relations is a moderator in the relationship between agreement between senior and line management and the two employee outcomes, a further model was constructed. Although no significant main effect was for HR–LM relations, the interaction between the extent of agreement between senior and line management relations and HR–line manager relations was significant for job satisfaction (.05, significant at  $p \leq .01$ ), and intention to quit (-.05, significant at  $p \leq .01$ ).

### Limitations

The study was assessed as (+). It is based mainly on cross-sectional survey data, therefore it is impossible to confidently distinguish cause from effect. There were a small number of organisations (10) included in the sample which limits generalisability of the findings.

In addition the review team noted that the recruitment of the sample and the administration of the survey was unclear.

### Applicability to the UK

The study was set in Australia and had a number of limitations, mainly due to the absence of information about the method, it is of partial applicability to the UK.

#### 3.1.26 Furtado et al. (2011)

This study aimed to describe nurse managers' leadership behaviours, compare them with staff nurses' perceptions of their leader's leadership, and examine whether leadership components affect job satisfaction among staff nurses. It was based on a survey of nurses in two public hospitals in the Azores (Portugal).

### Method

The target population was 451 registered nurses working in two public hospitals in the Azores (part of Portugal). The study population did not include nurses who worked in operating theatres and outpatient services.

The questionnaire was organised in three sections:

- Demographic and work-related questionnaire: covering gender, age group, qualifications and professional category, weekly hours of workload, and work

arrangements (rotating schedule and/or extra shifts) as well as information on the type of employment contract.

- Leadership effectiveness and adaptability description instrument: developed and validated by Hersey and Blanchard. The instrument consists of 12 questions; each with four different scenarios of response. The respondent must fit into the scene and transpose it into his or her own reality, then choose a response that reflects his/her behaviour or, if evaluating superiors, choose a response that reflects their behaviour. The responses were used to determine leadership *style* (determining; persuading; sharing or delegating); *versatility* (the extent to which a leader can vary his or her leadership style); *profile* (ie the combination of a leader's dominant and secondary support style) and *adaptability*.
- Job satisfaction questionnaire: the instrument for determining job satisfaction among nurses was developed and validated by the authors after being applied in a small sample with similar characteristics to the sample used in the final application. The instrument consisted of 100 closed questions with a Likert scale, where one corresponded to total lack of job satisfaction and five to the maximum job satisfaction. The values obtainable by applying the questionnaire could range between 0 and 100 per cent. For operational purposes, the variable for job satisfaction was arranged into groups: 'no satisfaction' (<50 per cent), 'low satisfaction' (50–70 per cent), 'moderate satisfaction' (70–85 per cent) and 'strong satisfaction' (≥85 per cent).

The final sample included 266 nurses, a response rate of 59 per cent, including 22 nurse managers and 244 staff nurses. The average head nurse was female, nearly 47 years of age, with 26 years of professional experience, including 12 years of experience in management and 8 years as the head of the current ward. The average staff nurse was also a female, 31 years old, with 7.5 years of professional experience and an average length of stay in the current ward of 5 years. Most nurse managers had a degree in nursing and a specialisation.

To compare medians of the two populations under study, the Wilcoxon nonparametric test was used. The Student t-test and one-way ANOVA were used as parametric tests. For the application of parametric tests, the 'job satisfaction' variable was verified for normality and homogeneity using Kolmogorov–Smirnov's and Levene's tests.

## Outcomes

The job satisfaction of staff nurses averaged 66.0 per cent and was significantly lower than the satisfaction levels of nurse managers (71.7 per cent) ( $p \leq .01$ ).

The results concerning the relationship between situational leadership's components and staff nurses' job satisfaction, were broken down into three subsets: profile, versatility and adaptability. The first two subsets were analysed using a one-way ANOVA test while the third was analysed using a student t-test. After running the one-way ANOVA test, it was determined that a leader's profile seemed to have an impact on staff nurses' job satisfaction. In particular the persuading and sharing profile was associated with higher average values of job satisfaction when compared with other profiles (ANOVA:  $F = 7.400$ ,  $p = 0.000 < .05$ ), whereas no statistically significant relationships were found between versatility or adaptability and job satisfaction.

### Limitations

The study was assessed as (+). The theoretical and applied support for Hersey and Blanchard's leadership model was not substantiated or supported in the text and the data was obtained solely by self-report. No indications of the reliability of the measured used were provided.

### Applicability to the UK

The study was set in the Azores and is of partial applicability to the UK.

### 3.1.27 Giallonardo et al. (2010)

The aim of this study was to examine the relationships between new graduate nurses' perceptions of preceptor authentic leadership, work engagement and job satisfaction. 'Preceptorship' involves a one-to-one pairing of a practitioner with a less experienced learner to help them achieve a set of mutually defined learning goals. A preceptor model was introduced in Ontario, Canada to help new graduate nurses settle into the workplace. The nurse preceptor provided individualised supervision, support, for a minimum of 12 weeks.

### Method

The study involved a survey mailed to a sample of nurses used in this study randomly selected from the College of Nurses of Ontario registry list.

Three standardised self-report instruments were used to measure the key study variables:

- The Authentic Leadership Questionnaire (ALQ) (Avolio et al. 2007) was used to measure new graduate nurses' perception of preceptor authentic leadership, consisting of 16 items, divided into the four authentic leadership subscales:

relational transparency, balanced processing, self-awareness and internalised moral perspective. Items were rated on a five-point Likert scale ranging from 0 = not at all to 4 = frequently, if not always. Each subscale was averaged to produce a total scale score between 0 and 4 with higher scores representative of higher levels of authenticity, with Cronbach's alphas ranging from 0.70 to 0.90.

- The Utrecht Work Engagement Scale (UWES) (Schaufeli & Bakker 2003) – a self-report questionnaire was used to measure the work engagement of new graduate nurses.
- Job satisfaction among study participants was assessed using Part B of the Index of Work Satisfaction scale (IWS) (Stamps 1997). This instrument consisted of 44 items divided into six subscales: pay, autonomy, task requirements, organisational policies, professional status and interaction. Items were rated on a seven-point Likert scale ranging from ranging from 1 = strongly agree to 7 = strongly disagree. The responses to each item were summed to obtain the Total Scale Score (TSS), which represented the participants' current level of job satisfaction. Possible scores range from 44 to 308, with higher scores indicating higher job satisfaction. The Cronbach's reliability coefficient for the IWS was 0.89; subscales ranged from 0.60 to 0.89, with the subscale of professional status resulting in an alpha of <0.70.

In addition, questions were asked about participants' age, gender, year of graduation, type of nursing programme attended, academic institution attended, length of employment in the current work setting, employment status, speciality area and 'preceptorship' experience.

The survey elicited 170 responses (a response rate of 39 per cent). The majority of nurses in the sample were female (91.8 per cent), attended a 4-year BScN programme (92.4 per cent) and were employed full-time (75.3 per cent). New graduate nurses averaged 28 years of age, had 22 months experience in nursing and 2.45 years since graduation. Medical–surgical was the most common area of practice (45.9 per cent), followed by critical care (15.3 per cent) and emergency (14.7 per cent).

Descriptive statistics were computed on all study variables. Pearson's correlations, hierarchical multiple regression and mediation analysis were used. Data were normally distributed and a linear relationship existed between the independent variable (authentic leadership) and dependent variables (work engagement and job satisfaction).

## Outcomes

New graduate nurses perceived their preceptors to have a moderate level of authentic leadership ( $M = 3.05$ ,  $SD = 0.62$ ). Job satisfaction was in the third quartile (between the 50th and 75th percentile) ( $M = 192.22$ ,  $SD = 27.12$ ) of the highest possible score of 308, indicating a moderate level of job satisfaction.

When authentic leadership was entered into the regression, work engagement and authentic leadership accounted for 20 per cent of the variance in job satisfaction ( $R^2 = 0.20$ ,  $F = 20.24$ ,  $p < 0.01$ ). Furthermore, work engagement and preceptor authentic leadership were both significant independent predictors of job satisfaction ( $\beta = 0.34$ ,  $t = 4.80$ ,  $p < 0.01$  and  $\beta = 0.22$ ,  $t = 3.02$ ,  $p < 0.01$ ).

New graduate nurses who reported higher preceptor authentic leadership reported greater work engagement. Increased work engagement resulted in greater job satisfaction. The study concluded that when new graduate nurses are paired with preceptors who demonstrate high levels of authenticity, they feel more engaged and are more satisfied.

## Limitations

The study was assessed as (+). The limitations of this study relate to the methodology used to gather data and select the sample. There is the potential for response bias with self-report questionnaires and some new graduates may not have been registered at the time the sample was drawn.

## Applicability to the UK

The study relates to a particular practice on linking new graduate nurses to more experienced 'teaching' nurses in part of Canada and therefore has no applicability to the UK.

### 3.1.28 Gilbreath and Karimi (2013)

This study investigated the extent to which supervisor behaviour is associated with employee presenteeism. It also investigated the efficacy of a measure of job-stress-related presenteeism.

## Method

A questionnaire was mailed to 400 employees in two hospitals in Australia. Except for demographics and controls, all variables were measured using Likert-type

responses. Data was collected on age, type of work and hours worked per week in addition to:

- *Supervisor Behaviour*: measured with the Supervisor Practices Instrument (SPI). High scores indicate that supervisors engage more frequently in positive behaviours. The response anchors range from all the time (5) to never (1). Sixty-three items covering a wide variety of supervisory behaviours (both positive ( $\alpha=.98$ ) and negative ( $\alpha=.92$ ), a mean score of positive and negative behaviour is then calculated).
- *Job-stress*: measured with two items created by Motowidlo et al. (1986) to assess the stress employees experience because of their job. High scores on this scale suggest higher levels of job stress ( $\alpha=.80$ ).
- *Job-stress-related presenteeism*: a self-report scale created by Gilbreath and Frew (2008) was used – this study being the first applied use of the scale. Scale anchors were all the time (5), never (1), and had six items to respond to ( $\alpha=.91$ ).

A total of 180 questionnaires were received, yielding a response rate of 45 per cent. A review of the data revealed that 31 questionnaires were unusable because of incompleteness, resulting in a final data set of 149 respondents. The resulting sample was 59 per cent male with a median age of 31, 11 per cent of respondents were in managerial/supervisory positions, 18 per cent were in manual positions and 71 per cent were in non-manual (eg administrative, technical, sales) positions. Among these, 46 per cent were working part-time and 54 per cent were full-time employees.

Confirmatory Factor Analysis was performed to test the discriminant validity of the positive and negative dimensions of supervisor behaviour. Model fit was evaluated using the chi-square statistic.

## Outcomes

Employees' presenteeism was significantly correlated with age, job stress and negative and positive supervisor behaviour ( $p<.01$ ). Negative supervisor behaviour made a statistically significant contribution to the prediction of presenteeism scores ( $\beta =.50$ ) beyond age, part-or-full-time employment and hours worked per week.

The absolute value of the correlation between positive supervisor behaviour and presenteeism ( $-.36$ ) is much smaller than that for negative supervisor behaviour ( $.57$ ). Hierarchical regression analysis was used to conduct an additional test of the difference in degree of association. In the model, control variables were added in Step 1, positive supervisor behaviour in Step 2 and negative supervisor behaviour in Step 3. Although positive supervisor behaviour was significant at Step 2 of the

analysis ( $\beta=-.36$ ,  $p<.01$ ) it did not make a statistically significant contribution to the prediction of presenteeism beyond negative supervisor behaviour ( $\beta=-.08$ ,  $p<.01$ ).

The authors concluded that negative supervisor behaviour would have stronger associations on job-stress-related presenteeism than positive supervisor behaviour. Supervisor behaviours that had the highest correlation with employee presenteeism were: failing to properly monitor and manage group dynamics, making decisions that affect employees without seeking their input, showing disinterest in employees' ideas and projects, easily threatened by competent employees, remains aloof from employees, ignores employees' suggestions, tends to be guarded in communications. The supervisor behaviour with the highest negative correlation with employee presenteeism was 'helps employees keep work in perspective'.

### Limitations

The study was assessed as (+). The authors pointed out that the study relied on data provided by employees rather than data from co-workers or outsiders, which may be subject to potential distortion. Also they said that presenteeism, is for the most part, an unobservable mental state that is difficult to verify and the study was cross sectional and reverse causality explain the findings?

In addition the review team noted that no details were given about how non-respondents differ to the sample and differences between the types of work not reported.

### Applicability to UK

The study was set in the health sector in Australia and is of partial applicability to the UK.

### 3.1.29 Gillet et al. (2013)

This postal survey of a convenience sample of 323 nurses working in haematology or oncology units from cancer centre units in one province in the northwest of France, tested a model linking procedural justice, supervisor support for autonomy, work needs satisfaction, organisational support, organisational identification and job performance.

### Method

A questionnaire was distributed to 500 nurses working in haematology, oncology or haematology/oncology units from cancer centre units in one province in the

northwest of France. The measures used in the study to assess independent variables were as follows:

- **Procedural justice:** Six items (eg 'My supervisor clarifies decisions and provides additional information when requested') from Niehoff and Moorman scale (1993) was used to assess nurses' perceptions of procedural justice on a seven-point Likert-type scale).
- **Supervisor autonomy support:** Nurses' perceptions of supervisor autonomy support were assessed with the French version of the scale used by Moreau and Mageau (2012). A nine-item self-report measure (eg 'My supervisor consults with me to find out what modifications I would like to make to my work') was used with a seven-point Likert-type scale.
- **Need satisfaction:** Nurses' need satisfaction was assessed with the Basic Psychological Needs in Sport Scale (Gillet et al. 2008). The scale was modified to assess need satisfaction in the work domain (see also Gillet et al. 2012) by replacing 'in my sport activity' by 'in my work'. The questionnaire had three subscales for autonomy, competence and relatedness with a total of 15 items assessed through a seven-point Likert type scale. An overall index of need satisfaction which aggregates across the three needs was created (see Smith et al. 2011).
- **Perceived organisational support:** Perceived organisational support was measured with an eight-item version of the Perceived Organisational Support Scale developed by Eisenberger et al. (1986). The scale includes two items that are reverse scored (eg 'The organisation shows very little concern for me') and used a seven point Likert scale.

The outcomes were assessed as follows:

- **Work satisfaction** (ie 'Globally, I am satisfied with my work') and **job performance** (ie 'How do you evaluate your team's quality of work?') were each measured using single items with five-point Likert-type scale for work satisfaction and a ten-point Likert-type scale for job performance.
- **Organisational identification** was measured with an aided visual diagram reflecting the relation between the nurses and their unit (see Bergami & Bergozzi 2000 which asked participants to circle one of the four pictures (ie 1-4) best describing the link between them and their unit. Higher scores represented higher organisational identification.

The reliability of the scales was measured by Cronbach's alpha for which all alphas were in acceptable ranges (between 0.83–0.91). In addition, descriptive statistics and

Pearson correlations were computed for all study variables. The hypothesised structural model was tested using structural equation modelling. Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables. This analysis was conducted on the covariance matrix and the solutions were generated on the basis of maximum likelihood estimation.

The respondents were made up of 306 women and 17 men working in a haematology unit (n = 41), an oncology unit (n = 203) or a haematology/oncology unit (n = 79). The mean age of the participants was 36\_28 years (SD 10\_31) and the average length of service in the unit was 6\_70 years (SD 7\_30). No data is given on non-respondents so it is not possible to say whether the sample is representative.

The response rate was 65 per cent (n = 323).

## Outcomes

The study found that:

- Procedural justice had a positive and statistically significant relationship with need satisfaction (0.28) and perceived organisational support (0.48)
- Autonomy support had a positive and statistically significant relationship with need satisfaction (0.24) and perceived organisational support (0.24)
- Need satisfaction had a positive and statistically significant relationship with organisational identification (0.29), performance (0.26) and work satisfaction (0.30)
- Perceived organisational support had positive and statistically significant relationship with organisational identification (0.16), performance (0.28) and work satisfaction (0.12)

All significant at (p < 0.05).

Nurses' work satisfaction, organisational identification and job performance could be indirectly increased by supervisors' autonomy-supportive behaviours.

Procedural justice was significantly and positively related to work satisfaction, organisational identification and job performance through its positive effect on need satisfaction and perceived organisational support.

The size of the effect between procedural justice and perceived organisational support (b = 0\_48, p < 0.05) highlighted the importance of procedural justice in creating work conditions that facilitate nurses' perceptions of organisational

support, that in turn were positively associated with work satisfaction, organisational identification and job performance.

Fifteen per cent of the variance in nurses' work satisfaction, 16 per cent of the variance in nurses' organisational identification and 22 per cent of the variance in nurses' job performance were explained by perceived organisational support and need satisfaction.

The study concluded that procedural justice and supervisor autonomy support were significantly related to work satisfaction, organisational identification and job performance through their effects on need satisfaction and perceived organisational support.

### Limitations

This study was assessed as (+).

The design was correlational so causality cannot be inferred and all the outcomes used self-reported measures which can be impacted by social desirability.

The data was collected in only one country and the possibilities of generalising to other countries needs to be demonstrated.

The author noted that adopting a longitudinal or experimental design would be helpful and that objective assessment of outcomes including job performance should be tested. Existing research shows important interplay between the influences of distributive, informational and interpersonal justice but these were not included in the conceptual framework for this study and should be explored.

In addition, the review team noted that the adaptation of a scale to study needs of people in sport for a survey about work-related needs may not be appropriate and a more suitable instrument for the context of the study should have been used.

Work satisfaction was assessed through a single item measure.

Questionnaires were distributed via supervisors and had to be returned to supervisors. Given that the study was about supervisor support, using the supervisor as the distribution mechanism may have an impact on the profile of those who returned the study.

### Applicability to the UK

This study was based in France and is therefore partially applicable to the UK.

### 3.1.30 Gilstrap and Collins (2011)

This email survey of 206 professional employees across all functions in a division of an industrial company in the USA, investigated the role of trust in mediating relationships between procedural and informational justice and transformational leadership behaviours, and employee job satisfaction.

#### Method

Professional employees (N = 246) in a division of an industrial company in the mid-west of the USA, representing all facets of the organisation, including executive management, engineering, sales, finance, operations, marketing, quality, and purchasing were emailed with a survey.

The measures used in the survey to assess independent variables were:

- **Procedural justice.** Colquitt's (2001) seven-item ( $\alpha = .92$ ) procedural justice measure gauged whether subordinates perceived decision-making protocol to be fair with items modified slightly to fit the sampling context. Examples include 'I can express my views during my performance evaluation'.
- **Informational justice.** The five-item informational dimension ( $\alpha = .93$ ) of Colquitt's (2001) organisation fairness measure assessed whether subordinates perceived the content of supervisory communication to be adequate. Examples include 'My supervisor is candid when communicating with me'
- **Core transformational leadership** was assessed through Podsakoff et al.'s (1990) transformational leadership scale. We used nine items ( $\alpha = .91$ ), which Podsakoff et al. (1990) identified as 'core transformational behaviours'. Examples included 'Paints an interesting picture of the future for our group' and 'Encourages employees to be 'team players''.

Transformational leaders (TL) were defined as individuals who inspire followers to transcend their own self-interests for the good of the organisation (Bass, 1990). Transformational leadership involves changing subordinates' values, beliefs, and attitudes so that they are aligned with those of the leader and, ostensibly, the organisation (Podsakoff et al., 1990). Two dimensions of TL focussed on in the study because they relate strongly to communication between managers and employees are fostering the acceptance of group goals and articulating a vision.

Outcomes were assessed as follows:

- **Trust.** Six-items ( $\alpha = .93$ ) from Podsakoff et al. (1990) were used to measure trust. Examples included 'My manager would never try to gain an advantage by deceiving workers'
- **Job satisfaction** was assessed through Cammann, Fichman, Jenkins, and Klesh's (1983) three-item ( $\alpha = .88$ ) job satisfaction scale. Examples include 'All in all, I am satisfied with my job'
- **Organisational identification** was measured with a visual diagram reflecting the relation between the nurses and their unit (see Bergami & Bergozzi 2000 which asked participants to circle one of the four pictures (ie 1-4) best describing the link between them and their unit. Higher scores represented higher organisational identification.

The sample was 75 per cent male and 87 per cent Caucasian; average age was 45 years and average job tenure of 10.6 years. No data was given on non-respondents so it was not possible to say whether the sample was representative.

Based on reviewer calculations from data presented, the response rate was 83.7 per cent ( $N = 206$ ).

Means, standard deviations, intercorrelations, and alpha reliabilities were calculated. Confirmatory factor analysis was used to evaluate the factor structure, as well as the convergent and discriminant validity of all constructs. The five-factor measurement model was assessed and the authors performed nested model comparisons using LISREL.

## Outcomes

The study showed that trust fully mediates the effects of procedural and informational fairness and transformational leadership on employee job satisfaction.

The correlations between job satisfaction and procedural justice ( $r = .22, p < .01$ ), interactional justice ( $r = .28, p < .01$ ), and core transformational leadership procedural justice ( $r = .36, p < .01$ ) are significant. Analyses show support for all three hypotheses.

- H1: Trust in one's supervisor mediates the relationship between procedural justice perceptions and job satisfaction.
- H2: Trust in one's supervisor mediates the relationship between informational justice perceptions and job satisfaction.

- H3: Trust in one's supervisor mediates the relationship between core transformational leadership and job satisfaction.

### Limitations

This study was assessed as (-).

The authors stated that the conceptual model adopted did not include other factors that might affect the relationship between trust and job satisfaction. For example, individual differences (eg propensity to trust) may intervene and alter the link between perceived trustworthiness and assigned trust.

Second, the data in the study were single-sourced and cross-sectional so we cannot state that self-report biases had no impact on the results.

The trust development process may be different for employees depending on how much opportunity they have to interact with their supervisor according to how autonomously they work and where. The length of a relationship with a supervisor is also likely to be important in influencing trust levels but is not assessed in the study.

In addition the review team noted that no information was given about characteristics of non-respondents and representativeness of the sample, so there may be bias in the results.

### Applicability to the UK

This study was based on data from one company in the USA and is therefore only partially applicable to the UK.

#### 3.1.31 Grynderup et al. (2013)

This study examined whether low justice at work, analysed at aggregated workplace level, affected the risk of depression among public sector workers in Denmark.

### Method

The Danish PRISME (Psychological risk factors in the work environment and biological mechanism for the development of stress, burnout and depression) cohort of 10,036 public sector employees from 502 work units in Aarhus, Denmark, was recruited for the baseline study, and 4,489 employees (44.7 per cent) from 474 work units participated. Postal questionnaires measured relational and procedural justice in 2007 and analysed if lower levels predicted new-onset depression present at

follow-up in 2009. Cases of depression were identified in 2007 and 2009 by a two-step procedure: First, participants were identified reporting mental symptoms (symptoms of depression, stress or burn-out) in a questionnaire. Second, these participants were invited to take part in a standardised psychiatric interview to clinically diagnose cases with depression.

Procedural and relational justice were measured using a Danish version of Moorman's organisational justice questionnaire, modified by Kivimäki et al. It contained four items about procedural justice and relational justice respectively, rated on a five-point scale, eg procedures are designed to hear the concerns of all those affected by the decision, your supervisor treats you with kindness and consideration.

The following measures were used to assess mental symptoms: depressive symptoms – the Common Mental Disorder Questionnaire subscale (six items); stress – Perceived Stress Scale (four items); burn-out – Copenhagen Burn-Out Inventory (six items). All questions concerned the last four weeks, and responses were given on five-point scales.

In addition, diagnoses were obtained by the Schedules for Clinical Assessment in Neuropsychiatry interview (V.2.1 part I, sections 6, 7, 8 and 10)<sup>27</sup> according to the International Classification of Disease, 10th revision, Diagnostic Criteria for Research (ICD-10-DCR). All questions referred to the previous three months. Interviews were conducted by 10 medical/psychology students, trained at a one week course by a WHO certified trainer (OM). Inter-rater reliability on item level was satisfactory ( $\kappa=0.71$ ).

Of the 4,237 participants from 378 work units eligible for follow-up, in 2009, 3,047 (72 per cent) participated. The sample included a range of public sector workers: nurses (30 per cent), social workers (18 per cent), teachers (11 per cent), managers (seven per cent) and medical doctors (six per cent). The mean age was 43, 80 per cent were female.

Depression odds ratios (ORs) calculated by logistic regression analyses with robust clusters based on the work unit of the participants.

## Outcomes

The risk of depression increased monotonously by lower levels of procedural and relational justice. The adjusted ORs for a one-point decrease on the five-point justice scales were 2.96 (1.19 to 7.34) and 4.84 (2.15 to 10.90) for procedural and relational justice, respectively. Neither quadratic, nor cubic, nor spline models fitted the data significantly better than the linear models of exposure. The adjusted ORs for the

lowest tertile compared with the highest tertile were 2.50 (1.06 to 5.88) for procedural justice and 3.14 (1.37 to 7.19) for relational justice.

An average inter-rater agreement of 0.75 for procedural justice and 0.77 for relational justice was found, indicating a strong homogeneity within work units. There was no interaction between gender and procedural justice ( $p=0.84$ ) and gender and relational justice ( $p=0.85$ ).

The researchers concluded that their results indicated that a work environment characterised by low levels of justice is a risk factor for depression.

### Limitations

The study was assessed as (+). The baseline participation rate was relatively low (45 per cent), which could have biased results, if participation was associated with level of justice as well as depression. In addition, the authors did not adjust for other psychosocial work factors, and it is possible that the association between justice and depression was, at least partly, mediated by other work factors.

The review team also note that some of the explanatory detail about the study method was not provided.

### Applicability to the UK

The study was set among a range of public service workers in Denmark and is partially applicable to the UK.

### 3.1.32 Halbesleben et al. (2013)

This study looked at the extent to which nurses felt psychologically safe to voice concerns and mistakes towards their supervisors. The study looked at voicing to higher-ups as distinct from voicing within the team or among other co-workers in four acute hospitals in the USA.

### Method

The survey was conducted three times, with six months between each survey administration. The four facilities employ 1,087 registered nurses working in non-management positions. At time 1, 865 nurses completed the survey for an initial response rate of 80 per cent. The Time 2 survey was completed by 724 nurses, and 673 completed the Time 3 survey. Overall they were able to match three rounds of data from 658 nurses, with a final response rate of 61 per cent. The final response

rates for the four facilities did not differ significantly (57 per cent, 63 per cent, 60 per cent and 65 per cent).

All key items in the survey were scored on a five-point Likert type scale from strongly disagree (1) to strongly agree (5).

- *Behavioural integrity for safety*: adapted version of the six-item behavioural integrity scale (Simons et al, 2007).
- *Psychological safety toward one's supervisor*: four-item version of Edmondson's (1999) psychological safety measure. The authors adapted the measure to refer to the supervisor.
- *Safety compliance*: Used the four item safety workarounds scale of Halbelseben (2010).
- *Occupational safety (injuries and reporting)*: occupational injuries were reported with a self-report checklist of injuries that had occurred during the previous six months. Based on the Bureau of Labour Statistics (BLS) and an existing survey from the CDC, with some modifications to address nature of the study organisation. Also reported days of absence as a result of injury. Asked if the injury had been reported to hospital administrators In addition they collected data regarding the number of injuries reported and the number of days as sick leaves. Could not match organisational data to the individual.
- *Control variables*: Controlled for general behavioural integrity by using the six-item behavioural integrity scale (Simons et., 2007) to control for nonspecific effects of behavioural integrity.

The data were analysed through structural equation modelling.

## Outcomes

The model suggested that while safety behavioural integrity (ie employees felt safe to voice concerns about safety and/or about mistakes to their supervisors) was associated with safety outcomes, there may be more direct factors that can improve the prediction of injuries.

The coefficients of determination for injury frequency were much higher with the addition of psychological safety toward one's supervisor and workarounds as mediators.

Safety behavioural integrity is associated with both psychological safety toward one's supervisor (0.32) and safety compliance (0.45) during the subsequent

measurement period; psychological safety toward one's supervisor and safety compliance are then associated with each safety outcome (-.22 and -.68 respectively) during the subsequent measurement period, all significant at 0.5 level).

The authors conclude that leaders play a role not only in the reduction of industrial injuries but also in promoting the reporting of those injuries.

### Limitations

This study was assessed as (+). This was a cross-sectional study and subject to bias associated with self-report measurement.

While researchers were able to account for the dependence associated with the four locations in the analyses, they were unable to account for possible nesting effects from the units and shared head nurses for whom the individuals worked. This was due to the confidentiality concerns of the facilities within which they collected data.

Other factors in the hospital that may have contributed to employee voice issues not discussed.

### Applicability to UK

This study was set in four acute hospitals in the USA and is of partial applicability to the UK.

### 3.1.33 Havig et al. (2011)

This survey examined job satisfaction of 444 registered nurses, auxiliary nurses and unskilled nursing assistants across 22 nursing homes in Norway, with organisations selected through purposive sampling to represent each of seven provinces. Special care units for dementia were excluded due to differences in staffing levels.

It examined the relationships between job satisfaction and task- and relationship-oriented leadership and the direct and moderating effects on job satisfaction of three ward-level factors: workload, use of teams and staff stability.

### Method

Structured interviews were administered to 40 ward managers and 13 directors on which no detailed characteristics or results are given, combined with participant observation by lead author as unskilled worker over three to four days in each ward. Observations fed into assessment of care level as a ward characteristic.

All staff who were working in their ward during the three to four days of field observations were given a paper questionnaire by the lead author, excluding those who had been employed in the current workplace for less than eight weeks and those working solely night shifts.

The survey covered:

- Leadership styles at individual and ward levels (five items each across all four scales). Cronbach's alpha varied from between 0.84 and 0.98 across these scales.
- Job satisfaction (single item was used to measure overall job satisfaction from Brayfield and Rothe (1951). The item was 'Most days I enjoy my work.'

Response rate varied from 71 per cent to 100 per cent with a mean response rate of 87 per cent.

### Outcomes

A multilevel analysis approach was used to recognise a hierarchical structure of determining factors and to capture variation in job satisfaction at the individual and ward level.

- Average job satisfaction both for individual respondents and forwards was 5.89 (scale from 1-7).
- At the individual level ranked from 1–7; at the ward level, the mean varied from 4.00–6.83.
- In the best fit model ( $\chi^2$  dif = 44.21; df = 4;  $p < 0.001$ ) a significant relationship between job satisfaction and task-oriented and relationship-oriented leadership styles was found, with a stronger effect for task orientation of 0.38 (0.08)  $p < 0.05$  compared to relationship-oriented leadership style of 0.16 (0.06)  $p < 0.05$ .
- The effect of the two leadership styles varied significantly across wards. Furthermore, staff stability had both a significant positive direct effect and a moderating effect on job satisfaction, whereas the two other ward-level predictors yielded no significant contributions.

### Limitations

This study was assessed as (-). The authors noted that the sample was not necessarily representative of all nursing homes, confidentiality issues prohibited data collection of gender, occupation and full-time equivalency; ward level variables were collected solely by the first author which could have caused bias.

In addition, the review team noted that characteristics such as age can affect perceived job satisfaction and may have caused biased findings as socio-demographic factors were unknown. It is not clear how observational data were used in the study. No data was collected on job performance.

Single item response was used to assess job satisfaction and is very dated. Wording may lead to focus on work content rather than broader satisfaction with whole job and the elements of work more likely to be associated with variables assessed through questionnaire items of the leadership scales.

### Applicability to the UK

This study was based in Norway and therefore partially applicable to the UK.

#### 3.1.34 Hepburn et al. (2010)

This study examined whether early employer response to workplace injury affected injured workers' subsequent attitudes and mental health among workers in Ontario, Canada.

### Method

Injured workers files in Ontario's Workplace Safety and Insurance Board's (WSIB) database were reviewed to identify those meeting eligibility requirements. Eligibility for the study required that participants had filed a lost-time claim for work-related musculo-skeletal disorders of the back, upper limbs, or neck. Additionally, participants were required to self-report being absent from work for at least five of the first 14 days following their injury.

There were 2,173 eligible workers in the WSIB, of which 1,870 agreed to be contacted, the researchers could not contact 585 of these, and 247 were deemed ineligible by virtue of not meeting the requirements. Of the remainder 632 completed a baseline survey, a participation rate of 61 per cent, and of these 446 completed a subsequent interview after six months – a 71 per cent retention rate. Given workplace focus, the study targeted only 344 injured workers who had maintained an employment relationship.

Telephone surveys were conducted with these workers as part of a larger study. The survey measures included:

- *Covariates*: Several variables were used as covariates in the analyses. One month post injury, respondents reported their gender and age. They were also asked to rate the physical demands of the job they would be returning to on a five point

scale (1 not demanding at all, 5 very demanding). Participants were also asked to rate their level of pain (1 no pain, 10 pain as bad as can be).

- *Workplace-based return to work strategies*: Selected the strategies that were at the discretion of the workplace: early contact with injured workers, offers of work accommodation, ergonomic assessments and the presence of designated return to work co-ordinator. Participants were to report if they had received the strategy or not.
- *Supervisor negative reaction*: three items selected from negative employer response scale (Pransky et al., 2000) and an additional one created for the purpose of this study, Cronbach's alpha of .77. This was measured at one month post injury. Participants asked to rate level of agreement on a five point scale.
- *Mental health*: measured with depressive symptoms at the six-month interview. Well validated self-report scale from the Center for Epidemiological Studies (Radloff, 1977). High scores indicate greater depressive symptoms.
- *Organisational commitment*: At the six month interview, affective commitment, employees' emotional attachment to and identification with their organisation were measured. The items were adapted from Meyer et al. (1993) scale. Participants indicated their level of agreement with each item on a five point scale. Good strong internal consistency (median  $\alpha = .85$ ).
- *Fairness perceptions*: was measured at the six-month interview. Distributive justice was measured with four items, and procedural justice of the decision making process to determine return to work plan with six items. These were adapted from the Colquitt (2001) and Moorman (1991) scales. Participants indicated their level of agreement with each item on a five point scale.

Forty-eight per cent of the participants were women, the average age of 44 years, ranging from 16-68 years. Participants indicated that they had been with their employers for an average of 10.37 years (SD = 8.79).

Regression analyses and descriptive statistics were used to test the hypotheses. Structural equation modelling used to fully examine the relationships studied.

## Outcomes

There was an indication that early contact from the workplace to the worker approached significance as an independent predictor of depressive symptoms ( $p < .10$ ). Fewer depressive symptoms were associated with an early contact.

Supervisor reaction and receiving an ergonomic assessment were significant and independent predictors of affective commitment. An ergonomic assessment enhanced commitment and a negative supervisor reaction decreased commitment.

Supervisor reactions and early contact emerged as significant and independent predictors of organisational justice. Early contact enhanced perceptions of justice and supervisor negative reactions reduced perceptions of justice.

A result of structural equation modelling found that fairness was significantly predicted by supervisor negative reaction ( $\beta = -.47, p < .01$ ) and early contact ( $\beta = .15, p < .01$ ), but not by receiving an ergonomic assessment ( $\beta = .07, ns$ ), the presence of a return-to-work coordinator ( $\beta = -.02, ns$ ). In turn, fairness predicted both affective commitment ( $\beta = .56, p < .01$ ) and depressive symptoms ( $\beta = -.34, p < .01$ ). Greater fairness was associated with greater commitment and fewer depressive symptoms.

### Limitations

The study was assessed as (+). The authors pointed out that it was not known how the sample compared with the population of workers who were more injured and maintained employment relations with the employer where the injury occurred. Also, the study relied solely on self-report data and did not address the quality or tone of the interaction between workers' experiences and whether a strategy was engaged.

In addition the review team noted the small final sample from those who were originally deemed eligible. Also the study was based in one province, guidelines may differ in other areas of Canada and very different to those in the UK.

### Applicability to UK

The study examined injured workers in Canada where the sickness and injury compensation schemes are different from those in the UK and therefore the study has limited applicability to the UK.

### 3.1.35 Hobman et al. (2011)

This study explored the mechanisms by which transformational leaders have a positive influence on the subordinates (followers) and examined the mediating role of follower's leader and group identification on the associations among different transformational leader behaviours and follower outcomes (job satisfaction and supervisor-rated job performance). The study was based on survey data from employees at a community-based healthcare organisation in Australia.

## Method

All 500 employees were invited to participate in the study and 179 responded (a response rate of 35.8 per cent). Data was also obtained from 44 supervisors. One hundred and forty-nine of the employees were female and 24 were male. The amount of time the employees had worked with their current supervisor ranged from one month to 20 years, with an average of 2.36 years (SD = 3.26 years). Seven of the supervisors were male and 37 were female. The supervisors rated between one and 13 employees.

The measurement of variables was separated within a nine-page self-report questionnaire. Supervisors received a shorter two-page questionnaire which asked them to provide ratings of all of his/her employees under his/her direct supervision. These surveys were then linked (by ID code) to employee responses on the self-report survey. The measures generally used a five-point Likert scale and included:

- **Leadership.** Rafferty and Griffin's (2004) transformational leadership scale was used: **Supportive leadership, intellectual stimulation, personal recognition, vision leadership** and **inspirational communication**. The five leader behaviours were moderately to strongly positively correlated with each other: correlations ranged from .52 to .71.
- **Leader identification.** Identification with the supervisor was measured using: 'I am a person who identifies with my supervisor', 'I am a person who feels strong ties with my supervisor', and 'When I talk about my supervisor, I usually say 'we' rather than 'they''. Brown, Condor, Matthews, Wade, and Williams' (1986) group identification scale and Mael and Ashforth's (1992) organisational identification scale.
- **Job satisfaction.** Measured with three items (Warr 1991): 'How satisfied are you with your job?' 'How much do you enjoy your job?' and 'How happy are you with your job?'

The data were analysed using a two-step procedure combining multilevel analysis and structural equation modelling.

## Outcomes

The main findings were:

- Supportive leadership: M = 3.83, SD = .91, coefficient H = .94
- Intellectual stimulation: M = 3.56, SD = .81, coefficient H = .90

- Personal recognition:  $M = 3.91$ ,  $SD = .93$ , coefficient  $H = .99$ . Vision leadership:  $M = 3.93$ ,  $SD = .82$ , coefficient  $H = .87$
- Inspirational communication:  $M = 3.90$ ,  $SD = .87$ , coefficient  $H = .95$
- Leader identification:  $M = 3.53$ ,  $SD = .89$ , coefficient  $H = .90$
- Job satisfaction:  $M = 3.64$ ,  $SD = .94$ , coefficient  $H = .98$

The hypothesis that supportive leadership is positively associated with leader identification was supported, as supportive leadership had a positive relationship with leader identification,  $\beta = .38$ ,  $p < .001$ . The study also found that intellectual stimulation was positively associated with leader identification,  $\beta = .23$ ,  $p < .05$  and personal recognition was positively associated with leader identification,  $\beta = .22$ ,  $p < .05$ .

There was a significant mediating effect via leader identification for the associations between supportive leadership and job satisfaction (SI effect = 0.21,  $p < .01$ , 95 per cent CI = .12-.32).

The authors concluded that leaders who provided more support to followers, and encouraged followers to critically and independently evaluate issues, tended to have followers who felt closer ties with the leader and this sense of identity was associated with higher level of job satisfaction as well as higher supervisor rated performance.

### Limitations

The study was assessed as (+). Although the portion of the model with respect to supervisor-rated job performance was less susceptible to common method variance biases, the mediating model including job satisfaction was vulnerable to these biases.

Although identification processes provided an explanation for the effects of leadership on follower outcomes in the current study, it does not preclude the role of other variables, such as the self-concept variables of self-efficacy, self-esteem, and self-consistency.

### Applicability to UK

The study was set in an Australian healthcare organisation and is partially applicable to the UK.

### 3.1.36 Jenkins and Stewart (2010)

This study empirically tested the impact of nurse managers' servant leadership orientation on nurse job satisfaction. In particular it examined whether there was a positive relationship between a manager's commitment to serve, as described by servant leadership, and nurse job satisfaction and whether there was a significant positive relationship between a manager's use of role inversion behaviours and nurse job satisfaction. The study also examined whether when the manager's commitment to serve and role inversion behaviours were both high, servant leader orientation of the manager would also be high and would be associated with high employee job satisfaction.

#### Method

The study was set in the 33 departments responsible for providing direct bedside patient care within inpatient departments in a large, multidivisional health care system in the USA. Each department was led by a department head that was the focal point of the study. All department heads reported under a single vice president of nursing and chief nurse officer.

Data were collected via a series of questionnaires. The participants were asked to complete two questionnaires regarding their perceptions of their immediate department head and one questionnaire, which collected information on demographic characteristics. After these questionnaires were complete, participants were asked to complete one additional questionnaire regarding their individual job satisfaction. The key measures were:

- **Commitment to serve:** used the 23 items in Barbuto and Wheeler's 2006 questionnaire. Five point Likert-type scale (strongly agree – strongly disagree). Scores were converted to z-scores to compensate for restriction of range on the Likert scale. Higher scores = a greater commitment to serve. Cronbach's  $\alpha = .80$ .
- **Role Inversion Behaviour:** used three items on Sherman's scale. Five point Likert-type scale (strongly agree – strongly disagree). Scores were converted to z-scores. Higher scores = greater degree of role inversion behaviour. Cronbach's  $\alpha = .72$ .
- **Servant Leader Orientation:** generated by the multiplying commitment to serve z-score and the role inversion behaviours z-score ie the interaction effect.
- **Job Satisfaction of Nurses:** from the Work Climate Survey of the Jackson Group Inc. (2007) – non-published instrument in use in health care for 18 years. Measured by averaging two items where respondents are asked their level of agreement to the question, 'Knowing what I know now, I would still make the same decision to

work here' and 'Overall, I am satisfied with my job here.' Five-point Likert-type scale (strongly agree – strongly disagree). Scores were converted to z- Higher scores = a greater role inversion behaviour.

- **Control Variables:** Gender, ethnicity, self-reported performance. Included to explain variance in job. Performance evaluation was included as a proxy for competence.

There were 210 completed questionnaires, a response rate of 73 per cent. 91.30 per cent were female, 75.6 per cent were white, and 59 per cent under 40. Self-reported performance evaluation:  $M = 3.92$ ,  $SD = 1.18$ .

The data were evaluated by multivariate regression. A series of tests for multicollinearity (ie to see whether variables in the regression were strongly related to each other) were performed to ensure that each independent and control variable contributed independently to the variance explained in the regression models. Potential multicollinearity problems were investigated by examining variance inflation factors and tolerance. The results of these tests were substantially below the suggested cut-offs for multiple regression models.

## Outcomes

Many of the nurses were not satisfied with their job. There was a strong positive correlation between commitment to serve and job satisfaction, and role inversion behaviours and nurse job satisfaction.

Model 1 (servant leadership on nurse satisfaction) included the control variables used in the study. Gender and diversity results suggest that generally, without accounting for managerial impact, male nurses were more likely to report greater job satisfaction. Performance evaluation was used as a proxy to control for competence. There was no statistically significant relationship between performance evaluation rating and job satisfaction. ( $\beta = .090$ ). When the commitment to serve was introduced into the model, it was positively associated with nurse job satisfaction at a statistically significant level ( $\beta = .547$ ,  $p < .001$ ). The commitment to serve variable increased adjusted  $r^2$  of the model substantially (from  $\beta = .037$ ,  $p < .05$  to  $\beta = .294$ ,  $p < .001$ ). This also indicated the value that commitment to serve brings to the managerial role. When nurse managers were perceived by individual nurses as having a commitment to serve, the nurse is likely to have greater job satisfaction.

Model 3 examined the additional impact that role inversion behaviour has on job satisfaction. The value of role inversion behaviour in the model is the recognition that a commitment to serve or the attitude of service is not the only way to provide emotional support to the professional caregiver. Role inversion behaviour was

statistically significant in the model ( $\beta = .146$ ,  $p < .05$ ) and the statistically significant change in adjusted  $r^2$  justifies its additional inclusion in the model (from  $\beta = .294$ ,  $p < .001$  to  $\beta = .305$ ,  $p < .001$ ). Role inversion behaviour suggests that when nurse managers engage in behaviours that respect the professionalism of the nurse caregivers and provide them with empowerment, the nurse caregivers will experience more job satisfaction.

Model 4 examined the idea that the interaction of commitment to serve and role inversion behaviour represents the servant leader orientation of the manager toward the individual. In this research, at the individual level of analysis, the result was statistically significant but negatively impacting job satisfaction ( $\beta = -.24$ ,  $p < .05$ ). The additional incremental increase in adjusted  $r^2$  was 1.3 per cent, a statistically significant increase (from  $\beta = .305$ ,  $p < .001$  to  $\beta = .318$ ,  $p < .05$ ). Interpretation of the sign of the standardised beta coefficient is complex because of the use of z-scores..

### Limitations

The study was assessed as (+). The authors note that the dependent variable, job satisfaction, does not reflect the multidimensional nature of this concept. The measure used here was a more general indicator of attitude toward the overall environment or climate rather than reflecting satisfaction with particular elements of the job.

This study was done within one health care system. Although this did control for macro-organisational influences, there could be some systemic bias that remains within the data.

### Applicability to the UK

The study was set in a health care organisation in the USA and is of limited applicability to the UK.

#### 3.1.37 Kara et al. (2013)

This study examined effects of leadership styles on employee burnout and organisational commitment using survey responses from 443 staff working in 384 five star hotels in Turkey, based on proportional stratified random sampling estimated to be representative of the hotel population.

## Method

A questionnaire was administered by hotel managers and returned by employees to a public collection box in each hotel. It compared the effects of transactional versus transformational leadership styles.

Transactional leadership is conceptualised as:

- 1) Contingent reward: contracts exchange of rewards for effort, promises rewards for good performance, and recognises accomplishments
- (2) Management by exception (active): watches and searches for deviations from rules and standards, and takes corrective action
- (3) Management by exception (passive): intervenes only if standards are not met
- (4) Laissez-faire: abdicates responsibilities and avoids making decisions.

Transformational leadership is conceptualised as:

- (1) Charisma: provides vision and sense of mission, instils pride, gains respect and trust
- (2) Inspirational motivation: communicates high expectations, uses symbols to focus efforts, and expresses important purposes in simple ways
- (3) Intellectual stimulation: promotes intelligence, rationality, and careful problem solving
- (4) Individualized consideration: gives personal attention, treats each employee individually, coaches, and advises.

Transactional leadership was assessed through a five point Likert scale used for 16 items (eg 'My supervisor provides others with assistance in exchange for their efforts') with a Cronbach's  $\alpha = 0.9$ . Transformational leadership was assessed via a five-point Likert scale used for 20 items (eg 'My supervisor talks optimistically about the future') with a Cronbach's  $\alpha = 0.95$ .

In the survey:

- **Quality of working life (QWL)** was measured via 16 item index covering seven dimensions: satisfaction of health and safety needs, satisfaction of economic and family needs, satisfaction of social needs, satisfaction of esteem needs, satisfaction of actualisation needs, satisfaction of knowledge needs, satisfaction of esthetic needs.

- **Employee burnout** was measured via a 22 item measure covering emotional exhaustion, personal accomplishment, and depersonalisation. Three composite values reflecting the three conceptual dimensions were used for statistical analysis.
- **Organisational commitment** was measured using a 15 item measure based on Mowday et al. (1979)
- **Life satisfaction** was measured using a 15-item instrument developed by Sirgy et al. (2001).

Response rate: 443 returned questionnaires of 1,200 distributed, ie 37 per cent response rate.

Seventy-three per cent of the respondents were male, 61 per cent were single and their ages ranged from 20 to 54 with a mean age of 32 years. They had average service of 4.6 years in their current organisation, with 6.2 per cent having service of more than 10 years, and an average of 6.6 years working in hotels. Their primary functional areas were: food and beverage departments (51.9 per cent), rooms (34.5 per cent), and a variety of other areas such sales and marketing (13.6 per cent).

A two-step procedure of structural equation modelling (SEM) measurement model analysis and structural model analysis was employed.

### Outcomes

Findings showed a positive and significant correlation between employee outcomes and transformational leadership as follows:

- transformational leadership and QWL ( $r = .50, p < .01$ )
- QWL and employee burnout ( $r = -.41, p < .01$ )
- QWL and organisational commitment ( $r = .40, p < .01$ )
- QWL and life satisfaction ( $r = .43, p < .01$ )
- Employee burnout and life satisfaction ( $r = -.35, p < .01$ )
- Organisational commitment and life satisfaction ( $r = .34, p < .01$ ).

### Limitations

This study was assessed as (+). The authors noted that the respondent sample may not be representative of the employee population in other type of hotels and different countries, and that the study was a cross-sectional survey so causal effects

cannot be shown. The specific mechanism by which leadership affects QWL was also not explored by the study.

In addition the review team noted that the survey had a relatively low response rate of 37 per cent and no attempt was made to correct for response bias. No selection/exclusion criteria were reported.

### Applicability to the UK

This study was based in Turkey and therefore of limited applicability to the UK.

### 3.1.38 Lee et al. (2011)

This study aimed to examine the relationship between job satisfaction and perceived mentoring among health supervisors and practitioners in a large county mental health agency in the South West USA.

#### Method

Employees and supervisors were invited to take part in an on-line survey. There were 83 respondents, a response rate of 55 per cent, but only 56 responses could be used (an effective response rate of 36 per cent). The majority of the participants were female ( $n = 38$ ; 67.9 per cent) and Caucasian/ European-American ( $n = 40$ , 71.4 per cent). Most were practitioners ( $n = 41$ , 73.2 per cent) rather than supervisors.

The on-line survey included one standardized job satisfaction measure, the Job Descriptive Index–Revised (JDI) and Job in General Scale (JIG; Balzer et al. 1997) and one standardised mentoring measure, the Alleman Mentoring Activities Questionnaires (AMAQ; Alleman and Clarke 2002).

The JDI examines five facets of job satisfaction—Work on the Present Job, Opportunities for Promotion, Pay, Supervision and People at Present Job. The facets are independently scored and not combined into a total score. Four of the five subscales of the JDI and the JIG were used in this study, and the Cronbach's Alphas for this study were: JDI (Work on Present Job,  $\alpha = .86$ , Opportunities for Promotion,  $\alpha = .87$ , Supervision,  $\alpha = .92$ , and People at Present Job,  $\alpha = .88$ ) and JIG ( $\alpha = .89$ ).

The AMAQ is a standardized instrument comprised of nine subscales that measure the amount and quality of mentoring activities (Alleman and Clarke 2002). Eight subscales were used, and the Cronbach's Alphas in this study were: Teach the Job,  $\alpha = .97$ , Career Counselling,  $\alpha = .95$ , Sponsor,  $\alpha = .95$ , Protect,  $\alpha = .94$ , Teach Politics,  $\alpha = .96$ , Career Help,  $\alpha = .94$ , Assigning Challenging Tasks,  $\alpha = .93$ , and Demonstrated Trust,  $\alpha = .98$ .

## Outcomes

The study found that employees who perceived being involved in mentoring relationships with supervisors were more satisfied with their jobs than those who perceived that they were not involved in mentoring relationships ( $p = .014$ ). The mentoring functions of recommending for special projects ( $p < .001$ ), assigning challenging tasks ( $p < .0001$ ), and demonstrating trust ( $p < .001$ ) were associated with job satisfaction.

## Limitations

The study was assessed (-). In addition to highlighting the cross-sectional design, the authors noted that the mentoring relationships in this study included the practitioners' direct supervisors. The hierarchical power relationship, with the supervisor having authority to assign tasks, promote and terminate employment, may have influenced the results regarding job satisfaction. In addition, participants who were supervisors may have had difficulty distinguishing the role of mentor versus supervisor.

In addition the review team pointed out that there was very little information in the study about the sample selection and sampling procedure.

## Applicability to the UK

This study is set in a mental health institution in the USA and is of limited applicability to the UK.

### 3.1.39 Madsen et al. (2014)

This study examined whether the association between emotional demands and common mental disorders were modified by good leadership, using a combined data set of two separate but related surveys of employees in workplaces in Sweden and Denmark.

## Method

The study was based on data from two representative Scandinavian cohort studies, the Danish Work Environment Cohort Study (DWECS) 2005, and the Swedish Longitudinal Occupational Survey of Health (SLOSH) 2006. The questionnaire data were linked with national registers on medication purchases.

Antidepressant treatment was measured through national registers on prescription medication purchases. The time of follow-up was 2.6 years (960 days). Emotional

demands were assessed in both studies using an item from the Copenhagen Psychosocial Questionnaire (COPSOQ). To assess leadership quality a four item scale was constructed measuring whether the manager listens, is supportive, appreciative, and informative.

In DWECs, mental health at baseline was assessed by the five-item Mental Health Inventory (MHI-5) from the Short Form 36 questionnaire [32]. In SLOSH, mental health was assessed by six questions from the (Hopkins) Symptom Checklist 90 (SCL-90)

The study used Cox regression and examined hazard ratios (HRs) for antidepressants treatment during 2.6 years (960 days) of follow-up, in relation to the joint effects of emotional demands and leadership quality. The modifying influence (buffering) of leadership was assessed with Rothman's synergy index. Cohort-specific risk estimates were pooled by random effects meta-analysis.

Analyses controlled for sex, age, marital status, education, income, and employment status.

Five sets of sensitivity analyses were conducted to assess the robustness of the findings conducted.

### Outcomes

The results indicate that any buffering by good leadership was modest; high emotional demands at work were associated with antidepressant treatment whether quality of leadership was poor (HR = 1.84, 95 % CI 1.32–2.57) or good (HR = 1.70, 95 % CI 1.25–2.31). The synergy index was 0.66 (95 % CI 0.34–1.28).

For quality of leadership, the hazard ratio after adjustment for baseline mental health was 1.17 (95 % CI 0.95–1.43) with  $p = 0.91$  for heterogeneity.

The results were similar after adjustment for occupational group, with hazard ratios of 1.75 (95 % CI 1.41–2.17) with  $p = 0.54$  for heterogeneity for emotional demands and 1.03 (95 % CI 0.85–1.25) with  $p = 0.51$  for quality of leadership.

### Limitations

The study was assessed as (+). The authors pointed out that the measure used for leadership quality was partly based on the availability of similar items in the two studies. Hence it was not a validated scale, and may not have properly captured the most important aspects of leadership quality.

Measured emotional demands using a single item, rather than the full scale, due to data availability.

The general population study sample applied may not have provided sufficient exposure contrast on leadership quality to demonstrate its full buffering potential, given the distribution of this construct in the sample, with most respondents clustered around average to-good levels.

The outcome of antidepressants treatment as an indicator for common mental disorder should also be interpreted cautiously.

Antidepressants are used for various disorders, and whilst antidepressants seem a valid measure of common mental disorder in general, specific disorders cannot be disentangled.

### Applicability to the UK

The study was based on robust surveys of a range of employees in Sweden and Denmark and is therefore likely to be applicable to the UK.

#### 3.1.40 Martinez-Córcoles et al. (2011)

The purpose of this study was to find out how leader behaviours influence employees' safety behaviours (perceived safety behaviours) in the nuclear field based on a survey of employees. The researchers studied the role of culture in the relationship between leadership and safety climate and, thus, how leaders transmit the safety culture. How does leader behaviour impact safety climate when a strong safety culture exists? Is that impact different in a weak safety culture? Or, in other words, how is the impact if leaders' behaviour on safety climate influenced by safety culture?

#### Method

A questionnaire was distributed to all 760 employees in a nuclear power plant in Spain. The sample was composed of 566 workers from one nuclear power plant (a 74.5 per cent response rate).

The key measures in the survey were:

- *Empowerment leadership*: used an adaptation of the Empowerment Leadership Questionnaire (Arnold et al, 2000). Consisted of 17 items (adapted as original scale was too long), using a five-point Likert scale ranging from 1 (never) to 5 (always).

- *Safety culture*: assessed by the safety culture questionnaire, consists of a scale elaborated by their own team. The survey had 24 items where respondents were asked to indicate the degree to which nuclear safety was important in a set of organisational practices and used a five-point Likert scale 1 (not at all) to 5 (quite a lot).
- *Safety climate*: based study on Zohar and Luria (2005) to create an adapted Spanish scale. Scale consisted of 16 items with a five point Likert scale ranging from 1 (completely disagree) to 5 (completely agree).
- *Safety behaviours*: recorded on scale based on Mearns et al. (2001) which tested for the fulfilment level of safety norms, procedures and rules, adapted the scale to make it 10 items long (two items from original scale not relevant). The questions had a five-point scale: 1 (never) to 5 (usually) was used, so that higher scores reflect risky behaviours.

Confirmatory factor analysis was used to obtain validity about the scales used. To examine the fit of the models, this was examined through root mean square error approximation. Structural equation modelling was used to find support for the hypotheses.

## Outcomes

Safety climate was a mediator between leadership and safety behaviours, and safety culture was a moderator in the relationship between leadership and safety climate, which also had a direct influence on safety climate and on safety behaviours.

Values for regression line slopes, were 0.26 (t-value=2.40,  $p < .05$ ) for strong safety culture and 0.40 (t-value=5.17,  $p < .01$ ) for weak safety culture. The relationship between leadership and safety climate is positive when a strong safety culture exists, or when there is a weak safety culture. The effect of this relationship is different depending on the strength of the safety culture. A safety empowered leader can make up for a weak safety culture, however better results were registered when empowering leaders and strong safety cultures were combined in the same organisation.

The authors concluded that the leaders influence employees' safety behaviours by means of safety climate. When leaders behave as empowering leaders, they produce an appropriate safety climate which results in a greater number of safety behaviours.

## Limitations

The study was assessed as (-). It tested leader safety behaviours at all levels and was able to show which behaviours a direct leader must show to induce a safety climate for employees, but were not able to say which behaviours are more appropriate at each level of the hierarchical organisational structure.

Leaders were not asked for their employees' safety behaviours

The study used self-report measures, and results may have been inflated as a result of respondent's tendencies to respond in a consistent manner, as well as the cross-sectional character of the study, where the variables were reduced to snapshot instead of dynamic processes over time.

Safety behaviours were measured in a subject, self-report way and did not measure real observed safety behaviours, but their perceptions about how they behaved in relation to safety.

The model only considered some organisational and social factors, an important part of safety, in part because they were testing perceived safety behaviours as outputs in the model, and perceptions of ones' own behaviours depend largely on the safety culture and safety climate.

## Applicability to UK

The study was set in a nuclear power plant in Spain and is partially applicable to the UK.

### 3.1.41 Minnotte et al. (2013)

This study examined the relationships between workplace characteristics, work-to-life conflict, and psychological distress among workers in the medical industry in the USA.

## Method

The study used data from the 2002 National Study of the Changing Workforce (NSCW). The NSCW was a telephone survey of a randomly selected sample of working adults aged 18 or over in the United States and was initiated by the Families and Work Institute. The study excluded all participants to the NSCW who did not identify themselves as medical workers. The survey included a number of measures:

- Psychological distress was measured with five items. All items were averaged with higher scores indicating greater levels of psychological distress ( $\alpha = .74$ ).
- Work-to-life conflict was also measured with five items. Responses were summed and divided by five for ease of interpretation. Higher scores indicated a higher level of work-to-life conflict, and the scale had an alpha reliability coefficient of .87.
- Co-worker support was measured with a four-item scale. Items were reverse-coded, summed, and averaged, such that higher scores indicated higher levels of co-worker support ( $\alpha = .75$ ).
- Supervisor support was measured with a nine-item scale used by previous researchers (Minnotte, 2012; Beutell, 2010). The items were reverse-coded, summed, and averaged such that a high score indicated a high level of supervisor support ( $\alpha = .90$ ).
- Job autonomy was measured using three items. The scores were summed and averaged with higher scores indicating higher levels of job autonomy ( $\alpha = .71$ ).
- Job pressure was measured using a five-item scale that has been used in past research (Schieman & Glavin, 2011). The items were reverse-coded, summed, and averaged with higher scores indicating more pressure. The scale had an alpha reliability coefficient of .69 for those in the medical industry.
- Non-standard work hours were measured with one item that assessed whether participants worked a standard Monday through Friday day shift or another type of shift that is not a regular day shift.

The study also accounted for demographic variables that may impact psychological distress, including: the presence of children under age 18 in the home, age, gender, race, household income, and education.

There were 246 medical workers in the sample with an average age of 43 years (S.D. = 13.39), with 75 per cent of the sample consisting of women and 25 per cent consisting of men. Some 48 per cent of respondents had at least one child under the age of 18 living in the home, and the majority of respondents (79 per cent) were white. On average respondents report household incomes between \$28,000 and \$79,999. The average educational level was some college.

Bivariate correlations for the variables and stepwise ordinary least squares (OLS) regression were used to test hypotheses. The regression analysis tested the direct relationships between job pressure, work hours, non-standard work hours, job autonomy, co-worker support, supervisor support, the control variables, and

psychological distress. The Sobel test was used to further test the significance of any mediating relationships.

### Outcomes

The results showed a direct relationships between job pressure, supervisor support, and psychological distress among medical workers and indirect relationships suggesting work-to-life conflict mediates the relationships between job pressure and supervisor support and psychological distress.

Supervisor support was significantly associated with psychological distress among medical workers ( $\beta = .19$ ,  $p < .01$ ).

There was a positive association between job pressure and work-to-life conflict ( $\beta = .34$ ,  $p < .001$ ), and a negative relationship between supervisor support and work-to-life conflict ( $\beta = -.18$ ,  $p < .01$ ). The relationships between job pressure and supervisor support and psychological distress were mediated by work-to-life conflict.

The Sobel tests suggest that work-to-life conflict is a significant mediator of the relationships between job pressure and psychological distress (Sobel = 4.47,  $p < .001$ ) and supervisor support and psychological distress (Sobel = 2.60,  $p < .01$ ).

### Limitations

The study was assessed as (+). The authors acknowledge that without longitudinal data, it is not possible to determine that the relationships proposed do not work in the reverse, with the dependent variable, psychological distress, leading to changes in the independent variables.

They also state that because psychological distress is a global measure, it is unclear what specific types of distress were experienced by workers, which may add complication to improving situations for these workers.

The study examined the overall medical industry rather than specific occupations, however, there is no way of knowing whether the occupations of the respondents were representative of the distribution of occupations in the overall medical industry.

### Applicability to the UK

The study was based on a sub-sample of a 2002 survey in the USA and is partially applicable to the UK.

### 3.1.42 Munir et al. (2012)

This study explored the mediating effects of work/life conflict between transformational leadership and job satisfaction and psychological well-being in an elderly care setting in a large Danish local government. The aim was to test whether transformational leaders influenced followers' well-being and job satisfaction by influencing their attitude and control over their work/life balance.

#### Method

Staff employed to provide elderly care in a large Danish local government were asked to take part in the study. The 551 staff included health-care assistants, nurses, physiotherapists, cleaning personnel, canteen personnel and maintenance staff. Each group had a formal leader with managerial responsibilities. Participants were asked to rate on transformational leadership behaviours of their formal leader. A total of 30 leaders were rated by their followers at two time points. At Time 1 N = 447 (81 response rate per cent), and at Time 2 (15 months later), N = 274 (53 per cent).

The study was based on data from 188 people who provided responses at both points. (N = 188). The majority were female (93 per cent). The mean age was 45 years (SD = 9.90 years) and they had been working in their current workplace for nine years (SD = 7.70 years) on average (at Time 1). The majority of staff were health-care assistants (61 per cent), 12 per cent were nurses, 21 per cent had other health-related educations and the remaining eight per cent had no health-care related education. This longitudinal sample is representative of the T1 and T2 samples in terms of age, gender and education.

In order to minimise common method biases in our data collection (see Podsakoff et al. 2003), questions on transformational leadership and work/life conflict were collected at baseline and data on job satisfaction and psychological well-being were collected at follow-up. The key measures included:

- **Transformational leadership:** (seven items) measured using the Global Transformational Leadership Scale developed by Carless et al. (2000). Good convergent validity with established lengthier scales such as the Multifactor Leadership Questionnaire (MLQ) and the Leadership Practices Inventory (LPI) (Carless et al. 2000). An example of items is: 'My leader encourages thinking about problems in new ways and questions assumptions'. Response categories were: 1 = To a very large extent -> 5 = To a very small extent. Cronbach's  $\alpha$  at baseline = 0.90.

- **Job satisfaction:** (five items) eg 'how satisfied are you with your job as a whole, everything taken into consideration?' The response categories were 1 = Very satisfied -> 4 = Highly dissatisfied. The scale was reversed such that a high value reflected a high level of job satisfaction. Cronbach's  $\alpha = 0.82$ .
- **Psychological well-being:** (five items) this scale measured the degree to which employees had been in a positive state of mind over the past two weeks, eg happy and vivacious (Bech et al. 2003), eg 'Have you over the past two weeks felt active and energetic?' Response categories were: 1 = All the time, 2 = Most of the time, 3 = A bit more than half of the time, 4 = A bit less than half of the time, 5 = Only a little of the time, 6 = Not at all. For the analyses the scale was reversed such that a high value represents a high level of well-being. Cronbach's  $\alpha = 0.85$ .

Correlation analyses were run for all variables. Regression analyses were conducted to examine the relationships between baseline transformational leadership behaviours and work/life conflict, and follow-up job satisfaction and psychological well-being ( $n = 188$ ).

## Outcomes

The main findings were:

- Transformational leadership ( $M = 59.10$ ,  $SD = 20.64$ )
- Well-being ( $M = 67.63$ ,  $SD = 15.76$ )
- Job satisfaction ( $M = 64.91$ ,  $SD = 15.68$ )

Transformational leadership accounted for 10 per cent of the variance in job satisfaction. As the relationship between transformational leadership and job satisfaction was significant, the mediator, work/life conflict, was entered into the third step regression model. Regression of transformational leadership (TL) onto job satisfaction:

- Without mediation of work/life conflict:  $\beta = .30$  ( $p < .01$ ),  $F_{6,119} = 2.26$  ( $p < .01$ ),  $R^2 = .10$
- With mediation of work life conflict:  $\beta = .27$  ( $p < .01$ ),  $F_{7,118} = 2.19$  ( $p < .01$ ), total  $R^2 = 0.12$  ( $p < .01$ ),  $R^2 \Delta = 0.02$

After controlling for age, gender, tenure, partner, children living at home, transformational leadership accounted for eight per cent of the variance in psychological well-being. When work/life conflict was entered into the equation, the beta was reduced and no longer significant. It appears that the relationship between

transformational leadership and psychological well-being (PW) was mediated through work/life conflict. Regression of TL onto PW:

- Without mediation of work/life conflict:  $\beta = .20$  ( $p < .05$ ),  $F_{6,117} = 1.74$ ,  $p$  not significant),  $R^2 = .08$ .
- With mediation of work life conflict:  $\beta = .12$  ( $p$  not significant),  $F_{7,116} = 2.81$  ( $p < .05$ ), total  $R^2 = 0.15$  ( $p < .01$ ),  $R^2 \Delta = 0.07$

It would appear that the relationship between transformational leadership and psychological well-being was mediated through work/life conflict. Work/life conflict mediated between transformational leadership and well-being, but not job satisfaction.

### Limitations

The study was assessed as (+). The findings were based on self-reported data. While it could be argued that it is unclear what aspects of work/life conflict the findings related to, recent discussions on the issue have suggested that work–family conflict only reflects the concerns of workers with dependent children, infirm parents or others requiring care.

Measure of work/life conflict consisted of only two items measuring the effect of work on time and energy and its impact on private life. This study employed one single scale of transformational leadership subcomponents.

In addition the review team noted the relatively high drop out between the two data points resulting in a limited number of cases in the final analysis.

### Applicability to UK

The study was set in the elder care sector in Denmark and it therefore only partially applicable to the UK

#### 3.1.43 Netemayer et al. (2010)

This study examined how managers in small stores in the USA may affect store employees, customers and potentially store performance. The study examined the relationships among manager job satisfaction and job performance, customer-contact employee job satisfaction and job performance, customer satisfaction and a customer spending based store performance metric.

## Method

The study was based on a stratified sample of 306 retail store managers, 1,615 retail store floor employees and 57,656 customers from 306 stores of a single retail chain that sells women's clothing and accessories.

Online surveys were sent to managers, asking them to self-rate their level of job satisfaction on a three-item scale. Manager job performance was rated by each store manager's district manager via the retailer's formal seven item scale ( $\alpha = .93$ ) (variables were free of one type same-source, common-methods bias that could otherwise influence estimates among these constructs).

Employees rated themselves on the same three-item measure of job satisfaction on which the managers rated themselves ( $\alpha = .92$ ).

Customers responded to a two-item measure of satisfaction with the retailer ( $\alpha = .98$ ), and customer surveys were matched to the employee, manager and store database using the store number as a linking variable.

From each of the participating stores, researchers accessed the percentage change in average transaction value of customers per visit (between 2004 and 2005).

All 306 manager surveys were returned. Online surveys were sent to 1,956 employees of the 306 stores; 1,615 submitted surveys (response rate 83 per cent). Overall 186,744 survey invitations were sent out to customers and 57,656 completed customer responses were received (an overall response rate of 31 per cent).

Path analysis was used to estimate model fit. CFA conducted for multi-item measures, with models fitting the data well.

## Outcomes

The model fitted the data well,  $\chi^2(4, N= 306) = 4.14, p = .39$ , comparative fit index = 1.00, non-normed fit index = 1.00, root mean-square error of approximation = .01 (Hu & Bentler, 1999).

The manager job performance-manager job satisfaction interaction  $\rightarrow$  employee job performance path was significant ( $p < 0.05$ ), but the manager job performance-manager job satisfaction interaction  $\rightarrow$  employee job satisfaction path was not. Manager job performance and satisfaction were related to customer satisfaction ( $p < 0.01$ ). Managers with the highest joint levels of performance and satisfaction showed the highest mean score on employee performance. The effect of manager job

satisfaction on employee job performance was more pronounced for high as opposed to medium or low manager performance.

When manager job performance and manager job satisfaction were jointly at their highest levels, the average percentage change in customer spend from year to year was higher (52.66 per cent) than any other level of manager job performance and manager job satisfaction.

The manager job performance and satisfaction paths to customer satisfaction were significant ( $p < 0.01$ ), but the manager performance-manager job satisfaction path were not. Manager performance and manager satisfaction on employee performance were significant ( $p < 0.01$ ). The employee performance  $\rightarrow$  customer satisfaction and the employee satisfaction  $\rightarrow$  customer satisfaction paths were both significant ( $p < 0.01$ ). Employee performance partially mediated the effect of manager performance on customer satisfaction and for employee performance partially mediating the effect of manager satisfaction on customer satisfaction.

The authors concluded that the manager performance  $\rightarrow$  employee performance path (.30,  $t = 4.83$ ,  $p = .01$ ) suggests that a one-point increase in manager performance on its five-point scale is associated with a .30 increase in employee performance on its seven-point scale, after holding the effects of all other predictors of employee performance constant. This main effect on employees was the strongest found and suggests that when managers perform well, employees may strongly mimic this behaviour. The effect of manager satisfaction on employee performance was less pronounced, but is associated with a .14 increase in employee performance (holding the effects of other predictors constant), and forms an interaction term contributing to employee performance above and beyond its simple main effect. That is, employee performance may be even stronger when manager performance and satisfaction are jointly at their highest levels.

### Limitations

The study was assessed as (+). The authors stated that the results may not be applicable to other retail settings, eg larger retail settings with multiple managers and a large number of subordinate employees. Numerous intervening variables that could have been included that mediate the effects shown in the model – manager leadership style, manager mood, employee perceptions of organisational constructs could have affected path estimates in the study.

### Applicability to UK

The study was set in a retail chain in the USA and is partially applicable to the UK.

### 3.1.44 Nyberg et al. (2009)

The aim of this study was to investigate the association between managerial leadership and ischemic heart disease (IHD) among employees in a range of companies in the Stockholm area of Sweden.

#### Method

Data were drawn from a prospective cohort study of employees aged 19–70 working in companies in the Stockholm area. Records of hospital admissions and deaths to the end of 2003 were obtained from national registers and were linked to the data.

Education and smoking status were self-reported, while income from work (in Swedish kronor) was obtained through registers. Systolic and diastolic blood pressure (mm Hg) was twice measured on the right arm in the supine position after five minutes rest with a one minute interval. Height, weight and waist were measured to determine body mass index (BMI, kg/m<sup>2</sup>) and waist circumference (cm). Other clinical measures included: blood pressure; cholesterol and fibrinogen. The participants stated in the questionnaire whether they previously had had a heart attack, angina pectoris, chest pain at physical exertion or mental strain, heart failure, stroke, vascular spasms in calves ('window watcher syndrome') or diabetes.

The participants rated their managers' behaviours using an assessment instrument which included 10 items with structured response scales. These items constitute one dimension, leadership climate, of the psychosocial work environment measured in the Stress Profile, a validated instrument based upon consultation at work sites and established theories and research on work stress. The internal consistency for this scale was high (Cronbach's  $\alpha$  of 0.86) suggesting that a supervisor tends to either express all these behaviours or none of them. The response scores were summed and expressed as a percentage of the theoretical maximum (100 refers to respondents with the highest score for every item of the scale; 0 refers to respondents with the lowest score for every item of the scale).

Hard endpoint outcomes for IHD were defined as hospital admission with a main diagnosis registered as acute myocardial infarction (the International Classification of Diseases, version 9 (ICD-9) code 410; ICD-10 code I21) or unstable angina (ICD-9: 411; ICD-10: I20.0); or death with a registered underlying cause of IHD (ICD-9: 410–414; ICD-10: I20–I25) or cardiac arrest (ICD-9: 427; ICD-10: I46). Records of hospital admissions and deaths from 14 March 1963 until 31 December 2003 were obtained. Incident caseness was defined as the first event occurring after baseline screening, excluding prevalent cases at baseline.

The response rate to the original study was 76 per cent.

The analysis was restricted to men (N = 3122) only since there were too few cases of ischemic disease among women (n=12). Cases of prevalent ischemic disease at baseline in 1992–1995 identified by hospital admission for ischemic disease between 1963 and baseline screening were excluded from the analysis (21 men). An additional 46 men were excluded because they were above 65 years of age (official retirement age) at the start of the study, and finally 50 men were excluded because of missing data in the managerial leadership scale.

The participants were on average 41.6 years old (SD = 11.1) and most of them were relatively highly educated (53.8 per cent) and non-smokers (Never smoker = 46.4 per cent, ex-smoker = 29.3 per cent). The comparatively favourable risk factor levels were due to the fact that all participants were employed, and that the sample was composed of employees with higher education than the average employee in Sweden and slightly better health care support than the average inhabitant in Stockholm.

For each IHD outcome, the time to the event was defined as the number of days between baseline screening and the first diagnosis after baseline but before 31 December 2003. For employees with no events, the end of follow-up was 31 December 2003 or the date of death if earlier. Outcome of the primary analysis was a composite measure of acute myocardial infarction, unstable angina and cardiac death. Subsidiary analysis excluded unstable angina from the outcome to examine whether the association was seen with myocardial infarction and cardiac death only. Age-adjusted hazard ratios were calculated with 95 per cent confidence intervals from Cox proportional-hazards analyses for incident IHD per 1 standard deviation (SD) increase in standardised leadership score (mean 0, SD 1). Additional adjustments included socioeconomic characteristics and conventional risk factors. An interaction term between leadership and time worked in the current workplace was entered in a subsidiary analysis.

## Outcomes

A total of 74 incident IHD events occurred during the mean follow-up time of 9.7 years (range: 3 to 10.5 years). In age-adjusted analysis, a higher leadership score was associated with a lower IHD risk. This inverse association was dependent on the time worked in the current workplace (p=0.049 for the interaction between leadership score and time worked in current workplace on incident IHD including unstable angina and p=0.03 on acute myocardial infarction and cardiac death excluding unstable angina). The association was stronger the longer the participant

had worked in the same workplace. This suggests a dose–response association between leadership and incident IHD.

The authors presented the effects of multiple adjustments (education, supervisory status, social class, income, physical workload, BMI, blood pressure, diabetes etc) on the inverse association between leadership score and incident IHD among participants with complete data on all baseline characteristics and a minimum of four years in the current workplace. The association was robust to adjustments for socioeconomic factors and conventional risk factors for ischemic disease. To assess possible reverse causality, the authors excluded those with self-reported angina, chest pain, vascular spasms in their calves, heart attack, heart failure or stroke at baseline (n=172). In age-adjusted models of men with a minimum of four years in the current workplace, the hazard ratio for incident IHD was 0.63 (95% CI 0.46 to 0.86, p=0.005).

The items which were significantly associated with incident IHD were: ‘My boss gives me the information I need’ (Hazard Ratio (HR) 0.65, confidence interval CI 0.50-0.83), ‘my boss is good at pushing things through and carrying out changes’ (HR 0.61, CI 0.45-0.81), ‘my boss explains goals and sub-goals for our work so that I understand what they mean for my particular part of the task’ (HR 0.61, CI 0.46-0.79), ‘my boss shows that he/she cares how things are for me and how I feel’ (HR 0.71, CI 0.54-0.93), ‘I have sufficient power in relation to my responsibilities’ (HR 0.64, CI 0.48-0.84), ‘my boss takes the time to become involved in his/her employees’ professional development’ (HR 0.69, CI 0.51-0.92).

### Limitations

The study was assessed as (+). No limitations were identified by the authors but the sampling approach is unclear and the confidence intervals for the results are quite wide.

### Applicability to the UK

This study was based in Sweden and therefore of limited applicability to the UK.

#### 3.1.45 Nyberg et al. (2011)

This study aimed to investigate the relationship between perceived destructive leadership practices and perceived psychological well-being among hotel industry employees in three European countries. Another aim of the study was to test for the possible mediation of iso-strain between leadership and psychological well-being.

## Method

Questionnaires were distributed to a selection of hotels in Sweden (12), Poland (14) and Italy (seven); 554 questionnaires were collected from the hotels and the overall response rate was 45 per cent (48 per cent in Sweden, 52 per cent in Poland and 36 per cent in Italy). It is unknown how the participants were chosen.

Three leadership subscales (autocratic, malevolent and self-centred) in combination with iso-strain, and three indicators of psychological well-being (mental health, vitality and behavioural stress) were measured.

- **Leadership:** Phase 2 version of the GLOBE scale was used to measure the independent variable of perceived managerial leadership. Twelve of the original items included in the factors autocratic, malevolent and self-centred leadership were used in the study. Questions were also posed in a different way, with respondents to rate the actual behaviour of their manager. Items were scored on a seven-point scale, summed and averages per index. Cronbach's alpha's for all leadership indices were very good.
- **Psychological well-being:** defined in terms of mental health (five questions), vitality (four questions) and behavioural stress (eight questions) measured using three subscales of the Copenhagen Psychosocial Questionnaire (COPSOQ), and the medium-length version (which has been validated) was used in the present study. Scores were averaged per index.
- **Perceived working conditions:** based on four subscales of the COPSOQ measuring work demands, for scales measuring degree of control and one subscale measuring social support. Items were once again averaged. Cronbach's alpha's for individual scores ranged between 0.506 and 0.778.
- **A single composite scale to measure iso-strain** was calculated by multiplying high demands by low control and low poor social support. Hotel means of iso-strain were calculated and adjusted for in regression analyses.

Correlations between leadership dimensions, iso-strain and psychological well-being were estimated with Spearman's correlation coefficient. ANOVA's were used to find differences between countries. Logistic regressions were used to estimate the relationship between hotel means of autocratic, malevolent and self-centred leadership on the one hand, and employee mental health, vitality and behavioural stress on the other.

## Outcomes

The correlation between perceived autocratic leadership and malevolent leadership was quite high (0.72,  $p < 0.01$ ). Self-centred leadership showed weaker-correlations with the other two leadership dimensions. Iso-strain was more strongly related to employee psychological well-being (0.31-0.37,  $p < 0.01$ ) than were leadership dimensions (0.14-0.27,  $p < 0.01$ ). Vitality was a little less strongly related to the leadership dimensions than the other two-indicators of psychological well-being.

Autocratic leadership on the hotel level was significantly related to individual employees reporting lower levels of vitality, and a similar pattern was seen regarding malevolent leadership. When employees reported a higher general frequency of self-centred leadership they also reported poorer mental health, lower levels of vitality and more behavioural stress. All these relationships were significant at the  $p < 0.05$  level.

Iso-strain (composite measure of high demands, low control and poor social support) had some impact on the relationship between all measures of perceived managerial leadership and employees' psychological well-being. The relationship between autocratic leadership and poor mental health, and the relationships between malevolent leadership and poor mental health and high behavioural stress changed to become non-significant.

The reported level of autocratic leadership did vary significantly between all countries, with Swedish hotel employees reporting the lowest frequency and Italy the highest, and a similar story was replicated for malevolence. Iso-strain was reported the highest among Polish employees, and the mean value differed significantly to the Swedish mean. Behavioural stress showed strong variation between countries. Less was reported among Swedish employees than among the employees in the other two countries, a difference that was only significant in relation to Italian employees. Vitality was highest in Poland, and the mean differed significantly from Sweden, who reported the lowest level of vitality.

## Limitations

The study was assessed as (-). The authors noted that the study had an exploratory purpose. The leadership subscales developed with the GLOBE project were used in a modified format and for a different purpose. The validity and reliability of these new constructs will have to be tested in future research.

## Applicability to UK

The study was set in the hotel sector in three European countries and is partially applicable to the UK.

### 3.1.46 O'Donnell et al. (2012)

This study aimed to understand the contribution of supervisory support related to work/family balance and the outcome of employee-reported pain in the context of an extended care setting in the USA.

#### Method

Researchers contacted administrators at extended care facilities within a 50-mile radius of Boston to gauge interest in the study and identified four extended care facilities with varied characteristics.

Managers of employees included in the study were asked about their supervisory practices in qualitative interviews and the researchers conducted a census survey of employees. Complete data for all covariates of interest yielded a total sample of 368 for the analysis (310 women and 58 men), an overall response rate of 76.6 per cent. Subjects averaged an age of 41 years and an hourly wage just under \$16.

Outcome measures included: employee-rated pain (whether, in the past four weeks, they experienced any bodily pain and if so, how often. The survey also assessed employee back, neck and shoulder pain *at work*).

The independent variable was supervisory support. Two researchers participated in/coded interviews with managers to assess flexibility as part of two domains of supervisory support:

- Openness (willingness to help employees with their jobs, schedules and work/family needs)
- Creativity for work/family balance (applying workplace policies with creativity to accommodate employees).

Other variables included were work/family conflict and the provision of direct patient care (direct patient care employees were considered health care practitioners). Other covariates conceptualised to be associated with supervisory support for work/family balance and employee-rated pain were also included: job strain, depressive symptoms, age, hourly wage, obesity, male gender, and Non-Hispanic race.

The researchers examined the bivariate relation between pain (any self-reported pain and self-reported pain at work, in the past four weeks), supervisory support score and relevant covariates through frequency tables and analyses of variance and corresponding F-statistics. They then employed multilevel logistic regression models to account for the nested nature of the data (employees within managers) and assessed relevant odds ratios and corresponding 95 per cent confidence intervals for statistical significance. They included supervisory support score (manager's tertile score to support work/family balance – low/mid/high) and sociodemographic characteristics such as age, sex and race for both pain outcomes.

### Outcomes

Over 70 per cent of the employees in the sample had managers who reported low or mid supervisory support.

In analyses of variance, both pain measures were significantly associated with supervisory support, before controlling for other covariates ( $p < 0.01$ ).

Employees supervised by managers who reported low and mid-levels of supervisory support for work/family balance experience more overall pain than employees with managers who reported high levels of support.

Controlling for age, sex, and race, supervisory support score was associated with increased likelihood of employee-reported pain in the past four weeks (mid supervisory support score: OR=2.56, CI= (1.45–4.53); low supervisory support score: OR=1.85, CI=(1.08, 3.16)).

Similarly, employees with low and mid supervisory support scores experienced more pain *at work* than employees with managers who reported high levels of supervisory support. Controlling for sociodemographic characteristics of the employee only, the lowest supervisory support scores were associated with roughly twice the risk of pain at work (mid supervisory support score: OR=2.78; CI=(1.41, 5.49); low supervisory support score: OR=2.31; CI=(1.19, 4.49)).

Work/family conflict was found not to diminish the effects of supervisory support (or other variables) on employee pain.

### Limitations

The study was assessed as (-). The selection of nursing homes was not systematic and depended on the approval of facility administration. Therefore, the worksite sample was not likely to be representative of all extended care facilities in the region.

In addition the study was cross-sectional and therefore the authors were unable to draw causal inferences about work/family oriented manager practices and self-reported pain.

The use of self-reported measures, including job strain and depressive symptoms, instead of objective measures may have biased the results.

The study had limited ability to differentiate between the physical and psychosocial mechanisms driving the supervisory behaviour and employee pain relation due to the temporal sequencing and variables included in the data.

### Applicability to UK

The study was set in four nursing homes in the USA and is only partially applicable to the UK.

#### 3.1.47 Prottas (2013)

This study examined the relationships between employees' perceptions of their manager's behavioural integrity and employees' job satisfaction, stress, job engagement, turnover likelihood, absenteeism, work-to-family conflict, health, and life satisfaction in the USA.

Behavioural integrity was defined as the 'perceived pattern of alignment between an actor's words and deeds. It entails both the perceived fit between espoused and enacted values, and perceived promise-keeping. ... Behavioural integrity is the extent to which employees believe that a manager 'walks her talk', and, conversely, it reflects the extent to which they see her as 'talking her walk'' (Simons 2002, p. 19).

### Method

The study used data from the 2008 National Study of the Changing Workforce (2008 NSCW) (Families and Work Institute, 2008). A total of 3,502 telephone interviews were completed with a nationwide cross-section of employed adults in the USA. This study used data from 2,679 participants, an estimated response rate of 55 per cent: 54.7 per cent were female; 44.5 per cent had an associate or a four year college degree. The average age was 45.9 years.

The following measures were assessed:

- Behavioural integrity: assessed by two items: 'I can trust what managers say in my organisation' and 'managers in my organisation behave honestly and ethically'

when dealing with employees and clients or customers' with four Likert-type response options from strongly agree to strongly disagree.  $\alpha = .83$ .

- Moral distress: single item.
- Job satisfaction: three items ( $\alpha = .78$ ).
- Job engagement: seven items ( $\alpha = .69$ ).
- Turnover likelihood: single item.
- Stress and strain: 10 items ( $\alpha = .83$ ).
- Health: single item.
- Work to family conflict: five items ( $\alpha = .86$ ).
- Absenteeism: single item.

Demographic information (gender, age and education level) was also analysed.

A series of hierarchical regressions were performed. Each of the dependent variables on behavioural integrity and moral distress were regressed, after controlling for age, gender, and education level. A three-step regression of each of the dependent variables was conducted with Step 1 entering the demographic variables, Step 2 entering behavioural integrity, and Step 3 entering moral distress. To test for mediation the author first regressed the proposed mediator (moral distress) on behavioural integrity after controlling for age, gender, and education; then regressed each of the dependent variables on behavioural integrity and the proposed mediator (moral distress).

## Outcomes

Behavioural integrity was positively related to job satisfaction (.52), job engagement (.47), and life satisfaction (.23) [all at  $p < .001$ ] and negatively related to stress (-.23), turnover likelihood (-.22), and work-to-family conflict (-.30),  $p < .001$  and absenteeism (-.06,  $p < .01$ ). Moral distress was inversely related to those outcomes.

The magnitude of relationships with job satisfaction, job engagement, and life satisfaction were greater with behavioural integrity than with moral distress.

Moral distress mediated the relationships between behavioural integrity and the employee outcomes, supporting the view that employee's perceptions of their manager's behavioural integrity might influence employee's behaviours as well as their attitudes.

## Limitations

The study was assessed as (+). The author pointed out that the cross-sectional nature of the research design could not provide support for the causality of the relations. All of the data came from the same source with the potential for the biases that could either attenuate or accentuate the relationships. A single item was used to assess moral distress. Single item measures are likely to be less reliable than a scale consisting of multiple items and low reliability of measures attenuates the relationships among variables.

## Applicability to UK

This study was based on data from a survey of employed adults in the USA and is only partially applicable to the UK.

### 3.1.48 Rodwell and Martin (2013)

This study aimed to test the relative impact of a range of psychosocial work environment variables (job demand, job control-workplace support including supervisory support and organisational justice) on employee well-being.

## Method

The study was based on a survey of 490 nurses in aged care facilities in a medium to large Australian healthcare organisation. Completed surveys were received from 267 nurses (a 46 per cent response rate).

The survey included a number of data measurements:

- Well-being was measured with the General Health Questionnaire-12 (GHQ-12). Depression was measured using a shortened version of the Centre for Epidemiological Studies Depression Scale, the CES-D
- Job satisfaction was measured using a six item job satisfaction scale
- The Affective Commitment Scale (Allen and Meyer, 1990) was used to measure respondents' commitment to their organisation
- Job demands were measured using an 11-item scale developed by Caplan et al. (1980)
- Job control was measured using a nine-item scale from Karasek (1985)

- Social support from within the organisation and from non-work sources was measured using a four-item scale developed by Caplan et al. (1980)
- Organisational justice was measured using a 20-item scale developed by Colquitt (2001), for measuring four types of justice: procedural, distributive, interpersonal, and informational.

Of the 267 respondents 94.9 per cent were female; 73.7 per cent were part-time and 81.2 per cent were over 40 years old. Some 62.1 per cent had been working with the organisation for 1-9 years and 35.2 per cent reported obtaining a tertiary or postgraduate qualification.

Preliminary checks were used to examine the survey responses for missing data, outliers, collinearity, multicollinearity, and for appropriate univariate and multivariate distributions as well as the appropriate distributions of residuals. The data set used contained 222 cases, after missing values and outliers were removed.

Multiple regression analyses were used to ascertain which variables significantly predicted the outcome variables and the amount of variance in these outcomes explained by the predictor variables.

## Outcomes

The model used in the multiple regression analyses explained a significant amount of variance in the health-related outcome variables of well-being ( $R^2 = 0.336$ ,  $f_2 = 0.51$ ,  $R^2 = 0.252$ ,  $F(24,189) = 3.98$ ,  $p < 0.001$ ) and depression ( $R^2 = 0.300$ ,  $f_2 = 0.43$ ,  $R^2 = 0.214$ ,  $F(24,195) = 3.48$ ,  $p < 0.001$ ).

The overall model of the multiple regression analyses explained a significant amount of variance in the attitudinal outcome variables of organisational commitment ( $R^2 = 0.432$ ,  $f_2 = 0.76$ ,  $R^2 = 0.362$ ,  $F(24,193) = 6.23$ ,  $p < 0.001$ ) and job satisfaction ( $R^2 = 0.313$ ,  $f_2 = 0.46$ ,  $R^2 = 0.229$ ,  $F(24,195) = 3.71$ ,  $p < 0.001$ ).

Job demands was negatively related to well-being and positively related to depression indicating a main effect on mental health, as well as negatively relating to job satisfaction ( $p < 0.01$ ). The authors added that the differential and curved effects of job demands on well-being or job satisfaction indicated that when demands are either too low or too high, well-being and satisfaction are negatively impacted.

Job control was related to both commitment and satisfaction ( $p < 0.01$ ).

The social support received by nurses from their supervisor was related to well-being ( $p < 0.01$ ).

## Limitations

The study was assessed as (+). The authors noted that, as this was a cross-sectional study, conclusions about causality could not be drawn. The study did not measure individual psychological characteristics of the nursing staff. The validity of self-reported working conditions and associated issues of common method variance is a limitation of survey studies. The authors considered the response rate of the study (45 per cent) to be low.

## Applicability to UK

This study was based in an Australian healthcare organisation and is partially applicable to the UK.

### 3.1.49 Rouse (2009)

The aim of this study was to examine staff and physician reactions to ineffective leader participation in an intensive care unit (ICU) in a hospital in USA.

#### Method

All 70 ICU employees received electronic invitations to participate via their personal email addresses. The response rate was 64 per cent, the sample therefore included 51 participants. The majority (69 per cent) represented nurses (n = 35). These frontline nurses averaged approximately 10.85 years with the hospital, although experience levels varied (ranging from six months to 30 years). Physicians were the next largest group, representing 20 per cent of the participants (n = 10). While the average length of time doctors reported working in the hospital was between five and 10 years, the median experience level was over 10 years.

Other participants included an intensive care unit manager (n=1); administrative employees (n=2), and senior hospital leaders (chief nursing officer, chief operating officer and director of human relations) (n=3).

Data was collected as part of a larger study using the supervisor communication inventory (SCI).

An online questionnaire was administered and an automated web-hosting service collected the survey data. The data collection system generated a unique URL for each email address. Participant's responses were matched automatically with their general role in the ICU (staff nurse, administrative worker, nurse manager, senior leader or physician).

Participants indicated their level of agreement with a series of Likert items designed to measure leader communication, mentoring and planning as well as organisational outcomes (productivity and morale). Items for communication, mentoring, planning and productivity were totalled to produce four subscale scores, allowing the use of descriptive statistics [mean, standard deviation (SD) and skew].

In addition, two open-ended questions asked participants to evaluate, in their own words, the leadership skills of the ICU managers.

Multiple regression analyses evaluated the relative contribution of each construct. The two-open ended questions were independently content analysed by two trained coders.

### Outcomes

A significant coefficient correlation [ $r(1,45) = 0.54, p \leq 0.01$ ] was detected between perceived leader communication and staff perceptions of productivity. A significant rho coefficient [ $r_s(1,45) = 0.41, p \leq 0.05$ ] was detected between nurse leader communication and employee morale. These results supported the hypothesis that increased supervisor communication was associated with higher levels of self-assessed organisational outcomes, whereas less leader communication correlated with lower perceptions of productivity and morale.

No significant relationship was found between supervisor participation with mentoring and perceived productivity. Increased leader mentoring was highly correlated with employee morale [ $r_s(1,46) = 0.56, p \leq 0.01$ ].

Significant positive correlations were detected between employees perceptions of supervisor planning and perceived productivity [ $r(1,46) = 0.33, p \leq 0.05$ ] as well as employee morale [ $r_s(1,46) = 0.48, p \leq 0.01$ ].

In response to the open ended questions, the majority (56 per cent) reported the primary ICU supervisor (Manager A) was ineffective. The most common observation centred on lack of availability. Inadequate face time and avoidance of conflict were associated with comments about poor communication. The ICU's second nurse leader (Manager B) was described as ineffective by 73 per cent of participants. Most comments about Manager B, centred on poor interpersonal skills, lack of training and/or failure to follow-up on nurses concerns. These comments reinforced the quantitative finding that poor perceptions of nurse leader participation were associated with perceptions of low productivity and morale in an ICU. When employees perceived their supervisors were absent or incompetent, employees reported productivity and morale suffered.

## Limitations

The study was rated as (-). The authors noted that the study design used self-reported assessments of organisational outcomes and actual performance measures (ie unit revenue, medical errors, employee turnover, etc.) were not evaluated.

A single-item was used to measure employee morale. The similarity of the variable's measures of central tendency (median = 2; mean = 2.09) and regression analysis which treated the morale variable as an interval scale may have introduced errors into conclusions about employee morale.

In addition the reviewers noted the small sample and in particular the small number of senior managers which could have limited the power of the statistical analysis.

## Applicability to the UK

The study was set in a small hospital unit in the USA and is of limited applicability to the UK.

### 3.1.50 Rubin and Brody (2011)

This study aimed to test whether the relational and operational competence aspects of management citizenship behaviours (MCB) (Hodson's (1999)), managers' ethical behaviours and family-friendly behaviours increase employees' organisational commitment (willingness to work hard and loyalty); employees' job satisfaction and employees' mental health.

## Method

The study used data from the 2002 National Study of the Changing Workforce (NSCW) which is based on an unclustered random probability sample of 3,504 interviewees from across the USA.

Items were identified from the NSCW for measures of four potentially overlapping components of MCB: operational competence, relational management citizenship, ethical behaviours, and family-friendly behaviours. All of the items included Likert-type response categories. The authors conducted several factor analyses to explore the measurement properties of these sets of items and created four measures using the factor scores from these analyses: relational MCB (RLMCB), operational competence (OCMCB), family-supportive behaviours (FSMCB), and ethical behaviours (EMCB), with alpha scores of between .68 and .89.

The dependent variables used in the study were:

- Commitment: measured using two single-item measures (willing to work for organisation's success and loyalty) that tap respectively normative and affective commitment
- Job satisfaction: measured using a two item measure ( $\alpha = .71$ )
- The mental health measure combined six items from NSCW tapping stress, coping, and depression (two items from the CES-D depression scale) ( $\alpha = .78$ ).

The study also included control variables including job autonomy; workplace insecurity; organisational size; industry (service vs. goods producing) and occupational category. Another set of controls indicated whether the respondent's supervisor was the same age, sex, and ethnicity as the respondent.

To be included in the final sample, respondents had to be 18 years of age or older, working in a paid job or income-producing business, residing in the lower 48 American states, and members of the non-institutionalised civilian labour force. The study also only included data for wage/salaried workers who reported having an immediate supervisor. The effective sample size was 2,131.

Zero-order correlations were conducted among the various MCB measures, dependent variables, and key control variables. For each dependent variable, the authors estimated three different regression models including the control variables and differing measures of MCB.

## Outcomes

The authors concluded that the study provided substantial support for their hypotheses that various forms of management citizen behaviour is positively associated with employee commitment, job satisfaction and mental health.

RLMCB had positive and significant ( $p < 0.01$ ) effects on commitment: (both willing to work for organisation success and loyalty (.068 (0.021), .138 (0.025)), job satisfaction (.271 (0.026)), and mental health (.179 (0.030)). OCMCB also had positive and significant effects on commitment: (both willing to work for organisation success and loyalty (.0116 (0.022), .244 (0.025)), job satisfaction (.276 (0.026)), and mental health (.093 (0.030)).

The effects of EMCB were significant and positive for all four dependent variables for organisation success and (.088 (0.020)), loyalty (.170 (0.023)), job satisfaction (.196 (0.024)), and mental health (.084 (0.028)) and similar in magnitude to the effects of relational MCB.

Positive and significant effects of family-supportive MCB (FSMCB) were estimated for loyalty (.076 (0.026)), job satisfaction (.076 (0.0280)), and mental health (.096 (0.032)). FSMCB was not significant in the model for willingness to work hard for one's organisation. Comparatively, the net effects of family-supportive MCB were not as strong as those for either relational MCB or ethical MCB but were more similar to those for operational competence

### Limitations

The survey was assessed as (+). The authors noted that the survey items used in some cases did not clearly identify managers as the enactors of the behaviour, instead referring only to 'my place of work'. In these instances the authors suspected the vagueness in the question weakened the validity of the measures. The range of ethical behaviours tapped by the items was fairly limited compared to, for instance, family-friendly behaviours. The positive wording of all of the management citizenship items may have contributed to response bias

### Applicability to UK

The study was based on a national survey of USA employees and is partially applicable to the UK.

#### 3.1.51 Schmidt et al. (2013a)

The aim of the study was to assess how perceived supportive managerial behaviour was linked to employees' self-rated health and, additionally, after controlling for other forms of work-related stress like effort–reward imbalance, high job demands/low job control, or low social support among industrial workers in Germany

### Method

Industrial workers in Germany, were surveyed and asked to give information on supportive, employee-oriented leadership behaviour at their job, their SRH, and work stress as measured by the effort–reward model and scales measuring demands, control, and social support.

The number of respondents was 3331. Twenty seven per cent of participants were above 50 years of age and 74 per cent were male. Nearly 34 per cent hold managerial responsibilities.

Perceived supportive leadership style in the workplace was assessed by four items adapted from the German version of the Copenhagen Psychosocial Questionnaire

(COPSOQ, items 3 and 4 from the social support scale and items 3 and 4 from the relational justice scale).

Replies to items were provided on a five-point Likert scale (1 = completely disagree; 5 = completely agree).

Self-rated health was assessed on the basis of one item ("In general would you say your health is excellent, very good, good, fair or poor?") The variable was dichotomized into poor and good self-rated health by grouping responses indicating fair or poor health and those indicating good, very good, or excellent (good health = 0; poor health = 1).

Three work-related characteristics thought to contribute or ameliorate stress and its potential effects on health were measured:

- the balance between work-related efforts and reward (effort–reward imbalance (ERI)), was measured using a brief, validated German language version of the original instrument that measured the subscales effort (three items) and reward (seven items),
- social support at work from peers was measured using the teamwork subscale from the "Work Health Check" (five items), and
- job demands and the level of decision latitude in one's job were measured by five and nine items, respectively.

Univariate statistics and series of logistic regression measuring associations between self-rated health and lack of supportive leadership.

## Outcomes

The odds ratio (OR) for the association between lack of supportive leadership and self-rated health in the absence of confounders was 2.39 (95 % CI 1.95–2.92). Following the addition of age, sex, socioeconomic status, and lifestyle variables, it was observed that an association of similar magnitude remained [OR 2.25 (1.81–2.79)]. After additionally controlling for aspects of participants' psychosocial work environment (model 2), the association was modestly attenuated but remained statistically significant [OR 1.60 (1.26–2.04)].

In sensitivity analyses, the association of lack of supportive leadership and poor self-rated health, independent of work-related stress, appeared highest in females [OR 2.41 (1.49–3.88)] and in employees over 50 years of age [OR 2.21 (1.47–3.32)].

Although smaller in magnitude, this association was also observed among workers not holding a managerial position [OR 1.74 (1.29–2.38)]. When examining the presence of possible interactions, a significant association between self-rated health and SLS × gender ( $p = 0.03$ ) was observed, but none related to either employee age or managerial position.

The authors concluded that the lack of supportive leadership was associated with poor health and that this association held true for nearly all subgroups in sensitivity analyses.

### Limitations

The study was assessed as (-). The reviewers found very little information in the study about how data was collected and therefore it was difficult to make interpretations of representativeness of the sample. No analysis done between respondents and non-respondents which could have set light into the issue.

The authors noted the cross-sectional design and the lack of objective health measures as the outcome was self-rated. They also pointed out the possibility of selection bias as workers who were in good health were more likely to respond.

### Applicability to the UK

The study was set in Germany among a group of industrial workers in unspecified industries and is of partial applicability to the UK

### 3.1.52 Schmidt et al. (2013b)

This study explored the relationship between transformational leadership (TL) and stress by examining potential mediating roles for established organisational and personal resources using a survey of employees in a professional services company in Germany.

### Method

The company had been previously included in a larger multi-company survey but was the only one to meet the inclusion criterion for this study of having undertaken a workplace health promotion intervention was in place, enabling the collection and analysis of health related data from employees.

Data from the previous survey relating to the company were reanalysed. There were 285 respondents who were mostly male, mostly white-collar employees, between the ages of 30-50 years. Where possible, previously standardised

instruments were used, and where not, items were created, and Cronbach's  $\alpha$ , inter-item correlation and discriminatory power confirmed their basic psychometric properties.

- **Transformational leadership:** six subscales of the German version of the 'Transformational Leadership Inventory' (TLI), using Likert ratings from 1 (do not agree) to 5 (strongly agree). TLI-AV (5 items): 'identifying and articulating a vision', TLI-PAM (3 items): 'providing an appropriate role model', TLI-FAG (4 items): 'fostering the acceptance of group goals', TLI-IS (4 items): 'providing individualised support', TLI-ISON (3 items): 'intellectual stimulation', TLI-CR (4 items): 'contingent reward'. These subscales were chosen from past work demonstrating significant intercorrelations and interaction with subscales assessing transformational leadership. Composite score  $\alpha = .97$ .
- **Psychological Strain:** Derived from four subscales from the standardised German version of the Symptom Check List (SCL-90R) – validated clinical screening tool for stress. Subscales: somatisation (12 items), depression (13 items), anxiety (10 items) and interpersonal sensitivity (9 items). High subscale scores indicated high levels of symptoms. Cronbach's  $\alpha = .96$ .
- **Psychosocial resources:** Informed by the Job-Demands-Resources-Model. Job demands are comprised of the physical or psychological efforts to be expended at work (reflecting individual mental health 'costs'). Job resources refer to physical, psychological, social and organisational aspects of the job that are able to buffer the negative effects of job demands and their consequences. The survey used a five-point Likert-scale from 1 (do not agree) to 5 (strongly agree). Subscales: decision latitude (3 items), social support (4 items), organisational culture (3 items), employee satisfaction (2 items), work life balance (4 items), general self-efficacy scale (9 items), meaningfulness of job and specific tasks (1 item each).

Although most of the distribution of composite scores was normally distributed, the skewness of 'psychological strain' required a log transformation to meet the assumption of data normality for linear models.

The authors examined unadjusted two-tailed correlations between score means for transformational leadership, psychosocial resources and psychosocial strain. Mediation was tested with the Freedman-Schatzkin test in a series of linear regression models. Baseline model: association between TL accounting for age and sex, subsequent models added subscale scores for individual psychosocial resources. The last model: the baseline model plus all resources. Structural equation modelling was used to confirm and quantify the degree of mediation. Bootstrapping generated 1000 samples, providing maximum likelihood estimates for the models and 95 per

cent CIs and a p-value for an indirect effect between the independent and dependent variables

## Outcomes

While an association between transformational leadership and strain ( $\beta=-0.24$ ,  $p=0.00$ ) exists, relatively little variance (7%) is explained. Subsequent models containing psychosocial resources explain more variance while the association of transformational leadership with psychological strain is attenuated to the point that it is no longer statistically significant. The Freedman-Schatzkin test is significant for every psychosocial resource and for the complete model as well, indicating a significant mediation effect.

The structural equation model fit indices (CMIN=236,382;  $df=139$ ;  $p=0.00$ ; CMIN/DF=1.7; CFI=0.97; TLI=0.96; RMSEA=0.05; PNFI=0.75) suggest good fit. The model method automatically involved a confirmatory factor analysis of the latent constructs. With factor loadings of 0.76 to 0.92 for the Transformational Leadership Inventory, 0.35 to 0.77 for resources and 0.65 to 0.95 for psychological strain, the model construction of the latent variables is acceptable with the loadings for personal resources work-life balance and self-efficacy being the weakest.

The first model shows a negative association between leadership and self-reported psychological strain ( $\beta=-0.28$ ,  $p=0.00$ ) with stress reported as significantly higher when transformational leadership was perceived to be low. The next steps establish a strong direct effect between transformational leadership and resources ( $\beta=0.61$ ,  $p=0.00$ ) as well as a strong negative effect ( $\beta=-0.54$ ,  $p=0.00$ ) between resources and strain. In the full model, the association of transformational leadership and strain is nearly fully mediated by resources, with an estimated indirect effect from transformational leadership, incorporating the influence on resources, on psychological strain that is somewhat stronger than direct effects observed in the initial model ( $\beta=-0.33$ ,  $p=0.00$ ).

## Limitations

The study was assessed as (+). The authors noted that the sample was relatively small and was drawn from a single company consisting primarily of white collar employees, necessarily limiting the generalizability of the findings.

Also employee psychological strain was measured through self-report using a scale which was not report in detail.

### Applicability to the UK

The study was set in Germany in an unspecified company and is of partial applicability to the UK.

#### 3.1.53 Schreuder et al. (2011)

The relationship of leadership styles with employer-registered sickness absence was investigated through a cross-sectional survey of nurse managers and nurses linked to nurses' sickness absence data in six wards in a Dutch hospital. The specific research question was: whether the leadership styles of the situational leadership theory were associated with registered sickness absence in health care.

#### Method

The study population was enlisted from a somatic hospital in the Dutch province Friesland employing a total of 1,153 persons of whom 699 worked at least three years in clinical wards ( $n = 495$ ) or the outpatient's clinic ( $n = 204$ ). The 699 eligible employees worked in six wards (four clinical wards and two outpatient wards), with staff ranging between 91 and 140 employees, which were headed by the same manager for at least the last three years. The six nurse managers worked in the same ward throughout the entire period under study.

Eligible nurses received a questionnaire from the human resources department of the hospital. The self-administered questionnaire assessed six scales: general health and mental health, job demands and control and work efforts and rewards (Siegrist 1996). General and mental health scores were expressed as percentages of the maximum score possible for each subscale. The score for job demands was divided by the score for job control to yield a demand to control ratio (DC ratio).

Accordingly, the score for work efforts was divided by the score for rewards into an effort/reward ratio (ER ratio), which is a recognised measure for job strain.

The nurse managers completed the Leadership Effectiveness and Adaptability Description (LEAD) questionnaire (Hersey et al. 1974) in autumn 2008. The questionnaire measures leader behaviours as perceived by managers (LEAD-Self) and followers (LEAD-Other).

The LEAD-Self has been used in a nursing setting (Johnson and D'Argenio, 1991) and assesses a leader's style by 12 management situational questions with four possible responses each, corresponding to the four styles of the situational leadership theory (Participating, Selling, Delegating, or Telling, depending on the forms of relationship and task behaviour). Several validity studies showed

satisfactory results supporting the four style dimensions; in 46 of 48 item options, the expected relationship was found. Across a six-week interval, 75 per cent of the managers maintained their dominant style and 71 per cent their backup style (Bruno & Lay, 2008). The contingency coefficients were both 0.71, and each was significant at the .01 level.

The managers' LEAD-Self scores were linked cross-sectionally to the registered sickness absence of their nursing team in the period from 2006 to 2008.

The total number of registered days of sickness absence of each employee between 1 January, 2006, and 31 December, 2008, was dichotomised by median (20 days) split. We also counted the number of registered episodes of sickness absence in this period for each individual and distinguished between short episodes lasting one to seven days and long episodes lasting more than seven days. The number of short episodes of sickness absence was dichotomised by median (two episodes) split. The number of long episodes of sickness absence was dichotomised into no long episodes and one or more long episodes.

Of the 699 questionnaires distributed to nurses, 570 were returned, resulting in an overall response rate of 82 per cent ranging between 76 per cent and 84 per cent for the different wards. The representativeness of the sample was not discussed.

The data were analysed by multiple logistic regression.

## Outcomes

The nursing staff of relationship-oriented nurse managers has fewer short episodes of sickness absence than the staff of task-oriented managers.

The leadership style, characterised by high relationship and high task behaviour (selling style), was inversely associated with the number of days of sickness absence (OR = 0.60, 95% CI = 0.41–0.84) and short episodes of sickness absence (OR = 0.61, 95% CI = 0.48–0.72).

Low relationship and low task behaviour (delegating style) was positively related to the number of days of sickness absence (OR = 2.82, 95% CI = 1.50–5.29) and short episodes of sickness absence (OR = 2.40, 95% CI = 1.29–4.46).

A low relationship and high task (telling) leadership style was also positively associated with the number of days of sickness absence (OR = 2.68, 95% CI = 1.36–5.27) and short episodes of sickness absence (OR = 3.02, 95% CI = 1.52–5.98). These unadjusted associations explained only eight per cent of the variance in days of sickness absence, 10 per cent of the variance in short episodes of sickness absence,

and two per cent of the variance in long episodes of sickness absence. After adjustment for seniority, hours worked, general health, DC ratio, and ER ratio, an inverse relationship (OR = 0.76, 95% CI = 0.65–0.85) remained between the selling leadership style and the number of short episodes of sickness absence.

The delegating leadership style also remained positively associated with the number of days (OR = 2.62, 95% CI = 1.36–5.09) and short episodes (OR = 2.44, 95% CI = 1.26–4.71) of sickness absence after controlling for seniority, hours worked, general health, DC ratio, and ER ratio.

### Limitations

The study was assessed as (+). The authors noted the cross-sectional design and that information of the leadership styles was based on managers themselves. Most LEAD-Self instrument respondents consistently score in the high task–high relationship leadership style category. This clustering may indicate that respondents ‘knew’ how they should score and reflect some form of self-deception among the respondents.

In addition the review noted that there were only six nurse managers in the study.

### Applicability to the UK

This study was set in a large hospital in the Netherlands and is partially applicable to the UK.

### 3.1.54 Sluss and Thompson (2012)

This two-wave cross-sectional online survey of new recruits to 12 telemarketing companies across the USA aimed to expand organisational socialisation research by integrating social exchange theory, specifically leader–member exchange (LMX), as an important mediator in explaining newcomer attachment to the job, occupation, and organisation.

#### Method

The first survey, two weeks after formal training, consisted of measures that assessed supervisory socialisation tactics, newcomer LMX, and contextual socialisation tactics. The second survey, eight weeks after formal training, assessed occupational identification, perceived PO fit, job satisfaction, and newcomer learning.

Independent variables were measured as follows:

- *Supervisory socialisation tactics*: adapted the five-item serial socialisation tactics scale from Jones (1986) to specify the immediate supervisor. The five items included for example: 'I have received little guidance from my immediate supervisor as to how I should perform my job' (reverse coded); The response scale ranged from 1 ('disagree strongly') to 7 ('agree strongly'). The alpha reliability was .80.
- *Leader–member exchange*: used five items from the six-item leader–member exchange scale (LMX-6) from Schriesheim, Scandura, Eisenbach, and Neider (1992) including items on mutual understanding, goal congruence and support received eg 'On my present job, this is how I feel about the way my immediate supervisor provides help on hard problems. . .' (1 = 'very dissatisfied' to 5 = 'very satisfied'). The alpha reliability was .72.

Dependent variables were:

- *Newcomer attitudes*: for occupational identification, the six-item organisational identification scale from Mael and Ashforth (1992), replacing organisation with occupation (as is common practice; eg Hekman, Steensma, Bigley, & Hereford, 2009). An illustrative item includes 'When I talk about my occupation, I usually say 'we' rather than 'they'.' The response scale ranged from 1 ('disagree strongly') to 7 ('agree strongly') with an alpha reliability of .89.
- *Perceived Person/Organisation fit*: used Saks and Ashforth's (2002) four-item scale for PO fit. An illustrative item includes 'To what extent are the values of the organisation similar to your own values?' The response scale ranged from 1 ('to a very little extent') to 5 ('to a very large extent') with an alpha reliability of .86.
- *Job satisfaction*: used the three-item global job satisfaction scale from Cammann, Fichman, Jenkins, and Klesh (1983). An illustrative item includes 'All in all, I am satisfied with my job.' The response scale ranged from 1 ('disagree strongly' to 7 'agree strongly') with an alpha reliability of .90.

Of 819 surveys sent, 481 (59 per cent) participants returned a completed first survey and 213 (44 per cent) participants returned a completed second survey.

Of the final sample of 213 respondents: 54 per cent were female; 59 per cent were Caucasian; the mean age was 29 years; 57 per cent were full-time employees; 62 per cent were probationary employees; and 52 per cent worked in outbound call centres. The sample resembles average demographics of call centre employees within the US telemarketing sector. Of twelve organisations, seven were 'third party' telemarketing firms and five were 'in-house' call centres.

Attrition analyses revealed slight differences between those who stayed and those who dropped out of the study. Specifically, those who 'stayed' had more work experience and were more likely to be full-time, in-bound call centre employees. However, these variables did not change the interrelationships between supervisory socialisation tactics and newcomer LMX.

The analysis tested the hypotheses simultaneously, included control variables, and estimate error. Given parameters to sample size ratio, observed variable path analysis seemed to be most appropriate. Bootstrapping analyses were then used to estimate the indirect or mediating effects. Finally, hierarchal linear modelling was applied to confirm the variables operated at the individual-level.

### Outcomes

- Newcomer perceptions of LMX mediate the association between supervisory socialisation tactics (ie supervisory job-focused advice, guidance, and role modelling) and occupational identification as well as between supervisory socialisation tactics and perceived person organisation fit – but not between supervisory socialisation tactics and job satisfaction.
- Paths between supervisory socialisation tactics and newcomer LMX (.47,  $p < .01$ ); between newcomer LMX and perceived PO fit (.18,  $p < .01$ ); as well as between supervisory socialisation tactics and perceived PO fit (.15,  $p < .05$ ) were significant.
- Supervisory socialisation's direct effect on job satisfaction was significant (.23,  $p < .01$ ).

### Limitations

The study was assessed as (+). The authors noted that data was collected directly from the newcomer, increasing the risk of common method bias. Second, the measurement of supervisory socialisation tactics and the newcomer's perception of LMX were not looked at separately, which makes it more difficult to substantiate the structural relationship and creates increased potential for an inflated uncorrected bivariate correlation. In addition, newcomer attitudes were measured only nine weeks after organisational entry. The authors recognised the possibility that newcomer attitudes may be still be in flux – even after eight major task cycles. Third, the study focused exclusively on the immediate supervisor at the expense of other colleagues (eg, senior co-workers, mentors, clients). The effects of newcomer behaviour to engage in OCBs and elicit support from the supervisor were not explored.

## Applicability to the UK

The study was based in the USA and therefore partially applicable to the UK.

### 3.1.55 Smith et al. (2010)

This was a study to investigate the interactions between safety climate, psychosocial issues and needlestick and sharp injuries among nurses in a large teaching university hospital in Japan.

#### Method

A survey based adapted from Gershon's et al. (2000) Hospital Safety Climate Scale (HSCS) was distributed to 1,027 nurses in a teaching hospital in Japan. Thirty-one nurses were on leave at the time of the study, leaving 996 for inclusion. Among them 882 questionnaires were returned (a response rate of 88.6 per cent).

All 20 questions from the original survey were translated into Japanese, and adapted to the new context. They used Likert scale answers (strongly disagree, disagree, agree, strongly agree). The Cronbach's alpha was 0.906.

Fifteen questions relating to psychosocial risk factors were also included in the survey tool, all of which were based on previous research in the field (focussing on work support, mental pressure, time pressure etc.). Cronbach's alpha was 0.887.

Needlestick and sharp injuries (NSI) questions were based on similar research previously conducted across a variety of countries. Questions focussed on the type of device which caused the injury, the number of times they have received an injury in the previous 12 months, whether the item had been used on the patient prior to the injury and whether nurses had officially reported to management any NSI they sustained.

Additional questions focussed on demographic and workplace items, such as age, gender, weekly working hours and length of employment as a nurse.

Most respondents (93.9 per cent) were female with an average age of 32 years (SD = 9.1 years). Their average working week comprised 42 hours with an average nursing career of four years. Almost all (92.3 per cent) were registered nurses, and around half (49.6 per cent) worked rotating day and night shifts. Around half (49.6 per cent) had received the full three-course Hepatitis B (HB) vaccination regimen, 28.0 per cent had been vaccinated once or twice, while the remaining 22.4 per cent reported having received no HB vaccinations at all.

Statistical analysis included prevalence rates for Likert style responses to the HSCS, as well as NSI sustained cause of injury and reporting behaviour following the incident. The HSCS questions were collapsed into dichotomous responses. Chi-squared analysis was then undertaken to examine potential relationships between the dimensions of the HSCS and NSI devices.

## Outcomes

Most respondents (77 per cent) strongly agreed that a copy of the health and safety manual was available in their unit, and that protection of workers from blood-borne diseases was a high priority for managers (75 per cent). In addition:

- 58 per cent agreed that there was minimal conflict in their department
- 27 per cent disagreed that they usually have so much work to do that they cannot follow universal precautions
- 56 per cent strongly agreed that there was too much responsibility in their job
- 41 per cent reported that they experienced too much mental pressure at their workplace
- 62 per cent disagreed with the statement that there was not enough teamwork in the department, while 39 per cent strongly disagreed that their work was too boring or tedious.

Ampoules or vials were responsible for most NSIs (29 per cent), and were most likely to have been used before injury (87 per cent). Only 25.5 per cent of nurses had always reported to management any NSI they sustained, with 64.1 per cent never reporting it and 10.4 per cent reporting it sometimes; 13 per cent of people did not know they had to report it, five per cent said they were too busy to report it, and four per cent were too embarrassed at their mistake.

NSI due to butterfly needles was related to staff supporting one another at work ( $p=0.014$ ). NSI due to blood collection tubes was correlated with the protection of staff against blood-borne diseases exposures being a high management priority ( $p=0.008$ ), managers doing their part to protect staff from blood borne exposures ( $p=0.024$ ) and unsafe work practices being corrected by supervisors ( $p=0.043$ ). NSI from suture needles was statistically correlated with managers doing their part to protect staff from blood-borne disease exposures ( $p=0.002$ ), having the opportunity to be trained to use safety equipment to protect against blood borne disease exposures ( $p=0.026$ ) and having clean working areas ( $p<0.001$ ).

## Limitations

The study was assessed as (++). Few limitations were identified by the authors apart from the potential limitations of using translated instruments. In addition the review team noted that no differentiation was drawn between wards/departments – some may be more prone to NSI's than others.

## Applicability to the UK

The study was set in Japan and therefore has limited applicability to the UK.

### 3.1.56 Theorell et al. (2012)

This longitudinal three-wave survey used a stratified random sample of employees (The Swedish Longitudinal Survey of Occupational Health, SLOSH) to test how two manager behavioural styles (listening manager and self-centred manager) are linked to employee mental health (and individual background/status eg income/educational level).

## Method

A postal questionnaire was administered and returned via prepaid postal service to a stratified random sample of the working population of Sweden, drawn from the Labour Force Survey sample.

Independent variables were measured as follows:

- **Listening behaviour:** one item 'Does your manager listen to you and pay attention to what you say?' with a four-point Likert scale ranging from 1 'to a very high extent' to 4 'a very small extent or not at all'. Results generated mean score of 2.15 to 2.20 and standard deviation of 0.7–0.8.
- **Self-centred leadership:** based on an index created from three questions (non-participating, asocial and loner) using factor analysis. For each question there were five response categories ranging from 'very infrequently' to 'very often'. The items were added up to a sum score (range 3–15) with mean of 5.9 (same for all study years) and standard deviation of 2.5–2.6.
- **Psychological demands and decision latitude** were also used as explanatory variables. Demands used a five item measure (total sum ranging from five to 20 with mean 12.88–13.33 and standard deviation 2.61–2.70) in a four-point Likert scale and the decision latitude score had a six item measure (range 6 to 24 with mean 18.44–18.60 and standard deviation 2.72–2.89) in a four-point Likert scale.

Dependent variables were:

- **Emotional exhaustion:** Symptoms of emotional exhaustion from Maslach 'Burnout' Inventory. The range of responses was 5–30. Mean score was 10.76–11.98 with standard deviation of 5.74–6.02.
- **Depressive symptoms** based on a six item subscale of Hopkins Symptom Checklist (SCL) Depressions scale using five point response scale. The mean score was 5.37–5.78 with standard deviation 5.12–5.30.

The number of responses were as follows: 2006: 899 participants; 2008: 53 and 2010: 403. For those from LFS invited to participate in SWES participation rate was 86 per cent. Three years later participation from eligible respondents (9,154) was 65 per cent. Participants in 2006 were followed up in 2008 and 2010. Out of the 5,141 respondents in 2006, 4,484 respondents had complete data for the correlation analysis (87 per cent) and in 2008 3,269–3,730 from 5,141 respondents had complete data for statistical multivariate analyses (64 per cent–73 per cent). In the follow-up in 2010 the numbers of participants in the analyses with complete data for multivariate analyses ranged from 2,701 to 3,285 (53 per cent–64 per cent).

The study controlled for part-time work – which had no effect on the findings.

Women, older subjects (aged 50+) and married/cohabiting subjects as well as men and women with higher education were overrepresented among responders. The authors noted that how these differences influenced the findings was not clear.

Statistical predictions of the three different health outcomes (from 2006 to 2008 and from 2006 to 2010 separately) were made by means of multiple linear regressions, with separate analyses for emotional exhaustion and depressive symptoms and for self-centred and non-listening leadership respectively. These analyses were performed in two steps: 1) using gender, age, education and income as explanatory variables and 2) as in Step 1, but with the addition of psychological demands and decision latitude at work. Health outcomes were subjected to a one-way analysis of variance exploring changes over time.

## Outcomes

The key findings are:

- Psychological demands had strong correlations with emotional exhaustion (0,43) and depressive symptoms (0,27)

- There were also significant correlations between decision latitude and emotional exhaustion (20,11) and between decision latitude and depressive symptoms (20,13).
- Non-listening leadership style showed modest and significant correlations with emotional exhaustion (0,28) and depression (0,24)
- Correlations between self-centred leadership and the mental health indicators were 0,21 for emotional exhaustion and 0,19 for depressive symptoms
- Non-listening leadership showed a small but significant variation with incidence increasing over time (means 2,15, 2,14 and 2,24 for the years 2006, 2008 and 2010 respectively,  $p = 0,0001$ ). A similar tendency was found also for self-centred leadership (means 5,83, 5,84 and 5,99,  $p = 0,01$ )

Using multiple linear regression to predict health status in 2008 and 2010 showed:

- Self-centred leadership significantly predicted depressive mood ( $p = 0.004$ ) in 2008 when adjustments had been made for socio-demographic variables and depressive mood in 2006
- Self-centred leadership was still a significant predictor when psychological demands and decision latitude in 2006 had been added to the equation although with reduced strength ( $p = 0.041$ )
- Non-listening leadership predicted depressive mood in 2008 ( $p = 0.026$ ) by means of the 'non-listening' leadership score in 2006 even after adjustment for depressive score in 2006 as well as the demographic variables, but was not significant when psychological demands and decision latitude had been taken into account ( $p = 0.334$ )
- High psychological demands were independently and significantly predictive of both health outcomes both from 2006 to 2008 and from 2006 to 2010. High decision latitude predicted significantly and independently low emotional exhaustion score in 2010 (with adjustment both for non-listening and self-centred leader score).

## Limitations

The study was assessed as (++). The authors noted that data cannot disentangle how far the relationships between leadership and employee health are mediated by the leader's influence on work environment factors or whether both the leader and the work environment are influenced by common organisational factors that affect the health of the employees.

In addition the review noted that a single item measure was used to assess degree of managerial listening behaviour and that the degree of bias as a result of respondent self-selection in the findings is unclear.

### Applicability to the UK

This study was based in Sweden and is partially applicable to the UK.

#### 3.1.57 Top et al. (2013)

This study investigated the relationships between employee organisational commitment, organisational trust, job satisfaction and employees' perceptions of their immediate supervisors' transformational leadership behaviours in two Turkish public hospitals and how job satisfaction, organisational trust and transformational leadership can affect organisational commitment and organisational trust.

### Method

A self-administered questionnaire was used for this study. All personnel at two hospitals were contacted and asked to complete the survey. The overall response rate was 38.1 per cent and 804 employees participated. The majority of the respondents (64.0 per cent) were female, 8.2 per cent were physicians, and 28.4 per cent were nurses. Some 36.4 per cent had a high school diploma, and 13.8 per cent had a higher education degree. The mean age of the respondents was 36.64 years.

The measurement instruments used in the survey were the Job Satisfaction Survey (developed by P. Spector); the Organisational Commitment Questionnaire (developed by J. Meyer and N. Allen) (which comprises three types of commitment: normative, affective and continuance commitment,); the Organisational Trust Inventory-short form (developed by L. Cummings and P. Bromiley); and the Transformational Leadership Inventory (TLI) (P. M. Podsakoff). The six transformational leadership dimensions were:

- Articulating a Vision (eg, 'my supervisor paints an interesting picture of the future for our practice area')
- Providing an Appropriate Model (eg, 'my supervisor provides a good model to follow')
- Fostering the Acceptance of Group Goals (eg, 'my supervisor fosters collaboration')

- High Performance Expectations (eg, 'my supervisor shows us that he/she expects a lot from us')
- Providing Individualized Support (eg, 'my supervisor shows respect for my personal feelings')
- Intellectual Stimulation (eg, 'my supervisor has provided new ways of looking at problems that used to puzzle me').

Five-point Likert scales were used in all the measurement instruments.

Descriptive statistics were used to identify participant characteristics and the distribution of subscale scores. Data analysis was conducted using SPSS 15.0.

Correlation tests (the Pearson's rank test) were used to examine relationships between variables. Also, multiple regression analysis was used to determine the regressors for organisational commitment and organisational trust.

## Outcomes

The strongest correlations were among dimensions of transformational leadership.

The highest correlation coefficient ( $r = 0.965$ ;  $p < 0.001$ ) was between intellectual stimulation and fostering the acceptance. The lowest correlation coefficient ( $r = 0.146$ ;  $p < 0.01$ ) was between providing individualised support and continuance

There were significant correlations among overall organisational commitment, transformational leadership, job satisfaction and organisational trust.

There was a significant relationship between transformational leadership with organisational commitment ( $r = 0.285$ ;  $p < 0.01$ ), organisational trust ( $r = 0.424$ ;  $p < 0.01$ ) and job satisfaction ( $r = 0.229$ ;  $p < 0.01$ ). Job satisfaction had the strong correlation with organisational trust ( $r = 0.363$ ;  $p < 0.01$ ) and organisational commitment ( $r = 0.385$ ;  $p < 0.01$ ). Transformational leadership had the strongest relationship with organisational trust. Job satisfaction had the strongest relationship with organisational commitment.

It was found that one transformational leadership dimension (articulating a vision), two job satisfaction dimensions (pay and supervision) and two organisational commitment dimensions (affective commitment and normative commitment) were significant regressors for organisational trust.

## Limitations

The study was assessed as (+). There was little information in the study about the sampling process.

## Applicability to the UK

The study was based on two hospitals in Turkey and has very limited applicability to the UK.

### 3.1.58 Treiber and Davis (2012)

The goal of the study was to improve understanding of the potential health benefits of social support at work. The main research questions were whether increased levels of support from co-workers, supervisors, and/or organisational safety support (referred to as 'workplace family') were directly associated with better worker health and whether work-family conflict mediated the relationship between workplace family support and worker health. The study was based on a survey of working adults in the USA.

## Method

Data from the General Social Survey (GSS) 2002, a national probability sample of all non-institutionalised English-speaking persons 18 years of age or older living in the United States, was used for the study. The number of completed interviews in the GSS 2002 is 2,765. The study was largely drawn from the Quality of Working Life module, centred on questions about working conditions in respondent's 'main job' and health (N=1,796).

Outcome variables included:

- **Perceived general health.** Respondents were asked a general health question: 'Would you say that in general your health is excellent, very good, good, fair, or poor?' and also about exhaustion, persistent pain. Work-family conflict was captured by a measure averaging the responses to two items: 'How often do the demands of your family interfere with your work on the job?' and 'How often do the demands of your job interfere with your family life?'
- **Workplace family conflict** comprised of three components: co-worker support, supervisor support, and organisational safety support. Supervisor support was measured as the average of responses to two items: 'My supervisor is concerned about the welfare of those under him or her'; and 'When you do your job well, are you likely to be praised by your supervisor or employer?' Organisational safety

support was measured as the mean of responses to four questions (eg, 'The safety of workers is a high priority with management where I work' and 'There are no significant compromises or shortcuts taken when worker safety is at stake'), coded so that higher scores indicate a more favourable safety climate. Cronbach's alpha for the organisational safety support index was .90.

Other outcome variables included work control, skill utilisation, autonomy, community, work and family, work demands, weekly hours worked, family resources, family demands.

Control variables included sex, race, age and education.

The survey was a population based survey, drawn by probability sampling and representative of the working population in the USA. There were 1,602 respondents. The data were analysed by multiple regression.

To test hypotheses regarding direct and mediated influences of workplace family with each of the three measures of health (reported health, feeling used up, and experiencing persistent pain), a set of six hierarchical regressions were performed.

## Outcomes

It was found that increased co-worker support in the workplace was associated with better worker self-reported health (0.098 OR 0.046,  $p < 0.05$ ), lower exhaustion (-0.255 OR 0.049,  $p < 0.05$ ) and less pain (-0.351 OR 0.704,  $p < 0.05$ ).

In addition, higher levels of perceived organisational safety support were associated with better self-reported health (0.091 OR 0.051,  $p < 0.05$ ) and lowered exhaustion (0.091 OR 0.036,  $p < 0.05$ ).

However, neither self-reported health, lower exhaustion nor less pain was significantly associated with supervisor support.

There was no evidence that work/family conflict mediated between work and family characteristics and worker health, and work/family conflict did not mediate the relationship between workplace family measures and worker health.

## Limitations

The study was assessed as (+). The cross-sectional nature of the study was identified as a limitation by the authors. The review team felt that the design of the study raised some concerns. There was no justification why so many models had to be included. Tests to decide which variables needed to be included in the final model

should have been performed. It is difficult to say which factors are relevant for the work and family conflict.

### Applicability to UK

The study was based on a survey of working adults in the USA and is of partial applicability to the UK.

### 3.1.59 Tremblay et al. (2013)

The research evaluated how reward and punishment behaviours are related to employee satisfaction and how perceptions of justice mediate the effect of these behaviours. The study also sought to examine the connection between some boundary conditions and the efficacy of reward and punishment behaviours. The study was based on a survey of managers in the pulp and paper, consumer and food services and the public sectors in Canada.

#### Method

The survey was distributed by email to managers at all levels, from the first-line supervisor to top executives in three sectors: pulp and paper, consumer and food services and the public sector, across Canada. The key measures in the survey included:

- *Contingent Positive Reinforcers*: Positive reinforcers were assessed using 16 items from Sims et al. (1975) and incorporated into Likert-type scale: (1) would not happen, (4) would happen. Scale measures four factors: earning esteem from others (contingent social rewards,  $\alpha=.77$ ); administration of financial rewards (contingent financial rewards,  $\alpha=.71$ ); negative consequences associated with poor performance (contingent punishment,  $\alpha=.71$ ); negative consequences associated with good performance (non-contingent punishment,  $\alpha=.68$ ).
- *Outcome variables*: four outcomes were evaluated in this study, distributive and procedural justice and satisfaction with the organisation and the supervisor.
- Distributive and procedural justice measures were developed by Tremblay et al. (2001). Distributive justice measured using six items on a seven-point scale from 3 (considerably less) to 7 (considerably more) ( $\alpha=.82$ ). Procedural justice was measured using two items on a five-point scale, 1 (others decide for me) to 5 (I decide alone) ( $\alpha=.77$ ). Satisfaction with the superior (five items,  $\alpha=.86$ ) and the organisation (five items,  $\alpha=.82$ ) were measured using the Warr et al. (1969) Managerial Scale.

- *Moderators*: six items from Roter (1966,67) interpersonal trust scale were used to measure propensity to trust. Higher scores indicated a great propensity to trust ( $\alpha=.74$ ). Role of ambiguity comes from items developed by Rizzo et al. (197) and Hose et al. (1983), six items with internal consistency of .76. Pay level was measured on an 11-point scale ranging from less than \$15,000 to \$75,000 up.
- *Control variables*: previous research has shown that work attitudes and behaviours are often influenced by demographic variables. Several control variables were used: age, organisational tenure, sex, marital status and number of dependents.

The sample consisted of 3,067 managers from 44 business units and managers' associations. Of this sample, 1,227 individuals were from the private sector while 1,851 were from the public sector. Response rates ranged from 23 per cent to 80 per cent across organisations. The large number of managers in the sample (over 3,000) allowed adequate representation of the managerial population in the three industrial sectors. The vast majority of respondents were men (83 per cent), and had supervisory responsibilities (90 per cent). In terms of hierarchical status, 30 per cent of respondents were junior managers, 45 per cent were middle managers and 15 per cent held senior positions. Respondents were on average 42 years of age and had 22 years of experience in the workforce and 16 years of seniority in the organisation.

Confirmatory Factor Analysis was used to specify the measurement model and compare it to alternative measurement models. The results were all satisfactory, and the eight factor model showed a good fit to the data. Structural equations were then used to test the hypotheses. Mediation tests were carried out based in a structural equation modelling approach. Moderating hypotheses were tested using a multi-stage procedure. Models were compared using chi-squared ( $\chi^2$ ) difference tests.

## Outcomes

The study found that that using contingent rewards was more effective in promoting positive attitudes at work than using contingent punishments. The authors concluded that organisations would benefit from encouraging their managers to use financial and social rewards and reducing the administration of non-contingent punishment among performing employees.

Contingent financial rewards are weakly related to distributive and procedural justice ( $\beta=.08$ ,  $p<.01$  and  $\beta=.03$ ,  $p<.05$  respectively). A significant positive relationship was found between contingent social rewards and distributive and procedural justice ( $\beta=.28$ ,  $p<0.1$  and  $\beta=.13$ ,  $p<.01$ ). These results indicate that non-contingent punishment is negatively related to distributive justice ( $\beta=-.31$ ,  $p<.05$ ) and to

procedural justice ( $\beta=-.1$ ,  $p<.01$ ). However contingent punishment is negatively related only to distributive justice ( $\beta=-.24$ ,  $p<.01$ ).

The two dimensions of justice were positively and significantly related to satisfaction with organisation (DJ,  $\beta=.03$ ,  $p<.01$ ) and PJ,  $\beta=.56$ ,  $p<.01$ ) and superior (DJ,  $\beta=.08$ ,  $p<.01$  and  $\beta=.68$ ,  $p<.01$ ).

The indirect relationships between contingent financial rewards and satisfaction with organisation and superior through distributive justice are .06 and .05 respectively, and these were significant. The indirect relationships between contingent financial rewards, organisation and superior satisfaction through procedural justice were not significant. The indirect relationship between contingent social rewards and satisfaction with organisation and superior through distributive justice were significant, as well as the indirect relationship between the same factors through procedural justice. The indirect relationship between contingent punishment and satisfaction with organisation and superior through distributive justice and procedural were not significant.

Role ambiguity has a positive moderating effect between cognitive financial rewards, cognitive social rewards and satisfaction with a supervisor, and the relationship is stronger for those with perceived high ambiguity.

The relationship between distributive justice and organisation satisfaction was stronger for those who tend to distrust others, whereas the relationships between the justice dimensions and the superior satisfaction were stronger for those who perceive high role ambiguity (DJ=.07,  $p<.05$ , PJ=.19,  $p<.01$ ).

## Limitations

The study was assessed as (+). All predictor variables and outcomes were obtained from the same source (employees) at the same time. The self-reporting measures and the cross-sectional design increase the probability of common method variance and preclude establishing causal direction among variables.

Another limitation pertains to the less than desired reliability estimates for the non-contingency punishment measure. The reliability estimate for this variable (.68) is close to what we normally expected. This relatively low alpha reliability suggests that the influence of this scale should be interpreted cautiously.

The review team add that the evidence is based on one source: managers, and is not triangulated by other data.

## Applicability to UK

This study was set in a large number of organisations in Canada and is partially applicable to the UK.

### 3.1.60 Vlachos et al. (2013)

The aim of this study was to examine how the charismatic leadership qualities of middle managers influence employee corporate social responsibility (CSR)-induced attributions and how these attributions influence employee job satisfaction, using a survey of employees in three unspecified organisations in an unnamed developed European country.

#### Method

Senior executives contacted employees to request their voluntary participation and to assure them of confidentiality. Employees completed paper surveys on predefined dates during work hours. All survey constructs (based on scales taken from previous research) used multiple-item, seven-point Likert type scales and were assessed at the employee level. Measures included were:

- Charismatic leadership (Conger and Kanungo 1998)
- CSR-induced intrinsic attributions (Du et al. 2007; Ellen et al. 2006)
- CSR-induced extrinsic attributions (Du et al. 2007; Ellen et al. 2006)
- Job satisfaction (Churchill et al. 1974)
- Organisational tenure (Wieseke et al. 2009)
- Dyadic tenure (Wieseke et al. 2009).

The survey was designed in English, translated into the local language, and subsequently back translated in English by one professional translator.

There were 438 valid employee responses. Mean group size was 15.09 employees; the mean employee job experience was 7.59 years; and the mean employee tenure with the organisation and current supervisor were 7.94 and 4.44 years, respectively.

The data analysed initially used confirmatory factor analysis (CFA) on a four-factor model consisting of charismatic leadership, intrinsic CSR-induced attributions, extrinsic CSR-induced attributions, and job satisfaction. Included in the model were four control variables: organisational tenure, dyadic tenure and two dummy

variables to control for organisational-related differences as the data was collected from three different organisations. Subsequently hierarchical linear modelling was employed.

### Outcomes

The effect of immediate manager's charismatic leadership on employee CSR-induced intrinsic attributions was confirmed ( $y = .622, p < .001$ ). A manager's charismatic leadership was not significantly related to employee extrinsic attributions ( $y = .059, p > .70$ ).

Charismatic leadership was positively related to job satisfaction ( $y = .426, P < .001$ ). Job satisfaction positively related to employee CSR-induced intrinsic attributions ( $y = .541, p < .001$ ). The relationship between job satisfaction and CSR induced extrinsic attributions ( $y = .05, p > .17$ ) was not found to be statistically significant.

### Limitations

The study was assessed as (-). The authors noted that although they employed statistical procedures to minimise the potential for common method variance, but such bias could not be ruled out, since the data used in the study originated from a single source. The data was cross-sectional in nature, and therefore prevented the authors from establishing causality.

In addition the review team note the lack of information about the study setting and that the integrity of the questionnaire may have been compromised by translations from English into the local language.

### Applicability to UK

Given the lack of information about the setting for the study it is of limited applicability to the UK.

#### 3.1.61 Volmer et al. (2011)

This study examined the importance of LMX (leader-member exchange, ie supervisor employee relationships) and job satisfaction and how this can enhance supervisor-employee relationships in a large information technology company in Germany.

## Method

A total of 378 randomly selected employees were asked to voluntarily participate in the study. The design comprised two measurement points with a three-month interval between the assessments to be able to assess variations in LMX and job satisfaction but also to hold constant seasonal effects on business activities.

Time 1 (response rate: 73.81 per cent), and 193 employees completed the questionnaire at Time 2 (69.18 per cent of those who participated at Time 1). Of the Time 2 participants, 144 indicated that they had already participated at Time 1 (51.61 per cent of those who participated at Time 1). It was examined whether the Time 2 sample was representative of the Time 1 sample by conducting drop-out analyses. No significant differences were found with respect to the study variables assessed at Time 1 (age, gender, leadership position, job tenure, education, LMX, job satisfaction).

The survey included the following measures:

- *Leader–Member Exchange*. We employed the highly recommended seven-item LMX seven scale (Graen & Uhl-Bien, 1995) in its German version (Schyns, 2002). Participants answered on five-point Likert-type scales with question-specific labels (for the sample item, 1 = *not much* to 5 = *a great deal*). Cronbach's was .86 (T1) and .87 (T2).
- *Job Satisfaction*. Our measure of job satisfaction was taken from Baillod and Semmer (1994). Following Kunin (1955), participants were instructed to indicate how satisfied they were, in general, with their job, on a seven-point Likert-type faces scale. Meta-analytical work by Kaplan, Warren, Barsky, and Thoresen (2009) showed that Kunin's faces scale is best suited to capturing both employees' affective and cognitive reactions to work; thus, a single-item faces scale is well suited to obtaining a comprehensive rating of employees' attitude to work.
- *Control Variables*. Leadership position was measured with one item asking if the respondent had any disciplinary responsibilities. Other measures included education and job tenure.

Hypotheses were tested by means of structural equation modelling (SEM). Reciprocal hypotheses (LMX and job satisfaction) were estimated a cross-lagged panel model with these variables. In this modelling design, every outcome variable (LMX and job satisfaction) is regressed on its auto-regressor and cross-lagged on the other variable in the previous time of measurement (LMX t2 regressed on job satisfaction t1 and job satisfaction t2 regressed on LMX t1).

## Outcomes

The findings revealed a positive relationship between LMX and job satisfaction both at Time 1 ( $r=.50$ ,  $p<.001$ ) and Time 2 ( $r=.27$ ,  $p<.01$ ). Moreover, LMX at Time 1 predicted the increase of job satisfaction at Time 2, and job satisfaction at Time 1 predicted the increase of LMX at Time 2 ( $\text{Beta}=.26$ ,  $p<.01$ ) and also after controlling for the auto-regressor ( $\text{Beta}=.44$ ,  $p<.001$ ). The results demonstrate the need to consider reciprocal relationships between job satisfaction and LMX when explaining employees' workplace outcomes.

## Limitations

The study was assessed as (+). The authors said that the use of self-reported data could have led to method bias.

In addition the review team pointed out that it was not reported why and how the company was selected. Furthermore it was not well justified why follow-up study was needed as there is a strong evidence that there is association between LMX and job satisfaction and no information about managers provided.

## Applicability to UK

The study was set in an information technology company in Germany and is partially applicable to the UK

### 3.1.62 Wong and Laschinger (2012)

Avolio et al.'s (2004) theory of authentic leadership was used to develop and test a model linking authentic leadership of nurse managers with acute care nurses' perceptions of structural empowerment, self-rated performance, and job satisfaction among nurses working in acute care hospitals across Ontario, Canada.

## Method

A random sample of 600 registered nurses (RNs) working in acute care teaching and community hospitals in Ontario was selected from the College of Nurses registry list. Nurses received a survey that included a letter of information about the study, a questionnaire, and a researcher addressed, stamped envelope to return the completed questionnaire. Measures in the questionnaire included:

- **Authentic leadership:** the Authentic Leadership Questionnaire (ALQ) (Avolio et al. 2007) was used to measure nurses' perception of manager authentic leadership. The ALQ is divided into four subscales, based on the four authentic components:

relational transparency, balanced processing, self-awareness, and internalised moral perspective. Confirmatory factor analysis has supported the four dimensions of the ALQ (Walumbwa et al. 2008). Cronbach's alphas ranged from 0.70–0.90 (Walumbwa et al. 2008). On the survey, nurses were asked to rate their perceptions of their immediate manager, who was defined as the formal leader of the clinical unit where they worked the majority of their time.

- **Structural empowerment:** measured using The Conditions of Work Effectiveness Questionnaire II (CWEQ-II) (Laschinger et al. 2001). This scale consisted of 19 items that measure six components of structural empowerment: access to opportunity, information, support, resources, formal power, and informal power. All items were measured on a five-point Likert scale ranging from 1 ('none') –5 ('a lot').
- **Job satisfaction:** the six-item Global Job Satisfaction Survey (Quinn & Shepard 1974) was used to measure job satisfaction. The items measure an employee's general affective reaction to his or her job without reference to any specific facets. Responses were rated on a five-point Likert-type scale (5 = more satisfied) and the anchors vary by item.
- **Performance:** measured using an eight-item General Performance scale developed by Roe et al. (2000), a composite of a task- and role-performance measure and is an indirect measure that captures a person's self-appraisal of the comparison of his/her performance with the performance of others with similar task and roles. Alpha coefficients for the composite measure ranged between 0.72–0.80.

A final sample of 280 was achieved, a response rate of 48 per cent. The average age of nurses in the sample was 43.4 years with 18.9 years' experience in nursing and an average of 8.6 years' tenure in their respective work unit. Nurses worked primarily full-time (65.6 per cent) in medical/surgical or critical care units (37.3 per cent and 22.1 per cent, respectively). Most were diploma prepared (69.5 per cent) and the majority of respondents (54 per cent) worked in teaching hospitals.

Descriptive statistics, reliability estimates, and Pearson correlations were computed for all study variables. The hypothesised structural model was tested using structural equation modelling. Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables.

## Outcomes

Maximum likelihood (ML) estimation, which assumes multivariate normal data and a sample size of 200 cases. Several fit indices were used to evaluate fit of the model:

the chi-square ( $\chi^2$ ) and significance ( $p$ ), the chi-square/degrees of freedom ratio ( $\chi^2/\text{d.f.}$ ), and incremental fit indices such as the comparative fit index (CFI), the incremental fit index (IFI), and the root mean square error of approximation (RMSEA). The generally agreed-on critical value for the CFI and IFI is 0.90 or higher (Kline 2005). Low values (between 0–0.06) for RMSEA indicate a good fitting model.

The initial  $\chi^2$  for the model was 11.58 (d.f. = 3,  $P = 0.009$ ),  $\chi^2/\text{d.f.} = 3.86$ , CFI = 0.94, IFI = 0.95, and RMSEA = 0.10). The statistically significant  $p$ -value indicated sizeable inconsistencies between the model and the covariance data. All path estimates in the final model were statistically significant ( $p < 0.01$ ) and in the hypothesised direction.

Structural empowerment mediated the relationship between authentic leadership and job satisfaction and performance. Authentic leadership had a statistically significant positive direct effect ( $b = 0.46$ ,  $p < 0.01$ ) on structural empowerment, which in turn had a statistically significant direct effect on job satisfaction ( $b = 0.41$ ,  $P < 0.01$ ) and on performance ( $b = 0.17$ ,  $p < 0.01$ ).

In addition, authentic leadership had a statistically significant positive direct effect ( $b = 0.16$ ,  $p < 0.01$ ) and an indirect effect on job satisfaction through empowerment ( $b = 0.19$ ,  $p < 0.01$ ). Authentic leadership also had a small positive and statistically significant indirect effect on performance through empowerment ( $b = 0.08$ ,  $p < 0.01$ ). Sobel tests confirmed statistically significant mediation effects of empowerment on both job satisfaction ( $z = 2.61$ ,  $p < 0.01$ ) and performance ( $z = 2.65$ ,  $p < 0.01$ ).

### Limitations

The study was assessed as (+). The authors identified no limitations other than the cross-sectional nature of the study. In addition, the review team noted the relatively small response rate which may have caused nurses who perceived their supervisor in positive light to respond more often than those who had more negative experiences causing response bias.

### Applicability to UK

The study was based in a hospital setting in Canada and is of only partial applicability to the UK.

#### 3.1.63 Zampetakis and Moustakis (2011)

The purpose of the study was to examine the effects of managers' emotional skills on group outcomes. Specifically, the authors proposed and tested a theoretical model that examined impact of managers' trait emotional intelligence (EI) on group job satisfaction.

## Method

A letter was sent to 160 randomly selected managers from a total population of 25 public and quasi-public organisations located on the island of Crete, Greece. The population of organisations contacted consisted of local health care hospitals ( $n = 4$ ), prefectures ( $n = 4$ ), public water companies ( $n = 6$ ), universities ( $n = 3$ ), research institutions ( $n = 3$ ), and higher education ( $n = 5$ ). Managers were informed that their immediate team members should also participate in the study in the near future, and permission was requested for team members to complete a questionnaire during working hours.

Fifty-one managers from 11 organisations returned the questionnaire and returned it. Three weeks later, questionnaires were distributed to managers' team members who assessed managers' perceived EI and individual JS along with giving demographic data of themselves.

Thirty-one point eight per cent of managers and 44 per cent of organisations responded, 100 per cent subordinates responded. No indication of representativeness of the sample was given.

The managers in the sample included 37 men (72.5 per cent) and 14 women (27.5 per cent). The managers had been employed at their current management position for an average of 10.39 years ( $SD = 7.1$ ), their mean age was 45.63 years ( $SD = 7.5$ ); almost 60 per cent had a university degree. These managers were leaders of formal teams of individuals that were collectively in charge of the achievement of one or several tasks. There were a total of 158 team members in this study, with 3.06 subordinates on average per manager ( $SD = 1.35$ ).

Across the sample of 51 teams, 15 teams had two members, 22 had three members, eight had four members and six had five members. The sample of participating team members included 73 males and 85 females aged 18 to 60 years ( $M = 35.11$  years,  $SD = 8.4$ ). The average organisation tenure was 7.59 years ( $SD = 7.2$ ) and 52.5 per cent of the respondents had a university degree. The average time working with their immediate manager was 3.2 years ( $SD = 4.01$ ).

### Measures:

All the main constructs included in the analysis were assessed with self-report measures based on multi-item scales. Responses to all items were made on seven-point Likert-type scales (1 = strongly disagree, 7 = strongly agree). Native speakers translated all the items into the Greek language.

**Manager emotional intelligence:** the measure was based on the Wong and Law Emotional Intelligence Scale WLEIS (Wong & Law, 2002). The WLEIS is a 16-item measure that conceptually adheres to the ability model but assesses the four EI capabilities in a self-reported fashion. The WLEIS measures perception of own (self-emotional appraisal-SEA) and others' emotions (others' emotional appraisal-OEA), regulation of emotions (ROE), and utilisation of emotions (UOE). Cronbach's  $\alpha$  reliabilities for SEA, OEA, ROE, and UOE were .78 (four items), .76 (four items), .76 (four items), .71 (four items), respectively.

**Group evaluative judgement of managers' trait EI:** the same four subscales of the WLEIS construct for team members was used, but the wording of the items referred to their immediate manager. Cronbach's  $\alpha$  reliabilities for perceived SEA, OEA, ROE, and UOE were .84 (four items), .87 (four items), .71 (four items), and .88 (four items), respectively.

**Subordinates' job satisfaction:** 18-item Job Satisfaction Index (JSI) (Brayfield & Rothe, 1951) was used, consisting of 18 items measuring JS. Example of sample items are: 'I feel fairly satisfied with this job' and 'Each day at work seems like it will never end' (reverse scored). Cronbach's reliability coefficient for all 18 items was .89.

Prior to testing the proposed model and the associated hypotheses, confirmatory factor analyses were conducted to demonstrate the construct validity of the managers' and team members' variables. Analysis of Moment Structures (AMOS version 7.0) software was used. A Bayesian Approach was chosen to estimate confirmatory factor analysis of managers' and individual team members' measurement models along with Markov chain Monte Carlo (MCMC) for model fit.

## Outcomes

Managers' trait EI (emotional intelligence) was not significantly related to group JS (job satisfaction) ( $r = .13$ ,  $p = .38$ ), providing support for the notion that the impact of managers' trait EI on group JS is more appropriate to be considered distal than proximal.

Managers' trait EI correlated positively with group evaluative judgement of managers' trait EI ( $r = .51$ ,  $p = .002$ ), and group evaluative judgement of managers' trait EI correlated positively with group JS ( $r = .39$ ,  $p = .012$ ). Thus, results provided support for support for Hypotheses 1 (a managers' trait EI will not be directly related to group JS), 2 (a manager's trait EI will correlate positively with group evaluative judgement of managers' trait EI), and 3 (group evaluative judgement of managers' trait EI will correlate positively with group JS). Additionally, results

indicated that managers' tenure correlates positively with group evaluative judgement ( $r = .30$ ,  $p = .038$ ).

None of the group diversity indexes was significantly correlated, with either managers' self-reported EI or group evaluative judgement of managers' trait EI. The complete mediation model postulated that the effects of managers' trait EI on group JS were completely mediated by group evaluative judgement of managers' trait EI. The standardized direct effect of managers' EI group evaluative judgement of managers' trait EI was .49 (95 per cent credible interval: 0.23, 0.68); the direct effect of group evaluative judgement on group JS was 0.39 (95 per cent credible interval: 0.12, 0.62). In sum, the standardized total effect of trait EI on group JS was 0.19 (95 per cent credible interval: 0.046, 0.36). The proportion of variance in group evaluative judgement of managers' trait EI and group JS explained by the collective set of predictors was 26 per cent and 19 per cent, respectively.

### Limitations

The study was assessed as (-). Composite trait EI scale for analysis was created. The problem with the approach was that it neglected the individual influence of each dimension and assumed a universal and uniform influence by each dimension. The small sample size and the low response rate in the study called into question the generalisability of the findings.

### Applicability to UK

The study was based on a survey of managers and team members in a range of public and private sector organisations in Greece and is partially applicable to the UK.

### 3.1.64 Zineldin and Hytter (2012)

The aim of the study was to investigate the relationship between transformational, transactional and laissez-faire leadership styles, and leaders' negative emotions perceived by the subordinates. The aim was also to investigate the influence of leadership styles on the subordinates' over psychological health and well-being.

### Method

Of the 742 people who had worked at a faculty of an unidentified Western European university, between 1995 and 2007, 50 faculty members were identified to have worked there the entire period, out of which 30 were academics. Out of these 30, 20 agreed to participate in the study. Twelve complete surveys, that is with responses

for all four leaders over the studied period were handed in, thus resulting in a possibility to perform that analyses with  $n=48$ .

To answer the research questions and hypotheses, two different instruments were used:

- MLQ, leadership items: well developed scale (Bass et al., 2000). Twenty-one descriptive statements were listed. Respondents were asked to judge how each of the four leaders according to their opinion ( $n=48$ ). Responses measured with a five-point Likert scale (0=Not at all to 4=frequently if not always). Each leadership sub-style was measured through three items, thus the possible score per sub style varied between 0 and 12. (Cronbach's alpha's suitable for all subscales).
- Well-Being: overall psychological health and well-being were measured by a subjective self-reporting item as part of the MLQ. A five-point Likert scale (0=very bad to 4=Much better) was used.
- Emotion item scales: a self-designed emotional scales questionnaire was adapted based on PANAS (Watson et al., 1988). The instrument provides two sets of 20 different items. The negative set included emotions such as stress, tense, jealous and regretful. The positive set included emotions such as cheerful, happy, relaxed and hopeful. Respondents were asked to describe each leaders' overall emotion status on a five-point Likert scale, ranging from 0=not at all, to 4=frequently. In this report that hypotheses focus only on the negative emotions. Based on the Cronbach's alpha, four negative items were deleted, thus the negative emotions scale consisted of angry, depressed, miserable, regretful, sad, tense, uneasy and worried. The Cronbach's alpha for this is  $\alpha=.74$ .

Regression analyses were used to determine the relation between dependent and independent variables. Beta values were used to determine each variable's contribution to explaining the dependent variable.

## Outcomes

### Leadership style and negative emotions:

The regression model with the total sum of the seven negative emotions as the dependent variable and the leadership sub-styles as independent variables explained 20 per cent of the variance in total negative emotions. Idealised influence behaviour made the strongest contribution, so a high idealised leader partly explains low negative emotions ( $\beta=-0.30$ ,  $p<0.02$ ). This was the only factor significant at the five per cent level; although with lower levels of significance (approaching 10 per cent), three other factors made some contribution to the understanding of leadership

styles and negative emotions. Individual consideration ( $\beta=-0.22$ ,  $p<0.07$ ) indicated that the more individual consideration from a leader, less negative emotions experienced. The more contingent rewards experienced, the less negative emotions from employees ( $\beta=-0.22$ ,  $p<0.08$ ) and the more inspirational a leader is, the less negative emotions expressed as evaluated by the subordinates is reported ( $\beta=-0.18$ ,  $p<0.10$ ).

The authors concluded that there was a clear but not strong relationship between the leaders' negative emotions and leadership style as perceived by the subordinates.

### **Leadership style and subordinates overall well-being:**

Transformational and transactional leadership styles were positively related and Laissez-faire leadership was negatively related to overall well-being. The regression model explained 36 per cent of the variance, so the dependent variable of subordinates' well-being was to some extent influenced by the factors measured. Three leadership styles were significant: intellectual stimulation ( $\beta=-0.47$ ,  $p<0.02$ ), management by exception ( $\beta=-0.35$ ,  $p<0.03$ ) and individual consideration, ( $\beta=0.43$ ,  $p<0.05$ ).

### **Limitations**

The study was assessed as (-). The authors pointed out that the study took place in an academic context with highly educated professionals as respondents. There are indications that contextual factors could have influenced the result. A further limitation is the subjective measurement of employees' overall psychological health and well-being.

Also the study's design involuntarily became one of common source – having the same rater for both the dependent and independent variables and the study was cross-sectional, inhibiting the possibility to report on causality.

In addition the review team noted the small sample size

### **Applicability to UK**

The study was based on a small sample in an unidentified university in Western Europe and is not applicable to a wider setting in the UK.

### **3.1.65 Zori et al. (2010)**

This study examined whether there was a difference between nurse managers' critical thinking dispositions and their respective staff nurses' perceptions of the

practice environment, based on surveys of nurse managers and nurses in a hospital facility in the USA.

## Method

The study was based on a convenience sample of nurse managers and a random sample of their respective staff registered nurses in a 490 bed voluntary, non-profit tertiary care hospital located in the north-eastern United States. Some 38 managers were considered eligible to participate and as a result of a power calculation, 327 (79 per cent) of the 467 RNs were invited to participate to ensure the required number of surveys were obtained for analysis.

A total of 16 nurse managers completed the survey a response rate of 32 per cent and 132 of the 327 nurses responded (44 per cent response rate). The demographic profile of the staff RNs in the study was similar to that of the nurse managers in age, gender and education.

Nurse managers were categorised as weak or strong in critical thinking dispositions based on scores on the California Critical Thinking Disposition Inventory (CCTDI). Staff RNs from the units of participating nurse managers completed the Practice Environment Scale (PES).

- CCTDI – tool developed to measure the disposition or attitudes toward critical thinking. Each of the 75 items on the CCTDI targets one of the seven critical thinking dispositions and is scored using a continuous six-point Likert scale from 1 (disagree strongly) to 6 (agree strongly); a lower score of 1,2 or 3 indicates weakness while a higher score (4,5,6) indicates strength in the targeted disposition. The overall Cronbach's alpha was 0.90, and is considered a reliable tool to measure critical thinking dispositions.
- PES – practice environment was measured by the Practice Environment Scale (PES), a tool designed to examine nurses' job satisfaction. This includes 31 items grouped into five subscales (nurse participation in hospital affairs  $\alpha=.83$ , nursing foundations for quality of care  $\alpha=.77$ , nurse manager ability, leadership and support of nurses  $\alpha=.91$ , staffing and resource adequacy  $\alpha=.84$  and collegial nurse-physician relations  $\alpha=.83$ ). Items are scored on a four-point Likert scale of four (strongly agree) to 1 (strongly disagree). Subscales of 2.5 and above indicate agreement with the item, and 2.4 and below indicate a disagreement with the item. This was considered a reliable tool to measure the practice environment.

A two tailed independent sample t-test was conducted to determine if there were significant differences in PES mean overall and subscale scores of the two groups of staff nurses.

## Outcomes

The authors concluded that the results supported the positive relationship between strength in critical thinking dispositions of nurse managers and their respective staff RNs' perceptions of the practice environment.

Significant ( $p < .001$ ) differences were found between specific nurse managers' CCTDI scores for open-mindedness, analyticity, and critical thinking, confidence, and significant differences ( $p < .01$ ) were found for systematicity when compared with their respective staff RN's mean subscale and overall PES scores.

There were significant differences ( $p < .01$ ) in staff RN's PES subscale and overall scores for five dimensions of the practice environment (participation in hospital affairs, staffing and resource adequacy, nursing foundations for quality care, nurse manager ability and support and collegial nurse-physician collaboration) with regard to nurse-managers' scores on four subscales (analyticity, systematicity, open-mindedness and critical thinking confidence) of the CCTDI. Staff PES scores were consistently higher when the nurse managers showed a positive disposition in these four critical thinking domains. The only significant difference between nurses working for managers with strength versus weakness on the truth-seeking scale was the nurse-physician relationship. There was a statistically significant positive relationship between nurse managers' critical thinking dispositions and their respective staff RN's perceptions of the practice environment as measured by PES scores.

## Limitations

The study was assessed as (-). The authors identified a number of limitations:

- The study was conducted in a single tertiary medical centre in the north-eastern United States and may not be representative of the entire population of nurse managers and their respective staff nurses. Only those nurse managers who voluntarily chose to answer the CCTDI were included in the study.
- The limited nurse manager response, in turn limited the inclusion of staff nurses to only those whose nurse manager chose to participate in the study. The random sample size for nurse managers and staff limits the ability to generalise the findings to a broader population.
- Variables that may influence staff nurses' perceptions of the practice environment eg the type of patient care unit worked on and full-time or part-time work status were not examined in this study.

- Small sample size limited the ability to address how the difference in type of unit may influence the staff nurses perceptions of the practice environment.

#### **Applicability to UK**

The study was set in a hospital in the USA and is of limited applicability to the UK.

## 4 Literature reviews

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In addition to the primary studies the literature search for identified a number of literature reviews of potential relevance to Review Question 3. It was decided that these should be reviewed separately from the primary studies. The method adopted and the key findings are set out in this chapter.

### 4.1 Method

The search process identified 21 literature reviews that potentially addressed research questions relevant to Review Question 3 (see Figure 2.1). The full review papers were screened by two reviewers against the inclusion criteria. Thirteen of these reviews were considered to meet the inclusion criteria for this review and included additional material that were relevant to the research questions. Reviews that only included studies that had already been included in the this or previous reviews were excluded.

The 13 reviews were quality assessed using the NICE Public Health Guidance (NICE, 2012) and the data relevant to the review was extracted. The evidence tables are set out in Section 4.3.

Most of the reviews synthesised the literature using a qualitative approach, four employed a meta-analysis technique.

### 4.2 Findings

#### 4.2.1 Supervisor support

Three of the studies examined supervisor support in general terms.

Edmunson and Boyer (2013) (+), in a meta-analysis of 40 studies published before 2008, found that job satisfaction exhibited a medium positive relationship with perceived supervisory support (the weighted  $r$  value was .54,  $p < .001$ ). They also found that the relationship between perceived supervisory support and job satisfaction was stronger for non-boundary spanning occupational groups<sup>6</sup>. However, they concluded that the differences between boundary and non-boundary spanning groups, although statistically significant, were extremely small and so the results for this analysis should be interpreted cautiously.

Jeon et al. (2010) (+) in a qualitative review of a total of 153 studies relating to the adult care sector in Australia cited two studies that found that a positive staff perception of a manager's leadership and support was associated with improved job satisfaction and workforce retention.

Finney et al. (2013) (+) in a review of eight studies mainly from the USA found an inconsistent relationship between supervisory support and job-related stress. For example two studies in the review found supervisory support was significantly related to job stress, but another found a negative and non-significant relationship.

### Work-life balance

Den Dulk and Peper (2009) (-) examined the management of work-life balance in European workplaces in a purposive review and concluded that line managers were increasingly seen as the 'gatekeepers' of work-life policies and the key to policy and programme effectiveness.

They found that managerial attitudes were very important in understanding why many employees are not taking advantage of the wide range of work-life policies on offer nowadays. Managerial attitudes were not only important in understanding managerial decision-making with respect to request to utilise work-life policies, but were also crucial in understanding the requesting behaviour of employees.

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<sup>6</sup> A boundary spanning employee was defined as an who "engages in job-related interactions with a person who is considered part of the environment, who is not a member of their organisation". Boundary spanning employees include sales people plus any frontline or customer-contact employee such as customer service representatives, service technicians, retail employees, delivery personnel, nurses, and professional buyers.

The authors concluded that managers generally took a short term view of work-life policies rather than a long-term view that valued human capital and did not yet see that employees' work-life balance contributed to organisational goals. Managers were generally unaware of existing policies and lacked training in the tools that would allow them to successfully implement policies, and there were inconsistencies in policy implementation and variations in management attitudes and behaviour towards work-life policies.

### Supervisory tasks

Mor Barak et al. (2009) (++) conducted a thorough meta-analysis of 27 studies in the health and care sectors and looked at the relationship between various supervisory tasks (task assistance, social and emotional support and supervisory interpersonal interaction) and employee well-being (variously measured through job satisfaction, retention, organisational commitment, job stress, burnout, psychological well-being and worker effectiveness).

Overall the analysis found that each of the dimensions of the supervisory role investigated was found to be positively and statistically significantly related to beneficial outcomes for workers. However the effect sizes were moderate: task-assistance:  $r = 0.40$ ; social and emotional supervisory support:  $r = 0.33$ ; supervisory interpersonal interaction:  $r = 0.33$ .

Two supervisory dimensions (social and emotional supervisory support and supervisory interpersonal interaction) were negatively and statistically significantly related to detrimental outcomes for workers. Again the effect sizes were moderate: social and emotional supervisory support:  $r = -0.28$ ; and interpersonal supervisory interaction:  $r = -0.31$ .

### 4.2.2 Leadership style

Skakon et al. (2010) (+) conducted a systematic review of published empirical research on the impact of leaders and leadership styles on employee stress and affective well-being. Twenty papers examined whether specific leadership styles related to employee stress and affective well-being and produced mixed results (no statistics provided). While the transformational leadership style was associated with low stress levels and high well-being among subordinates, some studies found an association between transactional leadership and laissez-faire leadership and employee stress while others failed to show a relationship. Abusive leadership styles were found to be related to high levels of employee burnout.

Kelloway and Barling (2010) (-) conducted a purposive review of leadership development and found that positive leadership was linked with enhanced wellbeing. They found that most empirical literature had focused on leadership style (abusive, passive, positive) or on employee perception of leadership fairness. The majority focused on negative or poor leadership, they found less but emerging data on the beneficial effect of positive forms of leadership on individual wellbeing.

Positive leadership behaviours were associated with enhanced employee physical health outcomes. The studies consistently found an association between supervisory injustice and cardiovascular mortality although the size of the effects was inconsistent.

### 4.2.3 Specific leadership behaviours

Skakon et al. (2010) (+) examined 30 papers, all published prior to February 2009, in a review which looked at the association between leaders' behaviours and employee wellbeing. The studies showed that positive leader behaviours, including providing support, feedback, trust, confidence and integrity, were positively related to employee affective well-being and low stress levels among employees. Whereas the opposite was the case for negative leader behaviours. A good quality relationship between manager and employee was also associated with employee well-being and low stress levels.

Jean (2010) (+) found that the essential attributes of good leadership in middle management in the adult care sector in Australia included: hands-on accessibility and professional expertise in nurturing respect; recognition and team building, along with effective communication and flexibility.

Mesmer-Magnus (2012) (+) reviewed 49 studies which examined the impact of humour in the workplace and in a meta-analysis found that positive humour among supervisors was associated with good physical and mental health. The review also found that positive humour buffered the negative effects of workplace stress on mental health. Supervisor humour positively related to subordinate job satisfaction ( $p = 0.39$ ,  $SDp = 0.26$ )<sup>7</sup> and was negatively related to subordinate work withdrawal

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<sup>7</sup>  $p$  = Sample size weighted mean observed correlation corrected for unreliability in both measures;  $SDp$  = Standard deviation of  $p$ .

( $p = 20.31$ ,  $SDp = 0.21$ ). Supervisor humour was also positively related to subordinate satisfaction with supervisor ( $p = 0.16$ ,  $SDp = 0.22$ ).

Ellinger (2013) (-) found that that job satisfaction was associated with managerial coaching and there was a similarity between managerial coaching behaviours and those items associated with being a supportive supervisor with regard to delegating, expectations, listening, caring, and challenging assignments.

A purposive review carried out by Feather (2009) (-) focussed on whether the level of emotional intelligence among nursing leaders impacted on the level of job satisfaction of their employees and concluded that nurse manager's leadership behaviour was one of the factors most likely to improve retention of hospital staff nurses because of the manager's ability to improve job satisfaction.

### Negative behaviours

In a meta-analysis of studies about workplace aggression, Hershcovis and Barling (2009) (+) found that supervisor aggression was negatively associated with job satisfaction with a moderate effect sizes: (corrected  $r$  ( $rc$ ) =  $-.38$ ,  $SD$ :  $.07$ ), general health / psychological distress ( $rc$  =  $-.28$ ,  $SD$ :  $.15$ ), Emotional exhaustion: ( $rc$  =  $.35$ ,  $SD$ :  $.12$ ), Depression ( $rc$  =  $.26$ ,  $SD$ :  $.07$ ), Physical well-being (  $rc$  =  $-.20$ ,  $SD$ :  $.13$ ). They also concluded that supervisory aggression had a stronger adverse relationships than co-worker aggression with job satisfaction ( $t = 12.29$ ,  $p < .001$ ) and general health/psychological distress ( $t = 4.21$ ,  $p < .001$ ).

Skakon (2010) (+) found that negative behaviours such as control, low support and abuse were associated with stress and poor well-being.

#### 4.2.4 Interventions

Four studies examined interventions which could affect line managers' relationships with their employees

The review conducted by Lartey et al. (2013) (+) which looked at the effectiveness of strategies for retaining experienced registered nurses, found two studies which indicated that management support and training, as part of organisational interventions, influenced retention in a positive way. One of the studies concluded that in order for organisations to promote retention, they need to support managers' efforts to be visible and accessible to staff, and to use transformational leadership styles in the workplace.

Corbiere et al. (2009) (+) concluded that interventions including a psychosocial approach with a focus on the supervisor's training could be promising for preventing mental health problems in the workplace.

Kelloway and Barling (2010) (-) reached 'the unambiguous conclusion' that organisational leadership was related to, and predictive of, health and safety-relevant outcomes in employees. They went on to state their belief that a small but growing body of literature supported the effectiveness of leadership development as a means of positively influencing these outcomes.

Feather (2009) (-) concluded that changing behaviour patterns of an individual or group was difficult to do and difficult to measure as behaviours changed over time in small increments. Therefore, it was important to provide follow-up through feedback and evaluation on an on-going basis. Nevertheless, leaders could be taught how to recognise emotional signals in others, especially non-verbal signals. Coaching and educational programmes could be used to enhance a manager's emotional and social skills.

### 4.3 Evidence Tables

## Corbiere et al. (2009)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Marc Corbierea, Jie Shenb, Marc Rouleauc and Carolyn S. Dewad</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Marc Corbierea, Jie Shenb, Marc Rouleauc and Carolyn S. Dewad 'A systematic review of preventive interventions regarding mental health issues in organizations' Work 33 (2009) 81-116 81 DOI 10.3233/WOR-2009-0846 IOS Press</p>	<p><b>Databases and websites searched:</b> The reviewed studies were identified from the following six databases in 2007: Cochrane Central Register of Controlled Trials (CCRC), Cochrane Database of Systematic Reviews (CDSR), Ovid MEDLINE(R), EMBASE, CINAHL, and PsycInfo. To increase the search efficiency, four groups of databases were formed and searched separately: 1) CCRC and CDSR; 2) MEDLINE(R) and EMBASE; 3) CINAHL; and 4) PsycInfo. Their results were compiled using RefWorks (online bibliography management software).</p> <p><b>Other search methods:</b></p> <p><b>Years searched:</b> Between 2001 and 2006.</p> <p><b>Inclusion criteria:</b> A consensus decision was made based on the eligibility criteria set out for the studies, ie, 1) the purpose of the study/intervention was related to mental health or wellbeing at the workplace; 2) intervention was preventive oriented and was either primary or secondary intervention; 3) intervention was offered to all employees or employees with at risk mental health problems; 4) intervention had components for mental health problems; 5) intervention could be implemented in the workplace or in the community. Studies published in English- or French-language peer-reviewed journals</p>	<p><b>Included populations:</b> The background information on the participants was not always available. In most studies, gender was not well distributed among participants, since we noted generally a higher proportion of women (58% vs. 42%). Furthermore, occupational classification was not evenly distributed, with very few occupations being physically demanding. The majority of the studies focused on occupations with mixed tasks (n = 13) followed by the mentally demanding ones (n = 7).</p> <p><b>Missing information</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations</b> Not reported</p> <p><b>Setting of included</b></p>	<p><b>Outcome measures</b> Various including absence levels, job satisfaction, mental health including stress, depression, anxiety physical health</p> <p><b>Method of analysis</b> Studies were analysed using a matrix (Cottrell, 2001) which combined a three-level framework for the <i>focus of the intervention</i>: the individual (relating to an employee's mental health); the group/community level (including employee's co-workers, supervisors, family, and non-work social</p>	<p><b>Relevant outcomes</b> The evidence suggested that supervisors can facilitate the implementation of work accommodations on the job site. Some studies explored supervisor behaviour as a predictor of return to work for employees absent from work due to mental health problems, and results demonstrated that better communication between supervisor and employee was associated with favourable full return to work rates in non-depressed employees (most often employees who have an adjustment disorder). However, it is important to note that the supervisor communicated better and consulted other professionals more frequently if they were responsible for the return to work and if sickness absences involved financial consequences for their department. Consequently, secondary interventions including a psychosocial</p>	<p><b>Limitations identified by author:</b> One of the main limitations of the studies considered was the limited examination of direct work outcomes related to lost work days or absenteeism. This is a limitation in that it provides little information that can be translated to companies who may be more able to understand measures of productivity as opposed to worker perceptions. Without these types of outcomes, it can be difficult for companies to interpret how findings can be relevant to their contexts.</p> <p><b>Limitations identified by review team:</b> Two of the studies included in this review (Logan and Ganster (2005) and Kawakami et al (2005) are included in the Evidence reviews for Review Questions 1 and</p>

<p><b>Review Design</b> Systematic Review <b>Quality rating:</b> +</p>	<p><b>Exclusion criteria:</b> There were three reasons for exclusion: 1) The concept of prevention and intervention was not clearly identified - several studies had a preventive goal but only recruited a) employees diagnosed with conditions such as burnout, or b) employees who had experienced critical incidents; 2) the spectrum of evaluation was too broad - a) studies provided a general description of the programme without details about implementation or outcome analysis, or b) studies reported the preliminary results prior to the preventive intervention (eg, phase I) or without details about the preventive intervention; 3) even though the targeted outcome was mental health issues, the content of the preventive intervention was exclusively physical exercise or spiritual. <b>Number of studies included:</b> 24 <b>Number of studies excluded:</b> 790 at abstract stage and 49 at full paper screening stage <b>Method of synthesis</b> Narrative</p>	<p><b>studies</b> Not reported <b>Interventions</b> Range of mental health interventions inc. training of supervisors. The review identified 12 types of approaches used in the prevention studies. The most utilised were the psychosocial intervention training (N = 5) followed by cognitive behavioural intervention (N = 4), and participatory organisational intervention (N = 4). They accounted for slightly more than 50% of the total approaches. The following interventions: managerial improvement programmes, relaxation techniques and exercises, and stress management accounted for the remaining approaches.</p>	<p>network; and the organisational level (focusing on the company's formal and informal policies, rules, norms, and workplace accommodation. With a categorisation of the <i>type of intervention</i> (primary, secondary and tertiary).</p>	<p>approach with a focus on the supervisor's training can be also promising for preventing mental health problems in the workplace.</p>	<p>2 <b>Evidence gaps/recommendations for future research:</b> Key elements such as family functioning and its impact on work functioning, as well the reciprocal loop should be considered in future studies by integrating the three levels of interventions: individual, group and organisational. <b>Source of funding:</b></p>
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den Dulk and Peper (2009)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> den Dulk, Laura and Bram Peper</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> den Dulk, Laura and Bram Peper <i>Managing work-life policies in the European workplace: explorations for future research</i> REC-WP 04/2009, Working Papers on the Reconciliation of Work and Welfare in Europe, RECWOWE Publication, Dissemination and Dialogue Centre, Edinburgh</p> <p><b>Review Design</b> Purposive</p> <p><b>Main research questions</b></p>	<p><b>Databases and websites searched:</b> Not reported</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> Not reported</p> <p><b>Inclusion criteria:</b> Not reported</p> <p><b>Exclusion criteria:</b> Not reported</p> <p><b>Number of studies included:</b> Not reported</p> <p><b>Number of studies excluded:</b> Not reported</p> <p><b>Method of synthesis:</b> Purposive</p>	<p><b>Included populations:</b> Not reported</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Mostly in Canada, the US and the UK</p>	<p><b>Outcomes measures:</b> Take-up of work-life policies</p> <p><b>Method of analysis:</b> Not reported</p>	<p><b>Relevant outcomes:</b> Line managers are increasingly the ‘gatekeepers’ of work-life policies and the key to policy and programme effectiveness.</p> <p>Managerial attitudes are very important in understanding why many employees are not taking advantage of the wide range of work-life policies on offer nowadays. They are not only important in understanding managerial decision-making with respect to request to utilise work-life policies, but are also crucial in understanding the requesting behaviour of employees.</p> <p>Managers generally take a short term view of work-life policies rather than a long-term view that cherishes human capital and do not yet see that employees’ work-life balance contributes to organisational goals.</p> <p>Managers are generally unaware of existing policies and lack training in the tools that would allow them to successfully implement policies, and there are inconsistencies in policy implementation and variations in management attitudes and behaviour toward work-life policies.</p> <p>Organisations wishing to retain valuable human capital should offer managers additional incentives or rewards for</p>	<p><b>Limitations identified by author:</b> Findings may not be generalizable outside Canada, the US or the UK.</p> <p>Sample population is made of a minority of those employed in work-intensive, post-industrial settings.</p> <p><b>Limitations identified by review team:</b> Methodology is entirely absent, therefore there is no detail on search protocol, inclusion and exclusion criteria or any quality assessment of articles.</p> <p><b>Evidence gaps/recommendations for future research:</b> More research is needed to fully understand managerial attitudes and behaviour in different organisational and national contexts. Although a few interesting studies exist, the research is still in its infancy.</p> <p>Future research should consider the relative importance of various factors, such as disruptiveness and dependency considerations or social responsibility.</p> <p>Future research should investigate whether the findings are generalizable.</p> <p>Future research should look at how opinions and attitudes of top executives influence the attitudes and decision-making of middle line management.</p> <p>A large scale research design that involved managers from different types of</p>

<p>What happens after work-life policies are adopted, whether in statutory provisions, collective agreements or company policy?  <b>Quality rating:</b>                  -</p>				<p>implementing work-life policies.</p>	<p>organisation would reveal how organisational context factors impact the way managers manages and implements work-life policies.                  In-depth, ethnographic studies are needed.  <b>Source of funding:</b>                  Not reported</p>
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## Edmondson and Boyer (2013)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Edmondson , Diane R. and Stefanie L. Boyer</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Edmondson , Diane R. and Stefanie L. Boyer 2013 <i>The Moderating Effect of the Boundary Spanning Role on Perceived Supervisory Support: A Meta-Analytic Review</i> Journal of Business Research 66 pp. 2186-2192</p> <p><b>Review Design</b> Meta-analysis</p> <p><b>Main research questions</b> What moderating effect the boundary spanning role has on the relationship between perceived supervisory support (PSS) and job satisfaction, organisational commitment, performance and turnover intentions.</p>	<p><b>Databases and websites searched:</b> 1. ABI/Inform, PsycINFO, Wilson Web, Emerald, Science Direct, Ingenta, ERIC, OVID, Wiley Interscience, OCLC First Search and Dissertation Abstracts 2. Web of Science citation search for Kottke and Sharafinski (1988) and Eisenberger et al (1986)</p> <p><b>Other search methods:</b> 1. Examine reference section of two citation search articles. 2. Manual search of six specified journals, issues from 1986 to 2007:</p> <p><b>Years searched:</b> Up to September 2007</p> <p><b>Inclusion criteria:</b> Published articles, conference proceedings, and unpublished doctoral dissertations and master's theses considered. Any study containing the term perceived supervisory support, supervisory</p>	<p><b>Included populations:</b> Average sample size across all constructs = 740. Boundary spanning employees: 40.2% Non-boundary spanning employees: 24.1% The remainder (35.6%) comprises studies where this distinction of participants could not be made.</p> <p><b>Missing information:</b> No demographic data</p>	<p><b>Outcomes measures:</b> Job satisfaction Average weighted reliability = .80 Not of relevance to this study: organisational commitment, performance and turnover intentions</p> <p><b>Method of analysis:</b> Each studied coded by: sample size, boundary spanned/non-/mixed, reliability of PSS and variable scale, effect size (correlation). Each studied coded independently by two researchers, inter-rater reliability of .94, all minor differences resolved through</p>	<p><b>Relevant outcomes:</b> Of the 61 studies analysed, 54 reported the reliability of the PSS scale. The reliabilities range from .71 to .97, with the average reliability, weighted by sample size, being .87.</p> <p><b>Summary of Meta-Analytic Results (job satisfaction):</b> Studies N = 40, sample size = 19,047, r (corrected for attenuation bias and weighted by sample size) = .54, p &lt; .001, SE = .04, range of r = .13 to .64, Q-statistic = 1163.4, p &lt; .001, failsafe N = 824.</p> <p>Overall, job satisfaction exhibits a strong positive relationship with PSS. Reports estimated fail-safe N statistic (AKA availability bias / file drawer effect). The fail-safe N's ranged from 171 to 824, with an average fail-safe of 371; therefore, all of the constructs passed the (5 x N studies) +10 criterion set forth by Rosenthal (1979). The high numbers for fail-safe N's indicate that studies not included in the meta-analysis</p>	<p><b>Limitations identified by author:</b> None reported</p> <p><b>Limitations identified by review team:</b> N of excluded articles not given. Authors mediated against publication bias only through web search, do not state any manual or other strategies so unpublished/non-significant data may be missed. No quality assessment of included articles. Sub-analysis focusing on just under two-third of the articles used for meta-analysis which may affect comparability between the two analyses</p> <p><b>Evidence gaps/recommendations for future research:</b> Little previous empirical research examining the differences between boundary spanning and non-boundary spanning employees. Should investigate differences in relationships discussed in this study within the boundary spanning role. Additional research needed to clarify the boundary spanning role, and the difference between boundary spanners and non-boundary spanners. Could investigate the effects of different levels of supervisor support and its impact on employee's attitude to the firm and the</p>

<p>A boundary spanning employee is any organisational employee who “engages in job-related interactions with a person who is considered part of the environment, who is not a (Robertson, 1995). Boundary spanning employees include salespeople plus any frontline or customer-contact employee such as customer service representatives, service technicians, retail employees, delivery personnel, nurses, and professional buyers.</p> <p>H1: PSS is positively related to Job Satisfaction  H2: The relationship between PSS and job satisfaction will be stronger for boundary spanning employees than non-boundary spanning employees.</p> <p><b>Quality rating:</b>  +</p>	<p>support, or supervisor support in its title, abstract, and/or full text was considered.</p> <p>Study must report Pearson’s correlation coefficient (r) between PSS and at least one of the four outcome measures.</p> <p>If r is not present, must contain statistics that can be converted to r (F-, t-, P- and X<sup>2</sup> tests)</p> <p>Study included if r<sup>2</sup> of linear regression where PSS = DV.</p> <p>For a variable to be considered, there had to be sufficient studies that had a boundary or non-boundary spanning employees (≤ 3 per sample type)</p> <p><b>Exclusion criteria:</b>  See above</p> <p><b>Number of studies included:</b>  61</p> <p><b>Number of studies excluded:</b>  Not reported</p> <p><b>Method of synthesis:</b>  Meta-analysis</p>	<p><b>Inclusion/exclusion criteria:</b>  Only those studies that could be classified as either boundary spanning or non-boundary spanning were utilised in the boundary spanner moderator analysis</p> <p><b>Excluded populations:</b>  See above</p> <p><b>Setting of included studies:</b>  Not reported</p>	<p>discussion</p> <p>Effect size (correlation) of each relationship corrected for attenuation bias so as not to underestimate relationship. All then transformed to Fishers z-coefficients. More precise estimates were given greater weight.</p> <p>Homogeneity tests were conducted using the Q-statistics which ranged from 212.1 to 1163.4. Each Q-statistic was found to be highly significant indicating a lack of homogeneity. Thus, a random-effects model was employed when analysing each relationship.</p>	<p>do not represent serious threats to the validity of the findings.</p> <p><b>Summary of boundary Spanning Employee Moderator Results (job satisfaction):</b>  <u>All:</u> number of respondents in sample N = 26, Q-statistic = 5.0, p &lt; .05  <u>Boundary Spanning Employees:</u> number of respondents in sample N = 16, r<sup>2</sup> = .51, p &lt; .001, SE = .02  <u>Non-Boundary Spanning Employees:</u> number of respondents in sample N = 10, r<sup>2</sup> = .54, p &lt; .001, SE = .01</p> <p>The relationship between PSS and job satisfaction was stronger for non-boundary spanning groups. However, the differences between boundary and non-boundary spanning groups, although statistically significant, were extremely small. Results for this analysis should be interpreted cautiously.</p>	<p>job based on whether the supervisor provides a high or low degree of support.</p> <p>There are many areas were little research has been conducted regarding perceived supervisor support and boundary spanning employees (ie role stressors and trust). Additional research is needed in these areas.</p> <p><b>Source of funding:</b>  None reported.</p>
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## Ellinger (2013)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Ellinger, Andrea D.</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Ellinger, Andrea D. 2013 <i>Supportive supervisors and managerial coaching: Exploring their intersections Journal of Occupational and Organizational Psychology</i> 86 pp. 310-316</p> <p><b>Review Design</b> Purposive</p> <p><b>Main research questions</b> Exploring the intersection between supportive supervisors and managerial coaching</p> <p><b>Quality rating:</b> -</p>	<p><b>Databases and websites searched:</b> Not reported</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> Not reported</p> <p><b>Inclusion criteria:</b> Not reported</p> <p><b>Exclusion criteria:</b> Not reported</p> <p><b>Number of studies included:</b> Not reported</p> <p><b>Number of studies excluded:</b> Not reported</p> <p><b>Method of synthesis:</b> Narrative</p>	<p><b>Included populations:</b> Not reported</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcomes measures:</b> Job satisfaction.</p> <p><b>Method of analysis:</b> Not reported</p>	<p><b>Relevant outcomes:</b> In general, skills that have been associated with managerial coaching include the following: listening, interviewing, questioning, observation, analytical, communication, motivation, and encouragement of growth and development.</p> <p>In addition there are behavioural taxonomies which categorise managerial coaching as empowering and facilitating.</p> <p>There appears to be a similarity between managerial coaching behaviours and those items associated with being a supportive supervisor with regard to delegating, expectations, listening, caring, and challenging assignments.</p> <p>Research has identified that job satisfaction is associated with managerial coaching.</p> <p>Supportive supervisors may be well positioned to embrace coaching and assume roles as managerial coaches because of their caring and sensitivity to their employees' well-being and development. Commitment by senior leaders to be supportive and model such behaviour is relevant to the development of supportive supervisors.</p>	<p><b>Limitations identified by author:</b> None reported</p> <p><b>Limitations identified by review team:</b> Methodology entirely absent</p> <p>Identification of literature unlikely to be robust or systematic</p> <p>The calibre of the evidence the conclusions are based on is unclear.</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> None reported</p>

## Feather (2009)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Feather, Rebecca</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Feather, Rebecca 2009 <i>Emotional intelligence in relation to nursing leadership: does it matter?</i> Journal of Nursing Management 17 pp. 376-382</p> <p><b>Review Design</b> Purposive</p> <p><b>Main research questions</b> To discuss the importance of studying emotional intelligence (EI) of nursing leaders and the job satisfaction of nursing staff and</p>	<p><b>Databases and websites searched:</b> Not reported</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> Not reported</p> <p><b>Inclusion criteria:</b> Not reported</p> <p><b>Exclusion criteria:</b> Not reported</p> <p><b>Number of studies included:</b> Not reported</p> <p><b>Number of studies excluded:</b> Not reported</p> <p><b>Method of synthesis:</b> Purposive</p>	<p><b>Included populations:</b> Nurse managers and their employees</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcomes measures:</b> Job satisfaction Not of relevance to this review: Turnover Nurse leadership</p> <p><b>Method of analysis:</b> Not reported</p>	<p><b>Relevant outcomes:</b> The importance of EI in the profession of nursing involves studying how the level of EI in nursing leaders impacts the level of job satisfaction of their employees. “The nurse manager’s leadership behaviour has been implicated as the interaction most likely to improve retention of hospital staff nurses because of the manager’s ability to improve job satisfaction” Once a health care leader understands the value of EI and how it can be developed within the organisation, a training programme should be started. Changing behaviour patterns of an individual or group is difficult to do and difficult to measure. Behaviours do not change completely at any given time. They change over time in small increments. Therefore, it is important to provide follow-up through feedback and evaluation on an on-going basis. Many times the evaluation step is ignored, and people will revert back to old behaviours. Leaders can be taught how to recognise emotional signals in others, especially non-verbal signals. Coaching and educational programmes can be used to enhance a manager’s emotional and social skills. Teaching these skills can have an impact on a leader’s effectiveness in an organisation. A vital portion of the development of leaders in achieving success is to develop and enhance their level of emotional intelligence. This enables the leader to get others to do their jobs more effectively and increases job satisfaction.</p>	<p><b>Limitations identified by author:</b> Not reported</p> <p><b>Limitations identified by review team:</b> Methodology entirely absent No inclusion or exclusion criteria are reported Identification of courses is unlikely to have been done in a robust or systematic way. Evidence is not explicit</p> <p><b>Evidence gaps/recommendations for future research:</b> Currently, there is a gap in the knowledge regarding the impact of EI levels of nursing leaders and the relationship with job satisfaction of nursing staff</p> <p><b>Source of funding:</b> None reported</p>

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look at the concept of EI in relation to its importance in nursing leadership. <b>Quality rating:</b> -					
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Finney et al (2013)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Finney, Caitlin, Erene Stergiopoulos, Jennifer Hensel, Sarah Bonato and Carolyn S Dewa</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Finney, Caitlin, Erene Stergiopoulos, Jennifer Hensel, Sarah Bonato and Carolyn S Dewa 2013 <i>Organizational stressors associated with job stress and burnout in correctional officers: a systematic review</i> BMC Public Health 13:82</p> <p><b>Review Design</b></p>	<p><b>Databases and websites searched:</b> Medline, PsychINFO, Criminal Justice Abstracts and Sociological Abstracts</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> 1999 to 2012</p> <p><b>Inclusion criteria:</b> <u>Diagnosis:</u> At least one of either burnout or stress <u>Correlation:</u> measures correlates of stress and/ or burnout AND organisationally-based correlates <u>Outcome:</u> Described how stressors correlates to stress or burnout <u>Language:</u> English, French, Spanish, Portuguese, Italian, Greek, Polish and Croatian.</p> <p><b>Exclusion criteria:</b> <u>Sample Population:</u> Group non consisting of frontline correctional officers employed in an adult correction facility (COs), or where they are not</p>	<p><b>Included populations:</b> Correction officers.</p> <p><b>Missing information:</b> N/A - sufficient demographic variables included - comprising of country, facility type, age, gender, (most represented) ethnicity, average tenure and average education level.</p> <p><b>Inclusion/exclusion criteria:</b> See below</p> <p><b>Excluded populations:</b> Any other than correction officers</p> <p><b>Setting of included studies:</b> United States, South Korea and France</p>	<p><b>Outcomes measures:</b> Stress</p> <p>Burnout (antecedents are not line manager)</p> <p><b>Method of analysis:</b> Systematic search produced 313 articles after de-duplicating. All titles and abstracts independently screened by two raters, and the inter-rater reliability was 0.67</p>	<p><b>Relevant outcomes:</b> Quality of supervision/perceived supervisory support measured by four studies.</p> <p><u>Quality of supervision</u> (2 studies): Study 1: Using validated measure (eg I am free to disagree with my supervisor”), showed lower quality of supervision significantly related to job stress Study 2: Same measure, showed quality of supervision not significantly associated with job stress. May have resulted from impact of increased co-worker social support and subsequent decline in need for supervisory feedback.</p> <p><u>Supervisory support</u> (4 studies): Study 1: Used validated items (inc. statements about negative interactions with supervisors). Showed supervisory support was significantly related to job stress. Study 2: Unreported measure. Found supervisory support was significantly related to job stress Study 3: Validated items (eg “My supervisors often encourage the people I work with if they do their job well”). Found</p>	<p><b>Limitations identified by author:</b> The studies included are all cross-sectional so causal relationships could not be established. They did not use the same measure for job stress and burnout or same response for organisational stressors. Data obtain by self-report. Overrepresentation of men in the samples. Six of the eight reviews were from the USA, limiting generalisability. This review just examined COs, results may not be generalizable to other employees in correctional organisation. All included studies used COs employed in public not private institutions. There may be differences that have not been identified.</p> <p><b>Limitations identified by review team:</b> No steps were taken to avoid publication bias. Paper does not report full findings for the effect of supervisory support stress, as one study is missing.</p> <p><b>Evidence gaps/recommendations for future research:</b></p>

<p>Systematic  <b>Main research questions</b>                  The relationship between organisational stressors and CO stress and burnout in adult correctional facilities.  <b>Quality rating:</b>                  +</p>	<p>differentiated in results  <u>Outcome:</u> no sample population outcomes, outcomes for offenders, prisoner mental health, prisoner stress  <u>Type of article:</u> Non peer-reviewed, book review, editorial or dissertation.  <b>Number of studies included:</b>                  8  <b>Number of studies excluded:</b>                  305  <b>Method of synthesis:</b>                  Systematic</p>			<p>supervisory support was negatively related with job stress, association not significant.                  Study 4: Not reported  <u>Leadership style</u> (one study):                  Study 1: Validated measure ( “Inconsistent leadership style” or “unequal sharing of work responsibilities”). Found these aspects were significantly negatively associated with job stress.                  *NB* ‘Study 1’ etc does not refer to the same study of the corresponding number for each reported antecedent here.  <u>Summary:</u>                  The organisational stressors of quality of supervision and supervisory support showed inconsistent findings</p>	<p>Longitudinal studies and standard objective measures would be useful in future research.                  Should examining differences between types of correctional facility and range of correctional positions to determine whether the sources of stress impact employees from different facilities in the same way.                  Should continue to examine similarities and differences between law enforcement personnel to establish applicability of interventions across this industry.                  Future studies should conduct comparative assessments of: organisational stressors in Cos internationally  <b>Source of funding:</b></p>
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## Hershcovis and Barling (2009)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Hershcovis, M. Sandy and Julian Barling</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Hershcovis, M. Sandy and Julian Barling 2009 <i>Towards a multi-foci approach to workplace aggression: A meta-analytic review of outcomes from different perpetrators</i> Journal of Organizational Behaviour 31 pp. 24-44</p> <p><b>Review Design</b> Meta-analysis</p> <p><b>Main research questions</b> The impact of supervisor, co-</p>	<p><b>Databases and websites searched:</b> PsychINFO, ProQuest</p> <p><b>Other search methods:</b></p> <ol style="list-style-type: none"> <li>1. Manual search of reference list of recent workplace aggression studies to identify any missed in database search</li> <li>2. Conference programmes of largest English-speaking management (Academy of Management) conference (2006, 2007) and for the largest industrial / organisational psychology (Society for Industrial and Organisational Psychology) conference (2006, 2007, 2008).</li> <li>3. Contact published workplace aggression researchers for unpublished datasets or manuscripts.</li> <li>4. Email to the Academy of Management's Organisational Behaviour Division electronic list service asking for unpublished papers or data.</li> </ol> <p><b>Years searched:</b> Up to and including 1 February 2008</p> <p><b>Inclusion criteria:</b> Keyword search terms included variations on: Aggression, bullying, abusive supervision, incivility, workplace deviance, mobbing, mistreatment, tyranny, abusive supervision, undermining, interpersonal conflict, and victimization.</p> <ol style="list-style-type: none"> <li>1. Data must focus on experienced workplace aggression and distinguish</li> </ol>	<p><b>Included populations:</b> 66 samples 39 supervisor aggression 22 co-worker 32 aggression from outsiders Sum total &gt; 66 because several studies measured more than one source of aggression.</p> <p><b>Missing information:</b> Any demographics other than supervisor, co-worker or outsider</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p>	<p><b>Outcomes measures:</b></p> <p><u>Attitudinal:</u> job satisfaction</p> <p><u>Health-related:</u> general health, depression, emotional exhaustion, physical well-being</p> <p>*NB* there seems to be an error where the variable is named general health in the text but psychological distress in tables</p> <p><b>Method of analysis:</b> Multi-foci perspective comparing outcomes of aggression from three different perpetrators meta-analytically. Draws on stressor/strain relationship to predict relationship. Analysis performed with MetaExcel (Steel, 2003). To correct attenuation, reliability of dependent and independent measure in each study was coded. When <math>\alpha</math> was not provided, authors computed a weighted</p>	<p><b>Relevant outcomes:</b></p> <p><b>Supervisor aggression:</b> <u>Job satisfaction:</u> no. of studies: 18, total sample size: 7242, <math>r = -.32</math>, corrected <math>r (r_c) = -.38</math>, SD: .07, CI: <math>-.42</math> to <math>-.34</math>, Q-statistic: 35.33, <math>p &lt; .001</math></p> <p><u>General health/Psychological distress:</u> no. of studies: 5, total sample size: 3406, <math>r = -.25</math>, <math>r_c = -.28</math>, SD: .15, CI: <math>-.42</math> to <math>-.14</math>, Q-statistic: 85.05, <math>p &lt; .001</math></p> <p><u>Emotional exhaustion:</u> no. of studies: 5, total sample size: 1482, <math>r = .30</math>, <math>r_c = .35</math>, SD: .12, CI: <math>.25</math> to <math>.44</math>, Q-statistic: 18.52, <math>p &lt; .001</math></p> <p><u>Depression:</u> no. of studies: 8, total sample size: 2752, <math>r = .24</math>, <math>r_c = .26</math>, SD: .07, CI: <math>.21</math> to <math>.32</math>, Q-statistic: 13.88 (not significant)</p> <p><u>Physical well-being:</u> no. of studies: 12, total sample size: 5455, <math>r = -.15</math>, <math>r_c = -.20</math>, SD: .13, CI: <math>-.28</math> to <math>-.12</math>, Q-statistic: 60.36, <math>p &lt; .001</math></p> <p><b>T-test:</b> Two t-tests: (1) <u>all</u> co-worker and/or supervisor samples, and (2) <u>matched</u> samples of studies measuring both groups in the same study, using the same measure (but different reference</p>	<p><b>Limitations identified by author:</b> Various scales used for workplace aggression, posing a threat to findings because of the hypotheses' comparative nature. As with all meta-analyses, judgement calls were required. The current study was unable to examine mediating relationships of cognitive and emotional factors as sufficient data from prior studies was not available. Authors unable to compare supervisor, co-worker and outsider aggression on one hand and supervisor-targeted, co-worker targeted and outsider-targeted on the other. Not enough studies examining insider and outsider aggression, findings relating to outsider aggression might be a function of measurement differences.</p> <p><b>Limitations identified by review team:</b> Unclear whether dissertations</p>

<p>worker and outsider aggression on three attitudinal outcomes (job satisfaction, affective commitment, and turnover intent), three behavioural outcomes (interpersonal deviance, organisational deviance, and work performance), and four health-related outcomes (general health, depression, emotional exhaustion, and physical well-being)  <b>Quality rating:</b>                  +</p>	<p>between non-violent aggression from supervisors, co-workers, and outsiders.                  2. Must include correlations at the individual level of analysis, or information from which they could be imputed (ANOVA with two levels). Where the study met other inclusion criteria but this information was missing, the author was contacted to try and obtain the correlation matrix.                  3. Sample must not have been used in a previous study unless different variables were used. Where samples were used in multiple studies but included new variables, the study was included but only these new variables included.                  4. Perpetrator must be explicitly identified in the study design or measure.  <b>Exclusion criteria:</b>                  Articles unrelated to workplace aggression                  Articles not including appropriate data or where after repeated attempts a correlation matrix could not be obtained.  <b>Number of studies included:</b>                  55  <b>Number of studies excluded:</b>                  Total number of articles excluded unclear, but after eliminating articles not related to workplace aggression, N = 207, so from this point, excluded studies N = 152  <b>Method of synthesis:</b>                  Meta-analysis</p>	<p><b>Setting of included studies:</b>                  Not reported</p>	<p>average reliability from other studies measuring the variable in question. Artificial dichotomisation of IV and DV was corrected. Authors then weighted the corrected correlation by the population sample size (also corrected for reliability) to compute weighted average effect size. The authors also incorporated a correction for sampling error into the estimation of the population standard error. t-test for dependent correlations conducted to compare co-worker and supervisory aggression. Authors conducted an additional sub-analyses comparing co-worker and supervisor aggression (only studies measuring both forms of aggression using the same measure) to address the problem of the difference in scales.</p>	<p>source), therefore controlling for the measure used to ensure the findings are not a function of the measure rather than the referent.  <b>Results for all samples t-test:</b>                  Supervisory aggression has stronger adverse relationships than co-worker aggression with job satisfaction (<math>t = 12.29, p &lt; .001</math>) and general health/psychological distress (<math>t = 4.21, p &lt; .001</math>).                  Co-worker aggression had a stronger adverse relationship than supervisor aggression with physical well-being (<math>t = 2.68, p &lt; .01</math>).                  No significant difference between perpetrators in relations to emotional exhaustion (<math>t = 1.30, ns</math>) and depression (<math>t = 1.26, ns</math>).  <b>Results for matched samples t-test:</b>                  Shows the same overall pattern of findings, but t-test difference became non-significant for physical wellbeing (<math>t = 0.00, ns</math>).                  Job satisfaction (<math>t = 7.50, p &lt; .001</math>)                  General health/psychological distress (<math>t = 4.21, p &lt; .001</math>)                  Emotional exhaustion (<math>t = 1.30, ns</math>)                  Depression (<math>t = 1.36, ns</math>)</p>	<p>had been identified or included.                  Unclear impact of measures to combat publication bias eg response to email not stated.                  Total number of articles from first search not reported, neither is attrition figures at each stage.                  General health is labelled as psychological stress in tables.                  Discrepancy between the text and a table of one of the levels of significance.  <b>Evidence gaps/recommendations for future research:</b>                  Overlapping study examining insider and outsider aggression to enable a matched comparison and investigated whether findings were a function of measurement difference.                  Three possible methods to investigate workplace aggression within the contact of its relationship:                  1. Critical incident technique                  2. Daily diary studies                  3. Social network analysis  <b>Source of funding:</b></p>
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## Jeon et al (2010)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Jeon, Yun-Hee, Nicholas J Glasgow, Teri Merlyn and Emily Sansoni</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Jeon, Yun-Hee, Nicholas J Glasgow, Teri Merlyn and Emily Sansoni 2010 <i>Policy options to improve leadership of middle managers in the Australian residential aged care setting: a narrative synthesis</i> BMC Health Services Research 10:190</p> <p><b>Review Design</b> Systematic</p>	<p><b>Databases and websites searched:</b> Medline, PsycINFO, CINAHL, PubMed, Cochrane Library. (*NB possibly also others, the authors state these as examples)</p> <p>Google</p> <p><b>Other search methods:</b> Hand-search of specialist journals Snowballing (the scanning of reference lists from identified studies and suggestions from experts in the field). Consultation conducted. Reference group members: academics/researchers, people from NGOs and consumer organisation for aged care and dementia, aged care providers, relevant professional organisations and Australian government. Group (through email and meetings) provided expert advice on</p>	<p><b>Included populations:</b> Not reported</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcomes measures:</b> Job satisfaction, stress</p> <p><b>Method of analysis:</b> Seven-tiered culling process. First author conducted tiers 1-3. Tiers 4-7 initially conducted by second and third authors. First author verified relevance and appropriateness for inclusion/exclusion. Initially, NICE guidelines were used to rate evidence quality, but a dearth of research deemed robust enough led the authors to shift to a more 'inclusive' approach and go beyond the field of aged care</p>	<p><b>Relevant outcomes:</b> Job satisfaction is associated with positive staff perception of managerial leadership and support. Leadership style has a dramatic effect on stress and job satisfaction. To ensure the health and wellbeing of those who provide care, it is critical that leadership and management skills in the residential aged care sector are strengthened. Essential attributes of good leadership in aged care middle management: hands-on accessibility and professional expertise in nurturing respect, recognition and team building, along with effective communication and flexibility.</p>	<p><b>Limitations identified by author:</b> None reported</p> <p><b>Limitations identified by review team:</b> Does not outline the method of tiers. Exclusion of unpublished theses/dissertations could lead to publication bias. Unclear what the quality criteria of the more inclusive inclusion/exclusion criteria. Insufficient statistical detail is provided.</p> <p><b>Evidence gaps/recommendations for future research:</b> Paucity of research in Australian aged care settings</p> <p><b>Source of funding:</b> This study was funded under the Australian Primary Health Care</p>

<p><b>Main research questions</b>  A systematic literature review was conducted to inform the policy development necessary for the enhancement of clinical and managerial leadership skills of middle managers within residential aged care</p> <p><b>Quality rating:</b>  +</p>	<p>direction/conduct of methods/actions and development of literature review. They suggested new references and confirmed findings and recommendations from preliminary report.</p> <p>Managers from residential aged care facilities invited to meeting to verify key findings/ recommendations and provide additional viewpoints/ suggestions.</p> <p><b>Years searched:</b>  From 1997</p> <p><b>Inclusion criteria:</b>  Articles published in English</p> <p><b>Exclusion criteria:</b>  Unpublished theses/dissertations</p> <p><b>Number of studies included:</b>  153</p> <p><b>Number of studies excluded:</b>  4331</p> <p><b>Method of synthesis:</b>  Narrative</p>		<p>literature to draw findings for managerial leadership development.</p> <p>Given the paucity of research in Australian aged care settings, it was necessary to include all relevant Australian studies.</p>		<p>Research Institute (APHCRI) Hub-research grant scheme. APHCRI is supported by a grant from the Australian Government Department of Health and Ageing, under Primary Health Care Research.</p>
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## Kelloway and Barling (2010)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Kelloway E. Kevin, Julian Barling</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Kelloway E. Kevin, Julian Barling 2010 <i>Leadership development as an intervention in occupational health psychology</i> Work &amp; Stress: An International Journal of Work, Health &amp; Organisations 24(3) pp.260-279</p> <p><b>Review Design</b> Purposive</p> <p><b>Main research questions</b> The relationship between and predictive nature</p>	<p><b>Databases and websites searched:</b> Not reported</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> Not reported (cites a source from 1964)</p> <p><b>Inclusion criteria:</b> Not reported</p> <p><b>Exclusion criteria:</b> Not reported</p> <p><b>Number of studies included:</b> Not reported</p> <p><b>Number of studies excluded:</b> Not reported</p> <p><b>Method of synthesis</b> Narrative</p>	<p><b>Included populations:</b> Individuals in formal leadership roles, their employees</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Leaders exerting social influence who are not in formal leadership roles.</p> <p><b>Excluded populations:</b> See above</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcomes measures:</b> Psychological wellbeing Physical health Occupational safety</p> <p><b>Method of analysis:</b> Not reported</p>	<p><b>Relevant outcomes:</b> Organizational leadership is related to, and predictive of, health and safety-relevant outcomes in employees. In addition, a small but growing body of literature supports the effectiveness of leadership development as a means of positively influencing these outcomes.</p> <p><u>Psychological wellbeing:</u> Positive leadership is linked with enhanced wellbeing. Most empirical literature has focused on leadership style (abusive, passive, positive) or on employee perception of leadership fairness. The majority focuses on negative or poor leadership, there is less but emerging data on the beneficial effect of positive forms of leadership on individual wellbeing.</p> <p><u>Physical health:</u> Positive leadership behaviours associated with enhanced employee physical health outcomes. Whilst there is scepticism about the magnitude of effects, studies consistently found an association between supervisory injustice and cardiovascular mortality.</p> <p><u>Leadership and occupational safety:</u> The available evidence seems to support a direct link between leaders' behaviour and psychological or behavioural aspects of safety. In turn, the psychological and behavioural aspects of safety seem to mediate the relationship between leaders' behaviour and safety outcomes such as incidents or injuries. Data consistently support the relationship between transformational leadership behaviours and perceived safety climate within</p>	<p><b>Limitations identified by author:</b> None reported</p> <p><b>Limitations identified by review team:</b> Methodology entirely absent. Research of one of the paper's authors appears to be over-represented. Very limited statistical detail is reported, so strength of relationships or associations in almost every case cannot be identified. This leads the conclusions to be broad and renders it hard to ascertain the strength of the conclusions, as well as the evidence supporting causal relationships.</p> <p><b>Evidence gaps/recommendations for future research:</b> More intervention</p>

<p>of organisational leader in relation to health and safety-relevant outcomes in employees  <b>Quality rating:</b>                  -</p>			<p>organisations.  <u>Leadership development as an intervention:</u>                  Leader development constitutes a workplace health intervention (and a viable approach to enhancing occupational health and safety in organisations) and the data supports the suggestion that it works. It encompasses elements of psychosocial and social-technical interventions. TL affects well-being by changing employee perceptions of work, suggesting that enhancing leaders TL constitutes a psychosocial intervention. Improving abusive or destructive leaders - a stressor - would constitute a socio-technical intervention. Activities have involved workshops, participation in coaching or combinations of both approaches.                  Three aspects of intervention were highlighted as problematic:                  The <u>intensity of the intervention</u>: data does not allow a clear determination of the 'optimal' length of training or the best configuration of training and feedback. However, leadership development is cost-effective and minimally disrupts the workplace.                  The <u>need to specify intervening variables</u>: effect of leadership training on employee outcomes and occupational health are indirect, which implies a time lag                  The <u>logistical difficulties of evaluation</u>: Matching pre-and post-test data as well as subordinate-leader data, combined with survey response and subject attrition, can result in large data loss and an inability to evaluate the intervention.</p>	<p>studies based on leadership development  <b>Source of funding:</b>                  None reported</p>
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Lartey et al. (2013)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Lartey, S, Cummings G, Profetto-McGrath J</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Lartey S., Cummings G. &amp; Profetto-McGrath J. (2013) Journal of Nursing Management. 'Interventions that promote retention of experienced registered nurses in health care settings: a systematic review.</p> <p><b>Review Design</b> Systematic review</p> <p><b>Main research questions</b> The effectiveness of strategies for retaining experienced Registered Nurses.</p> <p><b>Quality rating:</b></p>	<p><b>Databases and websites searched:</b> Six electronic databases - CINAHL, PsychInfo, EMBASE, Medline, Cochrane library, SCOPUS - were searched for this study. The key terms used were: retention, retain*, turnover, employee, staff and personnel in combination with nurse*.</p> <p><b>Other search methods:</b> Website searches. Google Scholar search and reference searches of included studies</p> <p><b>Years searched:</b> 1989 to 2009</p> <p><b>Inclusion criteria:</b> Studies included had to be quantitative research studies (correlation, quasi-experiment, survey), define 'retention', measure retention pre and post intervention, and include experienced RNs as subjects. Included studies had to examine the retention of RNs in health</p>	<p><b>Included populations:</b> 123,475 study subjects.</p> <p>Nine studies had registered nurses (two included nurse managers) as the sole subjects and three studies had nurses as part of the study sample.</p> <p><b>Missing information</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations</b> Not reported</p> <p><b>Setting of included studies</b> All studies were conducted in healthcare settings, in USA (9 studies) and Canada, Italy and Sweden</p>	<p><b>Outcomes measures</b> Retention was used interchangeably with turnover in most of the studies reviewed. None of the studies reported using a validated tool to measure retention. In the majority of studies, retention/turnover was measured as the percentage of nurses who left their position voluntarily (or not) or who transferred to another unit.</p> <p><b>Method of analysis</b> Content analysis</p>	<p><b>Relevant outcomes</b> One result evident from this study review is that healthcare settings need a combination of interventions to help increase the retention of their experienced nursing staff.</p> <p>The review included two studies aimed at leadership oriented interventions. Both reported higher retention by implementing an organisation-wide development programme to help increase staff retention (Boss et al. 1989, Castle &amp; Engberg 2006). Nurse leaders could promote organisational programmes such as higher staffing levels and a higher quality of care to aid in the retention of experienced nurses in healthcare settings. Another study reported increased retention when features of teamwork were incorporated at all levels within the organisation (Mohr et al. 2008). Implementing interventions at organisational levels to impact retention might be as important as unit specific programmes. Armstrong-Stassen (2005) discovered that improved benefits, flexible work schedule, incentives for continuing employment, providing retirement</p>	<p><b>Limitations identified by author:</b> Retention was defined and measured in a variety of ways. This variability limited the generalisation of the results. Second, the study might have a report bias, given that non published studies were not included and published studies tend to over report positive findings. Since the majority of the studies included were done in North America, the results may lack consideration of the cultural influence. In addition, only quantitative studies were included in the review because of the focus on intervention studies. The authors found it challenging to draw out information about nurses with less than 1-year experience from some of the studies included in this review. Therefore, these studies were included to avoid loss of data relevant to experienced nurse samples. However, the average nurse experience for the review was 4 years. Finally, there were few non-English studies published that met the study criteria even though the study search was not limited by language.</p>

+	<p>care settings, involve an intervention and measure its effect on retention, and preferably use a control group.</p> <p><b>Exclusion criteria:</b> Articles detailing strategies to promote the retention of newly graduated nurses were not included because a recent publication has addressed this issue (Salt et al. 2008).</p> <p><b>Number of studies included:</b> The electronic database search yielded a total of 2199 abstracts and titles. A total of 12 quantitative studies were retained for analysis after the quality assessment process.</p> <p><b>Number of studies excluded:</b> 2,187</p> <p><b>Method of synthesis</b> Narrative</p>			<p>with callback arrangements, increased financial compensation and redesigning work processes to minimise negative impact on nurses were important human resource practices that might influence experienced nurses' decision to remain in the workforce.</p> <p>Management support and training as part of organisational interventions reported in this review influenced retention in a positive way (Gagnon et al. 2006). Kleinman (2004) stated that in order for organisations to promote retention, they need to support managers' efforts to be visible and accessible to staff, and to use transformational leadership styles in the workplace. This suggests that a revision of organisational policies and practices as well as support for leadership training in a certain style of management may influence staff nurse retention.</p>	<p><b>Limitations identified by review team:</b> None</p> <p><b>Evidence gaps/recommendations for future research:</b> Further research is needed to inform nurse leaders of ways to retain nurses and to maintain quality care in health care settings.</p> <p><b>Source of funding:</b> No monetary funding was received, the Faculty of Nursing (at the University of Alberta) provided supervisory support</p>
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## Mesmer-Magnus et al. (2012)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Mesmer-Magnus, Jessica, David J. Glew and Chockalingam Viswesvaran</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Mesmer-Magnus, Jessica, David J. Glew and Chockalingam Viswesvaran 2012 <i>A meta-analysis of positive humour in the workplace</i> Journal of Managerial Psychology 27(2) pp. 155-190</p> <p><b>Review Design</b> Meta-analysis</p> <p><b>Main research questions</b> Humour's potential role in organisational</p>	<p><b>Databases and websites searched:</b> PsycInfo, ABI Inform and Emerald</p> <p><b>Other search methods:</b> Manual search of references cited in recently published reviews</p> <p><b>Years searched:</b> Not reported</p> <p><b>Inclusion criteria:</b> Study must have reported a relationship between supervisor/employee humour and at least one relevant correlate.</p> <p><b>Exclusion criteria:</b> Not reported</p> <p><b>Number of studies included:</b> 49 independent studies reported in 48 manuscripts</p> <p><b>Number of studies excluded:</b></p>	<p><b>Included populations:</b> N = 8,532</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcomes measures:</b> Job satisfaction Subordinate work withdrawal Subordination satisfaction with supervisor</p> <p><b>Method of analysis:</b> Out of the 49 independent studies, 17 reported relationships between supervisor sense of humour and at least one relevant correlate. When authors reported multiple estimates of the same relationship from the same sample, a mean correlation was computed to maintain independence. Studies were coded for: sample size, operationalization of humour, correlations between humour and relevant correlates, and reliability estimates for humour and correlate variables, if reported. The included studies were coded by two researchers, and inter-coder agreement was 100 per cent. Hunter and Schmidt's (2004) meta-analytic methods were used. Sampling errors and measure reliability (for humour and its correlates) were corrected. Reliability estimates were not</p>	<p><b>Relevant outcomes:</b> Supervisor humour positively relates to subordinate job satisfaction (<math>\rho = 0.39</math>, <math>SD\rho = 0.26</math>, number of correlations <math>k = 5</math>, 80% CV = 0.06-0.71, 90% CI = 0.20-0.58) and negatively relates to subordinate work withdrawal (<math>\rho = 0.20</math>, <math>SD\rho = 0.21</math>, <math>k = 3</math>, 80% CV = -0.58-0.05, 90% CI = -0.52-0.10). Supervisor humour also positively relates to subordinate satisfaction with supervisor (<math>\rho = 0.16</math>, <math>SD\rho = 0.22</math>, <math>k = 6</math>, 80% CV = -0.11-0.44, 90% CI = 0.00-0.32). Key results are that: Supervisor use of humour is associated with enhanced subordinate work performance, satisfaction, perception of supervisor performance, satisfaction with supervisor, and workgroup cohesion, as well as reduced work withdrawal. Positive humour buffers the negative effects of workplace stress on mental health.</p>	<p><b>Limitations identified by author:</b> An important consideration related to the interpretation of our results has to do with the nature of causality within the observed relationships. By virtue of the fact we cumulated correlations, it is possible the direction of causality in certain relationships is opposite that implied. Another consideration relevant to the interpretation of our results relates to the small number of primary studies available for some of the meta-analyses.</p> <p><b>Limitations identified by review team:</b> Possibility of publication bias Search methodology is incomplete</p> <p><b>Evidence gaps/recommendations</b></p>

<p>and employee effectiveness  <b>Quality rating:</b>                  +</p>	<p>Not reported  <b>Method of synthesis:</b>                  Meta-analysis</p>		<p>consistently reported, so corrections were made using artefact distribution meta-analysis.</p>		<p><b>for future research:</b>                  A broader use of humour may yield greater overall health effects. Untangling this relationship is a matter for future research.                  Focus of humour (intra-psychic versus interpersonal) as a moderator of the role of humour in the workplace.                  Gendered differences in humour use, and the potential supervisor/ subordinate gender moderates humour relationships;                  The effects of humour on responses to workplace incivility and interpersonal aggressive behaviours                  The personality correlates of effective humour use  <b>Source of funding:</b>                  None reported</p>
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## Mor Barak et al. (2009)

Review Details	Review search parameters	Review population and setting	Outcomes and methods of analysis	Results	Notes by review team
<p><b>Authors:</b> Mor Barak , Michàlle E., Dnika J. Travis, Harold Pyun, and Bin Xie</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Mor Barak , Michàlle E., Dnika J. Travis, Harold Pyun, and Bin Xie 2009 <i>The Impact of Supervision on Worker Outcomes: A Meta-analysis</i> Social Service Review 83(1) pp. 3-32</p> <p><b>Review Design</b> Meta-analysis</p>	<p><b>Databases and websites searched:</b> PsycInfo, Social Service Abstracts, Social Work Abstracts</p> <p><b>Other search methods:</b> Manual search: 8 key child welfare, social services and social work journals. Contact authors of included papers to locate significant current work or unpublished results.</p> <p><b>Years searched:</b> 1990-2007</p> <p><b>Inclusion criteria:</b> 1. <math>\geq 1</math> measure of supervision as antecedent or IV 2. <math>\geq 1</math> worker outcome 3. Examine sample of child welfare,</p>	<p><b>Included populations:</b> 10,867 workers across 7 studies. Child welfare: 7 studies, 25,9% Social work: 13 studies, 48,1% Mental health: 7 studies, 25.9%</p> <p><b>Missing information:</b> Demographics other than job role</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p>	<p><b>Outcomes measures:</b> <u>Job satisfaction:</u> Satisfaction with workload management, satisfaction with resources, satisfaction with salary, satisfaction with opportunities for promotion, satisfaction with salary, intrinsic satisfaction, job satisfaction (in general) <u>Retention:</u> Intention to leave, turnover, retention <u>Organizational commitment:</u> Affective commitment, continuous commitment, normative commitment loyalty, organisational commitment (in general) <u>Job stress:</u> Role conflict, role ambiguity, role overload <u>Burnout:</u> Emotional exhaustion, depersonalization, personal accomplishment or achievement <u>Psychological well-being:</u> Irritability, depression, anxiety, somatic complaints, self-confidence, empowerment, self-efficacy, psychological well-being (in general) <u>Worker effectiveness:</u> Worker ability, impact on practice, organisational citizenship behaviour, Job performance, professional competence</p> <p><b>Method of analysis:</b> Statistical analyses uses factorial framework representing three supervisory antecedents and two outcome variables (beneficial and detrimental). This is the conceptual model -</p>	<p><b>Relevant outcomes:</b> Total: 37 correlation coefficients: <u>Beneficial outcomes for workers:</u> 6 (task assistance). Correlations range from 0.28 to 0.69. 12 (social and emotional supervisory support). Correlations rage from 0.15 to 0.50. 8 (supervisory interpersonal interaction). Correlations range from 0.12 to 0.53. <u>Detrimental outcomes for workers:</u> 6 (social and emotional supervisory support dimension). Correlations range from -0.20 to -0.35. 5 (supervisory interpersonal interaction dimension). Correlations range from 0.09 to 0.61. <u>Heterogeneity test for each of the five types of relationship in the conceptual model:</u> p-values &lt; 0.1 = presence of heterogeneity among studies. <u>Pooled coefficients from the random effects model:</u> Absolute values of pooled correlations estimates range from -0.31 to 0.40 = approximately moderate-sized associations. All effect sizes are statistically significant, p-values &lt; 0.01 <u>Publication bias:</u> all tests of asymmetry are not statistically</p>	<p><b>Limitations identified by author:</b> Coding antecedent and outcome variables was challenging as no mix of articles held the same antecedent and outcome variable or measured either in the same way. Relatively small number of studies, not typically drawn from representative samples - limited ability to generalise findings. Small number of studies in each worker outcome category. Lack of research that examines the relationship of task assistance to detrimental outcomes for workers.</p> <p><b>Limitations identified by review team:</b> Study may benefit from using additional databases. There may be a detrimental effect from excluding all dissertations.</p> <p><b>Evidence</b></p>

<p><b>Main research questions</b> The relationship between three supervisory dimensions (of task assistance, social and emotional supervisory support and supervisory interpersonal interaction) and both beneficial and detrimental outcomes for employees.</p> <p><b>Quality rating:</b> ++</p>	<p>social or mental health workers 4. Published from 1990 to 2007 5. Report statistics necessary for meta-analysis (bivariate correlations, t-statistics, regression coefficients, and p-values) 6. Report the sample size</p> <p><b>Exclusion criteria:</b> Studies not printed in English Dissertations Non-peer-reviewed journals</p> <p><b>Number of studies included:</b> 27</p> <p><b>Number of studies excluded:</b> 1607</p> <p><b>Method of synthesis:</b> Meta-analysis</p>	<p><b>Setting of included studies:</b> Not reported</p>	<p><b>3 x 2 model.</b> Enables analysis of five relationships. This is based on the state-of-the-art review and theoretical framework. This utilises social exchange theory, psychological contract breach, leader-member exchange and role stress theory to explain the connections between supervisory dimensions and worker outcomes</p> <p>Each included article coded for a) job role of sample, 2) correlation VS regression coefficient, 3) sample size, 4) whether supervision is an antecedent and 5) work outcome variables.</p> <p>Each antecedent variable is coded into as one of the three dimensions: task assistance, social and emotional supervisory support and supervisory interpersonal interaction. Each outcome variable + several subcategories coded as beneficial or detrimental to workers (eg self-confidence = beneficial, depression = detrimental).</p> <p>54 correlation (r) and 20 standardised regression (B) coefficients used. For studies only reporting B, missing r coefficients are imputed. For studies reporting several correlations among variables under same construct category, the correlation effect sizes are aggregated to have one psychological well-being outcome.</p> <p>Analysis conducted with STATA</p>	<p>significant, therefore failing to confirm publication bias. Visual inspection of funnel plots confirms this.</p> <p><b>In summary:</b> <u>All supervisory dimensions</u> (task assistance, social and emotional support and supervisory interpersonal interaction) <u>are found to be positively and statistically significantly related to beneficial outcomes for workers.</u></p> <p>Effect sizes are moderate. Task-assistance: r = 0.40 Social and emotional supervisory support: r = 0.33 Supervisory interpersonal interaction: r = 0.33</p> <p><u>Two supervisory dimensions</u> (social and emotional supervisory support and supervisory interpersonal interaction) <u>are negatively and statistically significantly related to detrimental outcomes for workers.</u></p> <p>Effect sizes are moderate. Social and emotional supervisory support: r = -0.28 Interpersonal supervisory interaction: r = -0.31</p> <p>*NB* task assistance not present in studies in relation to detrimental outcomes.</p>	<p><b>gaps/recommendations for future research:</b></p> <p>Little empirical research on supervision, few studies emerged from this review of 2 decades.</p> <p>Internal and external validity of findings could be improved through representative samples and valid and reliable measures across studies.</p> <p>Would be beneficial to distinguish supervisory dimensions within individual studies to create a measure of supervision that encapsulates and differentiates different aspects of worker experience, allowing researchers to integrate these concepts.</p> <p>The next meta-analysis should include a meta-regression.</p> <p><b>Source of funding:</b> None reported.</p>
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## Skakon et al. (2010)

Review Details	Review search parameters	Review population and setting	Outcomes and Method of analysis	Results	Notes by review team
<p><b>Authors:</b> Skakon J, Nielsen K, Borg V, Guzman, J</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Janne Skakon , Karina Nielsen , Vilhelm Borg &amp; Jaime Guzman (2010) Are leaders' well-being, behaviours and style associated with the affective well-being of their employees? A systematic review of three decades of research, Work &amp; Stress: An International Journal of Work, Health &amp; Organisations, 24:2, 107-139, DOI: <a href="https://doi.org/10.1080/02678373.2010.495262">10.1080/02678373.2010.495262</a></p> <p><b>Review Design</b> Systematic review</p> <p><b>Main research questions</b> The review aimed to provide an overview of published empirical research on the impact of leaders and leadership styles on employee stress and affective well-being. Key research questions</p>	<p><b>Databases and websites searched:</b> Relevant studies were identified by searching 15 electronic databases and manual searches of current English-language journals, primarily from Europe and the United States: OSH-ROM, HSELINE, NIOSHTIC2, RILOSH, the Stress database at the National Institute of Public Health, PsycInfo, PubMed, Copenhagen Business School Library, Netpunkt, Google Scholar, ScienceDirect, Web of Science, Arblinc, Bizigate and the DIALOG database "Business &amp; Management Practices." Three sets of key words were used. The first set included Leader*/manager* - stress, -coping, - well-being. The second set included Employee*/subordinate* - stress, -coping, -job satisfaction, -well-being, -burnout, -health. Finally, the third set included Empirical studies. Relevant studies mentioned at least one key word from each set of key words.</p> <p><b>Other search methods:</b> Not reported</p> <p><b>Years searched:</b> January 1980 to July 2009</p> <p><b>Inclusion criteria:</b> To be included, a paper had to fulfil five</p>	<p><b>Included populations:</b> Not reported</p> <p><b>Missing information:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Excluded populations:</b> Not reported</p> <p><b>Setting of included studies:</b> Not reported</p>	<p><b>Outcome measures</b> Employee outcomes: stress and affective wellbeing</p> <p><b>Method of analysis</b> Not reported</p>	<p><b>Relevant outcomes:</b> 30 papers examined the association between <b>leaders' behaviours</b> and employee wellbeing. The studies showed that positive leader behaviours, including providing support, feedback, trust, confidence and integrity, were positively related to employee affective well-being and low stress levels among employee. whereas the opposite is the case for negative leader behaviours. Negative behaviours such as control, low support and abuse are associated with stress and poor well-being. A good quality relationship between manager and employee was also associated with employee well-being and low stress levels. 20 papers examined</p>	<p><b>Limitations identified by author:</b> Unpublished literature was not included, but this could be considered a strength as it may be assumed that peer-reviewed publications have been subject to a quality control process. The measures in each of the included studies varied and so comparison based on set research questions complicated. Most of the studies (43/48) were cross-sectional and therefore conclusions regarding causality cannot be drawn.</p> <p><b>Limitations identified by review team:</b> The strengths of the relationships are not reported</p> <p><b>Evidence gaps/recommendations</b></p>

<p>included:            What is the association between leaders' behaviours (including the relationship between leaders and employees) and employee stress and affective wellbeing?            Are specific leadership styles related to employee stress and affective well-being?  <b>Quality rating:</b>            +</p>	<p>criteria: (1) The study reported the results of empirical data analyses. (2) The study reported on the impact of the leaders' stress, leader behaviours or style on employees' stress or affective well-being. (3) The study was published between January 1980 and July 2009. (4) The study was published in an English-language peer-reviewed journal. (5) It reported on field research, that is, laboratory studies were excluded, as in such studies the connection with and application to real-life situations may not be warranted  <b>Exclusion criteria:</b>            Not reported  <b>Number of studies included:</b>            Out of more than 10,000 citations, 378 potentially relevant references, published between January 1980 and July 2009 (criterion 3), were identified by a first screening and subsequently catalogued. Further examinations revealed that 156 of these 378 papers were based on empirical research (criterion 1). Of these 156 studies, 105 did not adequately relate to the topic (criterion 2), nor did they match inclusion criteria concerning field research (criterion 5), leaving 49 papers. Finally, it was ensured that the papers were peer-reviewed (criterion 4). This was the case for all 49 papers, which provides the basis for the current review.  <b>Method of synthesis</b>            Narrative</p>			<p>whether <b>specific leadership styles</b> related to employee stress and affective well-being and produced mixed results.            While the transformational leadership style was associated with low stress levels and high well-being among subordinates, some studies found an association between transactional leadership and laissez-faire leadership and employee stress while others failed to show a relationship. Abusive leadership styles were found to be related to high levels of employee burnout.</p>	<p><b>for future research:</b>            Future studies should include more qualitative data, use standardized questionnaires and examine the processes linking leaders with employee stress.  <b>Source of funding:</b>            Not reported</p>
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## 5 Discussion

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There are a wide range of factors that facilitate or constrain the ability of line managers to enhance the well-being of the people they manage. The qualitative evidence review conducted for the NICE guidance on promoting mental health at work (Baxter et al, 2009) highlighted the wider influences, the workplace intervention points that affected employee health and well-being outcomes and their relationship to business, behavioural and attitudinal outcomes (Figure 5.1). The review identified a number of individual factors operating as influences within the workplace, as well as drawing a distinction between work *context* and work *content*. This distinction offered a helpful way of categorising potential areas of intervention.

This review focuses primarily on one pathway within the model, from the context of work, to employee health and well-being (including job satisfaction) concentrating particularly on supervisor behaviour and the support they provide employees. In so doing it also examines evidence about other aspects of work context, notably provision of feedback, health and safety climate and organisational justice and also some aspects of work content (eg job demand and control). Moreover, it examines the links to behavioural and business outcomes, where evidence is available. The pathway is highlighted in blue in Figure 5.1.

The relevance of the pathway, or chain of influence, is illustrated by one of the studies in this review which identified the links between manager performance, employee performance and customer satisfaction. Using survey data from all three parties, it was concluded that there was a clear positive link between managers' performance and employees' performance which in turn was associated with higher levels of customer satisfaction<sup>8</sup>.

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<sup>8</sup> Netemeyer et al (2010) (+)

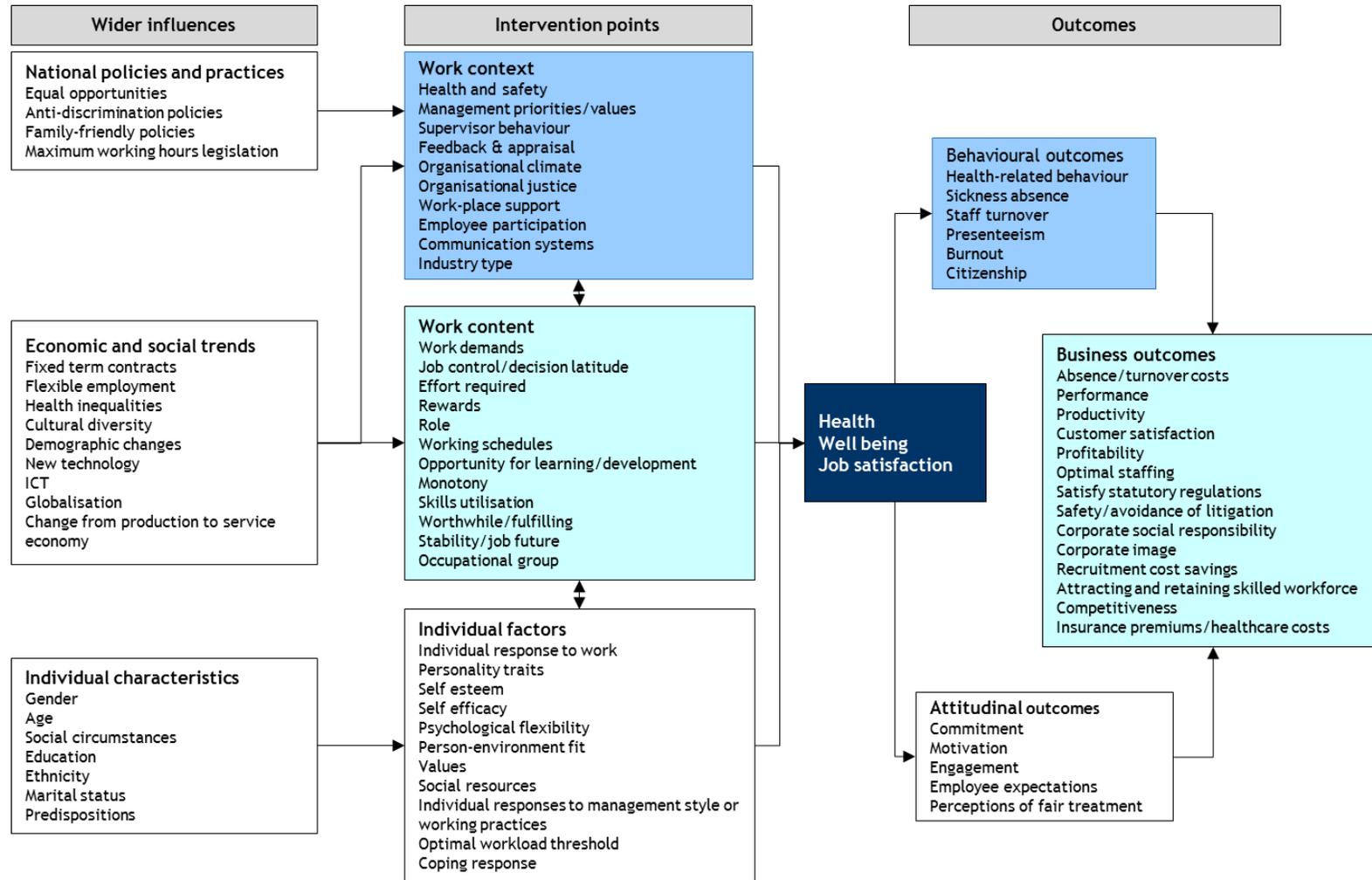
Line managers are often the conduit through which many of the workplace factors identified in Figure 5.1 influence individual employees and the model serves to emphasise the range of other influences that mediate and moderate any one of these factors, some of which are also identified by the studies included in this review.

The evidence from the included 65 primary studies and thirteen secondary literature reviews is reviewed in this chapter under the following themes:

- Supervisor support
- Leadership styles
- Other work content factors
- Wider work contextual factors.

It is important to emphasise that the evidence presented in this review is based on observational studies which can only identify associations between variables and do not establish causality. However, as is discussed in the conclusion, it should also be noted that the weight of evidence is primarily, but not exclusively, indicating links between positive management behaviours and higher levels of employee well-being, albeit in a relationship that is often of small to medium strength.

Figure 5.1: Factors influencing the well-being of employees



## 5.1 Supervisory support

Fourteen studies examined, inter alia, the relationship between employees' job satisfaction and the general support they received from their supervisor by asking employees for their perceptions about whether their supervisor cares for their well-being or was supportive of their concerns. Eleven studies found a positive relationship. In addition, some of the studies explained how the relationship worked or was related to and affected by other workplace factors. For instance one study, based on a series of focus groups with professionals in a large urban centre for addiction and mental health in Toronto, Canada,<sup>9</sup> found that the emotional climate of supervision was important to workers' job satisfaction and employees appreciated the opportunity to disclose their feelings about and reactions to work cultural or gender biases, and to help them feel more competent. Other studies based on surveys of employees demonstrated how supervisor support was related to or mediated by:

- Leader identification – ie leaders who provided more support to followers, and encouraged followers to critically and independently evaluate issues, tended to have followers who felt closer ties with the leader and this sense of identity was associated with higher levels of job satisfaction<sup>10</sup>
- Notions of workplace justice – (including distributive, procedural and interactive organisational justice)<sup>11</sup>
- Opportunities for team work and whether work was regarded as positively challenging<sup>12</sup>
- The content and pace of work<sup>13</sup>.

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<sup>9</sup> Bogo et al (2011) (-)

<sup>10</sup> Hobman et al, 2011 (+)

<sup>11</sup> Campbell et al, 2013 (++)

<sup>12</sup> Bishop et al, 2009 (+).

<sup>13</sup> Bos et al, 2009 (+)

### Evidence Statement 1a: Supervisor support and well-being

There is strong evidence from 14 studies, based on multivariate analysis of survey data, seven set in the USA (one (++) , five (+), one (-)), two based in Australia (both (+)), one set in the Netherlands (+), one in Finland (+), one in Germany (-), one in the UK (-) and one in Italy (-) in a variety of workplace settings (mainly health-related) that there is a small to medium positive relationship between supervisory support and employee well-being (generally measured by job satisfaction but also employee emotional exhaustion and self-reported health), although effect sizes are generally small. The evidence is partially applicable to the UK.

- A study of social workers in the USA found that perceived supervisor support was negatively related to emotional exhaustion ( $p < .01$ )<sup>1</sup>.
- A study of nursing assistants employed in nursing homes in the USA found that supervisors' support was one of a number of factors that positively affected job satisfaction ( $p < .01$ )<sup>2</sup>.
- A study of nurses in aged care facilities in a medium to large Australian healthcare organisation found the support received by nurses from their supervisor was related to well-being ( $p < .01$ )<sup>3</sup>.
- A study of employees and supervisors at a community-based healthcare organisation in Australia found that there was an association between supervisory support and job satisfaction but there was a significant mediating effect via leader identification for the associations between supportive leadership and job satisfaction ( $p < .01$ )<sup>4</sup>.
- A study of university employees in the Netherlands found that even low levels of support from supervisors had a small positive association ( $B = .12$ ) with the job satisfaction of older (>55) workers ( $p < .05$ )<sup>5</sup>.
- A study of new recruits to 12 telemarketing companies across the USA found that supervisory support (including guidance on how to perform their role) had a statistically significant direct effect on job satisfaction<sup>6</sup>.
- A study of Certified Nursing Assistants in the USA found that there was a positive relationship with a medium effect between supportive supervision and job satisfaction (OR 4.09) and a positive relationship with a small effect between supportive supervision and intent to leave (OR 0.53)<sup>7</sup>.
- A study of workers in the medical sector in the USA found that supervisor support was statistically significantly associated with psychological distress among medical workers, but with a small effect ( $\beta = .19$ ,  $p < .01$ )<sup>8</sup>.
- A study of middle managers in an Italian mail delivery company found that perceptions of the immediate supervisor were related to job satisfaction ( $p < .01$ )<sup>9</sup>.
- A study of managers and employees in the care sector in North East USA found that employees with low and mid-range supervisory support scores experienced more pain at work than employees with managers who reported high levels of supervisory support. Controlling for sociodemographic characteristics of the employee only, the

lowest supervisory support scores were associated with roughly twice the risk of pain at work (compared with a mid-range supervisory support score)<sup>10</sup>.

- A study of industrial workers in Germany found a small but significant association between lack of supportive leadership and self-rated health (OR 1.6)<sup>11</sup>.

However a large-scale survey of working adults in the USA (+) found that neither self-reported health, lower exhaustion or less pain was significantly associated with supervisor support<sup>12</sup> and a study based on two surveys of Finnish fire fighters (+) found no association between supervisory relations (a concept which included supervisor support) with work ability (ie health-related capability for work)<sup>13</sup>.

One study (-) based on the UK NHS staff survey, found that the influence of social support on job satisfaction was in turn positively associated with the quality of senior management<sup>14</sup>.

<sup>1</sup> Campbell (2013) (++)

<sup>2</sup> Bishop (2009) (+)

<sup>3</sup> Rodwell and Martin (2013) (+)

<sup>4</sup> Hobman (2011) (+)

<sup>5</sup> Bos (2009) (+)

<sup>6</sup> Sluss and Thompson (2012) (+)

<sup>7</sup> Choi and Johantgen (2012) (+)

<sup>8</sup> Minnotte et al (2013) (+)

<sup>9</sup> Borgogni (2011) (-)

<sup>10</sup> O'Donnell et al (2012) (-)

<sup>11</sup> Schmidt et al (2013a) (-)

<sup>12</sup> Trieber and Davis (2012) (+)

<sup>13</sup> Airila et al (2012) (+)

<sup>14</sup> Buttigieg and West (2013) (-)

Further evidence of the positive relationship between supervisory support and employee well-being comes from three literature reviews. One meta-analysis (+) of 40 studies found that job satisfaction exhibited a medium positive relationship with perceived supervisory support (the weighted  $r$  value was .54,  $p < .001$ ). The review also found that the relationship between perceived supervisory support and job satisfaction was stronger for jobs where most of the interaction was with other employees rather than external suppliers or customers<sup>1</sup>. A qualitative review (+) of a total of 153 studies relating to the adult care sector in Australia cited two studies that reported a positive staff perception of a manager's leadership and support was associated with improved job

satisfaction and workforce retention<sup>2</sup>. A review of eight studies, mainly from the USA, found an inconsistent relationship between supervisory support and job-related stress. For example two studies in the review found supervisory support was significantly related to job stress, but another found a negative and non-significant relationship<sup>3</sup>.

<sup>1</sup> Edmudson and Boyer (2013 (+)<sup>2</sup> Jeon (2010) (+)

<sup>3</sup> Finney 2013 (+)

### 5.1.1 Supervisor support and sickness absence

A number of studies examine the various forms of support that supervisors can offer employees in more detail together with the circumstances in which that support is offered. Four focussed on sickness absence.

A study of employees with chronic illnesses<sup>14</sup> found that supervisory support was associated with lower levels of absence. However another study of call centre workers with high workloads found that employee exhaustion was reduced if supervisors took a permissive attitude to sickness absence<sup>15</sup>. A good quality study identified the detailed supervisor behaviours that were associated with lower levels of sickness absence and found that just providing support was associated with higher levels of absence but this effect disappeared when the supervisors also challenged the absence problem<sup>16</sup>.

Finally a study in a UK private health care organisation found that employees with a mental health condition and who felt under pressure from senior managers, line managers and colleagues to come to work when unwell were significantly more likely to report a higher number of episodes of sickness absence compared with those without a mental health condition and less pressure to come to work when unwell<sup>17</sup>.

<sup>14</sup> Boot et al (2011) (+)

<sup>15</sup> Deery et al (2010) (+)

<sup>16</sup> Bernstrom et al (2012) (++)

<sup>17</sup> Ashby and Mahon (2010) (-)

### Evidence statement 1b: Supervisor support and sickness absence

There is strong evidence from four studies (one (++) , two (+) and one (-), from Norway, Australia, the Netherlands and the UK) that there is an association between supervisor support and sickness absence. However the direction of the relationship depends on the context and precise nature of supervisory supportive behaviour. The evidence is partially applicable to the UK.

- A study of sickness absence in a Norwegian health trust (++) found that four leader behaviours were related to employee sickness absence: ‘task monitoring’ was related to lower sickness absence, whereas ‘loyalty to superiors’ and ‘social support’ were related to high absence levels. However, the effect of ‘social support’ was no longer significant when the line manager also displayed high levels of ‘problem confrontation’. ( $p < .05$ )<sup>1</sup>.
- A survey of call centre workers in a large unionised telecommunications company in Australia found that the presence of both an absence culture among an employee’s co-workers and permissive attitudes towards absence-taking by team leaders lessened the impact of a high work-load on emotional exhaustion ( $p < 0.01$ ). A permissive attitude to absence-taken by team leaders in situations of perceived high job demands reduced job strain<sup>2</sup>.
- A survey of employees with chronic illnesses in the Netherlands (+) found that higher levels of supervisory support were associated with lower levels of sick leave<sup>3</sup>.
- A study in a private health care company in the UK (-) found that feeling under pressure from line managers, senior managers and colleagues to come to work when unwell and work related stress, were two of the biggest predictors of presenteeism. Pressure from managers, alongside the existence of mental health conditions, ( $p=0.002$ ) was also a predictor of sickness absence<sup>4</sup>.

<sup>1</sup> Bernstrom et al (2012) (++)

<sup>2</sup> Deery et al (2010) (+)

<sup>3</sup> Boot (2011) (+)

<sup>4</sup> Ashby and Mahdon (2010) (-)

## Work/family conflict

There is evidence that tension between work and family life can have an association with poor mental health and job satisfaction<sup>18</sup> and a number of studies examined the role of line managers in mitigating the consequences of work/family conflicts. A review of the literature about management of work-life balance in European workplaces concluded that line managers were increasingly seen as the 'gatekeepers' of work-life policies and the key to policy and programme effectiveness<sup>19</sup>.

### Evidence statement 1c: Supervisor support and work/family conflict

There is mixed but generally positive evidence from four studies (one (++)), one (+) and two (-)) that managerial support in helping employees handle conflicts between work and family life is positively associated with employee well-being. The evidence is partially applicable to the UK.

- A survey of local authority employees in the UK found that managerial support for work-home issues had a significant impact on employees' well-being ( $p < .05$ ). This effect took place indirectly for women, by influencing their level of work-home conflict, and operated both directly and indirectly for men<sup>1</sup>.
- A survey of employees and supervisors in the care sector in the USA found that supervisor openness and creativity in handling work/family issues was significantly associated with a lower risk of cardiovascular disease ( $p < .05$ )<sup>2</sup>.
- A nationwide survey of employees in the USA found that employees reported that supervisory support was a significant predictor of lower ratings on work interfering with family but, contrary to expectations, supervisor support served to significantly increase family interfering with work ( $p < .01$ )<sup>3</sup>.
- A survey of employees in a large US employer found that family supportive supervisor behaviours were not significantly related to sleep insufficiency, insomnia or waking after sleep onset<sup>4</sup>.

<sup>1</sup> Beauregard (2011) (++)

<sup>2</sup> Berkman et al (2011) (+)

<sup>3</sup> Beutell (2010) (-)

<sup>18</sup> Beauregard (2011) (++)

<sup>19</sup> Den Dulk and Peper (2009) (-)

<sup>4</sup> Crain et al (2014) (-)

### 5.1.2 Supervisor employee relationships

Three studies (all +) focussed on the quality of the supervisor-employee relationship and in particular leader-member exchange (LMX), a theory which argues that an element of the supervisor/supervisee relationship involves a mutual exchange of support, information, trust, participation in decision-making and respect. These studies indicate that where such elements of the relationship are strong, employee well-being is enhanced.

#### Evidence statement 1d: Supervisor relationships and well-being

There is consistent, but moderate evidence from three studies, (all +), one based in Australia, one in Germany and one in the USA in a mix of sectoral settings, that a strong relationship based on a reciprocal exchange between supervisors and employees is positively associated with job satisfaction and other measures of well-being. The evidence is partially applicable to the UK.

- A survey of nurses in two Australian hospitals and police officers in two districts found a significant positive relationship between LMX and employees' subsequent perceptions of well-being that was stronger among nurses than police officers<sup>1</sup>.
- A two-wave survey of employees in a large information technology company in Germany found a positive relationship between LMX and job satisfaction at both time points ( $p < .01$ )<sup>2</sup>.
- A survey of nurses in two hospitals in the USA found a significant correlation between supervisor-subordinate relationships and well-being ( $p < .001$ ). Supervisor relationships, teamwork and well-being explained almost half of nurses' commitment to their hospital and their intentions to leave<sup>3</sup>.

<sup>1</sup> Brunetto et al (2011) (+)

<sup>2</sup> Volmer et al (2011) (+)

<sup>3</sup> Brunetto et al (2013a) (+)

### 5.1.3 Consistency of support

One study examined employee perceptions of the support provided by senior, line, and human resource managers in a series of firms in Australia and found that a consistent level of support was an important influence on employees' job satisfaction and intention to quit<sup>20</sup>.

#### Evidence statement 1e: Consistency of management support

There is evidence from one study (+), based on a survey of employees in 10 firms in Australia that employees who perceived the level of support from both line and senior management was appropriate and consistently offered, experienced greater work satisfaction and were less inclined to quit their jobs. Line and senior management relationships were strengthened when communication between senior managers and human resource managers was frequent<sup>1</sup>.

<sup>1</sup> Frenkel et al (2013) (+)

## 5.2 Leadership style and behaviours

A number of studies examined the relationship between the style of leadership shown by supervisors and line managers and employee well-being. The styles examined and the levels of leadership took a number of forms.

One study focussed on four styles of situational leadership (participating, selling, delegating, or telling, depending on the combinations of relationship and task behaviour)<sup>21</sup>. Others focussed on a more widespread typology of leadership styles such as:

- Transformational – which is often characterised by an open, visionary and empowering approach
- Transactional – often including approaches based on motivating employees primarily through contingent reward-based exchanges and management by exception

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<sup>20</sup> Frenkel et al (2013) (+)

<sup>21</sup> Schreuder et al (2011)

- Passive or laissez-faire leadership – which generally involves a reactive approach or lack of involvement and slow decision-making<sup>22</sup>.

The precise definitions of these styles vary in different studies and, for instance, another study combined the transactional and laissez faire attributes<sup>23</sup>. Other studies looked at other aspects of leadership styles such as authentic leadership<sup>24</sup> or similar notions such as leadership integrity<sup>25</sup>.

While all of these studies indicate a positive relationship between more transformational styles of leadership and employee well-being, four suggest that the relationship is indirect rather than direct and mediated through other work environment factors (Neilson et al, 2008). Another study examined whether employees' emotional demands at work were modified by good leadership and found that any buffering effects were at best modest. High emotional demands at work were associated with antidepressant treatment whether the quality of leadership in the workplace was good or poor<sup>26</sup>.

### Evidence Statement 2a: Leadership style and well-being

#### Transformational leadership

There is moderate and consistent evidence from nine survey-based studies (one (++)), six (+) and two (-)), three based in Germany, two in Turkey and the others based in the Netherlands, Denmark, Western Europe and the USA, that there is a positive relationship between transformational leadership styles (embracing an open visionary and empowering approach) and employee well-being. Three of the studies (two (+) and one (-)) indicate that the relationship is affected by other factors including trust in one's supervisor, affinity with the organisation and the existence of work-life conflict. The evidence is partially applicable to the UK.

- A survey of supervisors and employees in a German university found a positive correlation between transformational leadership and job satisfaction ( $p < .01$ ). Trust in the supervisor mediated the positive relationship between perceptions of supervisors' transformational leadership and employees' job satisfaction<sup>1</sup>.

<sup>22</sup> Bernhard and O'Driscoll (2001)

<sup>23</sup> Kara et al (2013)

<sup>24</sup> Wong and Laschinger (2012)

<sup>25</sup> Prottas (2013)

<sup>26</sup> Madsen (2014)

- A cross-sectional survey in a Dutch hospital (+) found that nurse managers with a leadership style characterised by high relationship and high task behaviour had lower short-term absence among their nursing staff<sup>2</sup>.
- A survey of employees in a wide range of hotels in Turkey (+) found a significant ( $p < .01$ ) positive relationship between transformational leadership and quality of working life<sup>3</sup>.
- A small scale survey of academics at an unidentified Western European university (-) found that individual consideration and intellectual stimulation (both characteristics associated with transformational leadership) were in the first case positively and in the second case negatively associated with employee well-being. Management by exception (a characteristic associated with transactional leadership) was negatively associated with well-being<sup>4</sup>.
- A survey of employees in two Turkish hospitals (+) found one transformational leadership dimension (articulating a vision), two job satisfaction dimensions (pay and supervision) and two organisational commitment dimensions (affective commitment and normative commitment) were significantly related to organisational trust<sup>5</sup>.
- A survey of owners of 52 small family businesses and their employees in Germany (+) found that the link between transformational leadership and affective commitment, job satisfaction, and turnover intentions was partially mediated by psychological ownership of (defined as affinity towards) the organisation ( $p < .01$ )<sup>6</sup>.
- A survey of employees in a care environment in Denmark (+) found a significant relationship between transformational leadership and job satisfaction ( $p < .01$ ). However the relationship between transformational leadership and psychological well-being, unlike with job satisfaction, was mediated by work-life conflict<sup>7</sup>.
- A survey of employees in a German professional services company found a small negative association between transformational leadership and psychological strain ( $\beta = 0.28$ ,  $p = 0.00$ ) with reported stress higher when transformational leadership was perceived to be low<sup>8</sup>.
- A survey of professional employees in a US industrial company found that trust in their supervisor fully mediated the effects of procedural and informational fairness and transformational leadership on employee job satisfaction<sup>9</sup>.

<sup>1</sup> Braun et al (2013) (++)

<sup>2</sup> Schreuder et al (2011) (+)

<sup>3</sup> Kara et al (2013) (+)

<sup>4</sup> Zineldin and Hytter (2012) (-)

<sup>5</sup> Top et al (2013) (+)

<sup>6</sup> Bernhard and O'Driscoll (2011) (+)

<sup>7</sup> Munir et al (2012) (+)

<sup>8</sup> Schmidt (2013b) (+)

<sup>9</sup> Gilstrap and Collins (2011) (-)

Three studies (all (+)) examined the concept of authentic leadership (ie acting in a way consistent with their values and ethical standards) and its relationship to employee well-being.

### Evidence Statement 2b: Leadership style and well-being

#### Authentic leadership

There is moderate evidence from three studies, partially applicable to the UK, including two separate surveys (both (+)) of nurses in Ontario Canada, and from a large-scale survey of adult employees in the USA (+) that an authentic leadership style (involving acting in a way consistent with espoused organisational values) is positively associated with job satisfaction and well-being.

- A study based on a survey of nurses working in acute care hospitals across Ontario, Canada, found that an authentic leadership style among line managers significantly and positively influenced staff nurses' feelings of empowerment, which in turn increased job satisfaction and self-rated performance ( $p < .01$ )<sup>1</sup>.
- A study based on a survey of nurses in Ontario, Canada found that when new graduate nurses were paired with supervisors who demonstrated high levels of authenticity, they felt more engaged and more satisfied with their work ( $p < .01$ )<sup>2</sup>.
- Analysis of the results of a nationwide survey of employed adults in the USA found that a manager's behavioural integrity was positively related to job satisfaction ( $p < .001$ ) and negatively related to stress and absenteeism ( $p < .01$ )<sup>3</sup>.

<sup>1</sup> Wong and Laschinger (2012) (+)

<sup>2</sup> Giallonardo et al (2010) (+)

<sup>3</sup> Prottas (2013) (+)

Other studies focussed on slightly different management style profiles. One study (+) of nurses in the Azores found that a 'persuading and sharing' style of leadership among nurse managers was associated with higher average values of job satisfaction when compared with other profiles such as 'determining' or 'delegating'<sup>27</sup>. Another study (-) based in the health sector, this time among nurses in

<sup>27</sup> Furtado et al. (2011) (+)

nursing homes in Norway found a significant relationship between job satisfaction and task-oriented and relationship-oriented leadership styles, with a stronger effect for task orientation compared with relationship-oriented leadership style ( $p < 0.05$ )<sup>28</sup>.

Finally, a study (-) set in an unspecified sector and European country found that charismatic leadership was positively related to job satisfaction<sup>29</sup>.

### 5.2.1 Specific positive leadership behaviours

Two separate studies<sup>30</sup> of nurses in Australia found that 'good leadership' was associated with higher levels of employee well-being and lower level of labour turnover. The second study identified behaviours associated with being a good manager or leader, which included regularly consulting with staff, providing praise and recognition and having accessible senior management.

A cohort study of employees in Sweden<sup>31</sup> found that the supervisor behaviours positively associated with low incidence of ischemic heart disease included: providing relevant information; carrying out changes; explaining workforce goals; empathy and being involved in employees' personal development.

Another study based on an analysis of a nationwide survey of employees in the USA<sup>32</sup> found that various forms of 'management citizen behaviour' was positively associated with employee commitment, job satisfaction and mental health. In particular, the net effects of ethical and relational behaviours were stronger than those of family-supportive or operational competence behaviours.

A survey of employees in a large health care organisation in the USA<sup>33</sup> found that when nurse managers were perceived by individual nurses as having a commitment to serve and displayed behaviours that respected the professionalism of the nurses and helped them feel more empowered, the nurses experienced greater job satisfaction.

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<sup>28</sup> Havig et al ((2001) (-)

<sup>29</sup> Vlachos et al (2013) (-)

<sup>30</sup> Duffield et al (2009) (-) and (2010) (+)

<sup>31</sup> Nyberg et al (2009) (+)

<sup>32</sup> Rubin and Brody (2011) (+)

<sup>33</sup> Jenkins and Stewart (2010) (+)

A survey of nurses and nurse managers in a hospital in the USA<sup>34</sup> concluded that there was a positive relationship between strength in critical thinking dispositions of nurse managers and job satisfaction among their staff ( $p < .01$ ).

A small scale survey of public sector employees in Crete, Greece<sup>35</sup> found that managers' emotional intelligence was not significantly related to employees' job satisfaction.

### Evidence Statement 2c: Positive leadership behaviours

There is moderate evidence of partial applicability to the UK from five studies (four (+) and one (-)) that identifies specific leadership behaviours associated with employee well-being. These include:

- Regularly consulting with staff on daily problems and procedures
- Flexible or modified work scheduling
- Highly visible and accessible senior management
- Providing praise and recognition for a job well done<sup>1</sup>
- Giving the information to employees that they need
- Pushing through and carrying out changes
- Explaining workforce goals and sub-goals thoroughly
- Giving employees sufficient power in relation to their responsibilities
- Taking time to be involved in employees' personal development<sup>2</sup>
- Ethical and relational behaviours<sup>3</sup>
- Professional commitment
- Creating an emotionally supportive environment<sup>4</sup>
- Critical thinking<sup>5</sup>

<sup>1</sup> Duffield et al (2010) (+)

<sup>34</sup> Zori et al (2012) (-)

<sup>35</sup> Zampetakis and Moustakis (2011) (-)

- 2 Nyberg et al (2009) (+)
- 3 Rubin and Brody (2011) (+)
- 4 Jenkins and Stewart (2010) (+)
- 5 Zori et al (2012) (-)

There is further evidence from four literature reviews that also identified the leadership behaviours that are positively associated with employee well-being.

- A good quality meta-analysis of 27 studies in the health and care sectors found various supervisory tasks (*task assistance, social and emotional support and supervisory interpersonal interaction*) to be positively and statistically significantly related to employee well-being (variously measured through job satisfaction, retention, organisational commitment, job stress, burnout, psychological well-being and worker effectiveness). However the effect sizes were moderate: task-assistance:  $r = 0.40$ ; social and emotional supervisory support:  $r = 0.33$ ; supervisory interpersonal interaction:  $r = 0.33$ <sup>1</sup>.
- A qualitative review of the association between leaders' behaviours and employee wellbeing showed that positive leader behaviours, including *providing support, feedback, trust, confidence and integrity*, were positively related to employee affective well-being and low stress levels among employee. whereas the opposite was the case for negative leader behaviours<sup>2</sup>.
- A review focussed on the adult care in Australia found that the attributes of good leadership in middle management included: *hands-on accessibility and professional expertise in nurturing respect; recognition and team building, along with effective communication and flexibility*<sup>3</sup>.
- A meta-analysis of 49 studies which examined the impact of humour in the workplace found a small positive association between *positive humour* among supervisors and good physical and mental health. ( $p = 0.39$ ,  $SDp = 0.26$ ). Supervisor humour was also positively related to subordinate satisfaction with supervisor ( $p = 0.16$ ,  $SDp = 0.22$ )<sup>4</sup>.

- 1 Mor Barak et al. (2009) (++)
- 2 Skakon et al. (2010) (+)
- 3 Jean et al. (2010) (+)
- 4 Mesmer-Magnus et al. (2012) (+)

## 5.2.2 Supervisors' safety behaviours

Three studies in the review specifically examined the role of line managers in encouraging safe behaviour in the workplace. One good quality study (++) examined

needle stick injuries in a hospital in Japan<sup>36</sup>, another, set in hospitals in the USA, highlighted the importance of a culture in which employees feel able to voice safety concerns<sup>37</sup>. The third study (-) looked at the role of managers safety behaviour in a nuclear plant in Spain<sup>38</sup>.

### Evidence Statement 2d: Supervisors' safety behaviours

There is evidence from three studies (one (++)), one (+) and one (-)) from a range of settings, that supervisors and managers play an important role in creating a safer working environment by prioritising safety issues, correcting unsafe working practices and empowering employees to raise safety concerns. This evidence is of partial applicability to the UK.

- A large-scale survey in a hospital in Japan found that reductions in the incidence of needle stick injuries was positively correlated with the protection of staff being a high management priority ( $p = 0.008$ ), managers helping to protect staff from blood borne exposures ( $p = 0.024$ ) and unsafe work practices being corrected by supervisors ( $p < .05$ )<sup>1</sup>.
- A survey of nurses at four hospitals in USA found that the incidence of workplace injuries was associated with the perceived integrity of managers safety behaviour and supervisors' 'psychological integrity' (feeling safe to voice concerns and mistakes toward one's supervisor) ( $p < .01$ )<sup>2</sup>.
- Analysis of a survey of workers in a nuclear plant in Spain found that managers influenced employees' safety behaviour through the workplace safety climate and when leaders were perceived to behave as empowering leaders, they produced an appropriate safety climate which resulted in a greater number of safety behaviours among workers<sup>3</sup>.

<sup>1</sup> Smith et al (2010) (++)

<sup>2</sup> Halbesleben et al (2013) (+)

<sup>3</sup> Martinez-Córcoles et al. (2011) (-)

### 5.2.3 Negative leadership behaviour

Further studies looked at more negative leadership styles, eg a self-centred style (ie non-participating, asocial and loner) and their relationship with employee well-

<sup>36</sup> Smith et al (2010) (++)

<sup>37</sup> Halbesleben et al (2013) (+)

<sup>38</sup> Martinez-Córcoles et al. (2011) (-)

being. Some of the studies focussed on more negative leadership styles and behaviours and or negative relationships with supervisors.

### Evidence Statement 2e: Negative leadership style and well-being

#### Self-centred leadership

There is moderate evidence from two studies, one based on a nationwide employee survey in Sweden (++) and another multi-national survey of hotel workers (-), that a self-centred leadership style is negatively associated with employee well-being. The evidence is partially applicable to the UK.

- Analysis of the Swedish Longitudinal Survey of Occupational Health found that self-centred leadership significantly predicted depressive mood ( $p = 0.004$ ). Self-centred leadership was still a significant predictor of negative well-being when psychological demands and decision latitude were added to the equation although with reduced strength ( $p = 0.041$ )<sup>1</sup>.
- A survey of hotel workers in three European countries found that self-centred leadership was significantly associated with poor mental health, low vitality, and high behavioural stress ( $p < .01$ )<sup>2</sup>.

<sup>1</sup> Theorell et al (2013) (++)

<sup>2</sup> Nyberg et al (2011) (-)

One study (+) of negative supervisor behaviour identified the specific actions that were associated with presenteeism<sup>39</sup>.

### Evidence Statement 2f: Negative leadership behaviours

There is evidence from one study (+) of employees in the health sector in Australia which found that negative supervisor behaviour was a significant predictor of presenteeism ( $p < .01$ )<sup>1</sup>. The study is partially applicable to the UK. The specific supervisor behaviours that had the highest correlation with employee presenteeism were:

- failing to properly monitor and manage group dynamics,
- making decisions that affect employees without seeking their input,
- showing no interest in employees' ideas and projects,

<sup>39</sup> Gilbreath and Karimi (2013) (+)

- being easily threatened by competent employees,
- remaining aloof from employees,
- ignoring employees' suggestions,
- tending to be guarded in communications<sup>1</sup>.

1 Gilbreath and Karimi (2013) (+)

Further evidence comes from two literature reviews. In a meta-analysis of studies about workplace aggression, one review found that *supervisor aggression* was negatively associated with job satisfaction with a moderate effect sizes: (corrected  $r$  ( $rc$ ) =  $-.38$ ,  $SD$ :  $.07$ ), general health / psychological distress ( $rc$  =  $-.28$ ,  $SD$ :  $.15$ ), emotional exhaustion: ( $rc$  =  $.35$ ,  $SD$ :  $.12$ ), depression ( $rc$  =  $.26$ ,  $SD$ :  $.07$ ), and physical well-being ( $rc$  =  $-.20$ ,  $SD$ :  $.13$ )<sup>1</sup>. Another found that negative behaviours such as control, low support and abuse were associated with stress and poor well-being<sup>2</sup>.

<sup>1</sup> Hershcovis and Barling (2009) (+)

<sup>2</sup> Skakon (2010) (+)

Another study (+), using an employee cohort survey in the Netherlands, found that supervisor conflict was also a significant risk factor for the lower levels of self-reported health and higher levels of labour turnover.<sup>40</sup>

## 5.3 Other work context factors

A number of studies in the review examined other work context factors that directly or indirectly affect the ability of line managers to enhance the well-being of the people they manage. These covered organisational justice and supervisor communication.

### 5.3.1 Organisational justice

#### Evidence statement 3: Workplace justice

Two studies (both (+)) in different sectors in Denmark and Canada found that higher level of perceived organisational justice and fairness was positively associated with employee well-being. Other studies (one set in the French health sector (+) and one in a

<sup>40</sup> De Raeve et al (2009) (+)

US industrial company (-)) show that the effects of organisational justice are mediated by other workplace factors including the existence of organisational support and trust in supervisors.

- A cohort survey (+) of public sector workers in Denmark showed that a work environment characterised by low levels of justice is a risk factor for depression. The risk of depression increased with lower levels of procedural/relational justice. Adjusted OR = 2.96 for procedural justice and OR = 4.84 for relational justice<sup>1</sup>.
- A wide-scale survey (+) of managers in the pulp and paper, consumer and food services and the public sectors in Canada found that distributive and procedural justice were positively related to organisational satisfaction ( $\beta = .03$  for distributive justice and  $\beta = .56$  for procedural justice  $p < .01$ )<sup>2</sup>.
- A survey of (+) nurses working in haematology or oncology units from cancer centre units in northwest France found that procedural justice and supervisor autonomy support were positively and significantly ( $p > 0.05$ ) related to work satisfaction ( $\beta = 12$ ), organisational identification ( $\beta = 16$ ) and job performance ( $\beta = 28$ ) through their effects on need satisfaction and perceived organisational support<sup>3</sup>.
- A survey of professional employees in a US industrial company (-) showed that trust fully mediates the effects of procedural and informational fairness and transformational leadership on employee job satisfaction<sup>4</sup>.

<sup>1</sup> Grynderup (2013) (+)

<sup>2</sup> Tremblay (2013) (+)

<sup>3</sup> Gillet (2013) (+)

<sup>4</sup> Gilstrap and Collins (-)

Hepburn et al. (2010) (+) in a study of how employer responses to workplace injury affected injured workers' subsequent attitudes and mental health in Ontario, Canada, found that supervisor reactions and early contact emerged as significant and independent predictors of organisational justice and fairness. Early contact enhanced perceptions of justice and supervisor negative reactions reduced perceptions of justice. Greater fairness was associated with greater commitment and fewer depressive symptoms.

### 5.3.2 Communication

A small-scale study of employees in a hospital in the USA found increased supervisor communication was associated with higher levels of self-assessed organisational outcomes, whereas less leader communication correlated with lower perceptions of productivity and morale ( $p < .05$ )<sup>41</sup>. This study is of limited applicability to the UK.

## 5.4 Other work content factors

The qualitative evidence review for the NICE guidance on promoting mental health at work (Baxter, 2009, NICE, 2009) identified the importance of work *content* and the relationship between work demands, job control and reward systems and employee well-being. Although not the prime focus of this review, a few studies did focus on work content issues such as work demands, job design and reward systems.

### Evidence statement 4: Job demand and control

There is moderate evidence from two studies (one (+) and one (-)), both of health care employees and one set in Australia and one in the UK, that excessive job demand and work overload was negatively related to job satisfaction and well-being. A third study (-), set in Australian hospitals, found that increased job control and autonomy were positive predictors of job satisfaction. This evidence is partially applicable to the UK.

- A survey of nurses in an Australian healthcare organisation found that job demands were negatively related to well-being and positively related to depression indicating a main effect on mental health, as well as negatively relating to job satisfaction ( $p < 0.01$ ). The differential and curved effects of job demands on well-being or job satisfaction meant that when demands were either too low or too high, well-being and satisfaction were negatively affected<sup>1</sup>.
- An analysis of staff survey data in the NHS in the UK showed that job design and too much work were significant influences on job satisfaction ( $p < .001$ )<sup>2</sup>.
- A survey of nurses in Australian hospitals found positive predictors of job satisfaction were control over their nursing practice, nurse autonomy and the presence of strong nursing leadership on the ward<sup>3</sup>.

<sup>1</sup> Rodwell and Martin (2013) (+)

<sup>41</sup> Rouse 2009 (-)

<sup>2</sup> Buttigieg and West (2013) (-)

<sup>3</sup> Duffield et al (2009) (-)

### Evidence statement 5: Rewards

There is evidence from one (+) wide-scale survey of managers in the pulp and paper, consumer and food services and the public sectors in Canada that the use of contingent rewards (such as praising good performance) was more effective in promoting positive attitudes at work than using contingent punishments (eg reprimanding poor performance)<sup>1</sup>. This evidence is partially applicable to the UK.

<sup>1</sup> Tremblay (2013) (+)

## 5.5 Strength of the relationships found in similar studies

In addition to the evidence statements, the results of 16 separate studies include in the review which are

- all assessed as (++) or (+) and
- examine the direct relationship between line managers and all their employees,

are summarised in Table 5.1<sup>42</sup>. Around 30 separate forms of the relationship between line management support and employee well-being are examined in these studies. The key points to emerge from this analysis is that:

- all the studies show a positive relationship between a supportive approach to line management support and well-being (generally measured by job satisfaction but also including measures of mental health)
- the strength of such a relationship is generally 'small', however it should be noted that 'small' is not necessarily unimportant.

<sup>42</sup> Where possible, the effect sizes reported in the study have been converted to a common outcome measure – either  $\beta$  or Cohen's  $d$ .

Table 5.1: Comparison of effect sizes for direct relationship between supervisors and employee well-being.

Author (date) (quality rating)	Sample description	Sample size	Country	Workplace practice	Employee wellbeing measure	Statistical measure and value	'Effect' size / strength of association
Beutell (2010) (+)	Nursing assistants	3,017	USA	Supervisor support	Work interfering with family	$\beta = -.38$ $p < .01$	Small
Campbell et al (2013) (++)	Social workers	343	USA	Supervisor support	Emotional exhaustion	$\beta = -.22$ $p < .01$	Small
Choi and Johantgen (2012) (+)	Nursing assistants	2,254	USA	Supportive supervision	Job satisfaction	$d = .78$ $SE = 0.068^*$	Medium
Choi and Johantgen (2012) (+)	Nursing assistants	2,254	USA	Supportive supervision	Intention to leave	$d = -0.38$ $SE = -0.391^*$	Small
Frenkel et al (2013) (+)	Employees in 10 firms in four sector	1,553	Australia	HR line manager support	Job satisfaction	$\beta = .32$ $p < .01$	Small
Frenkel et al (2013) (+)	Employees in 10 firms in four sector	1,553	Australia	HR Line manager support	Intention to leave	$\beta = .45$ $p < .01$	Small
Berkman et al (2011) (+)	Care home assistants	392	USA	Manager support with work/family conflict	Cardiovascular disease risk	$d = 0.41$ $SE = 0.239^*$	Small
Volmer et al. (2011) (+)	Employees in a technology company	378	Germany	Supervisor-employee relationship (LMX)	Job satisfaction (t 1) Job satisfaction (t 2)	$d = 1.15$ , $p < .001^{**}$ $d = .56$ , $p < .01^{**}$	Large Medium
Brunetto et al (2011) (+)	Nurses Police officers	164 178	Australia	Supervisor-employee relationship (LMX)	Well-being	$R^2 = .425$	Large
Braun et al (2013) (++)	University employees	360	Germany	Supervisors' transformational leadership	Job satisfaction	$\beta = .64$ $p < .01$	Medium
Braun et al (2013) (++)	University employees	360	Germany	Supervisors' transformation leadership	Team performance	$\beta = .36$ $p < .05$	Small
Giallornardo et al.	Nurses	170	Canada	Supervisor authentic	Job satisfaction	$R^2 = 0.2$	Medium

(2010) (+)				leadership		p<0.01	
Gilbreath and Karami (2013) (+)	Hospital employees	149	Australia	Negative supervisor behaviour	Presenteeism	$\beta = -.36$ p<.01	Small
Munir et al. (2012) (+)	Elderly care staff	188	Denmark	Transformational leadership	Job satisfaction	$\beta = .30$ p < .01 F = 2.26 df = 6,119 p < .01 R <sup>2</sup> = .10	Small
Nyberg et al. (2009) (+)	Male employees in a range of companies	3,122	Sweden	Managerial leadership	Ischemic heart disease	HR = 0.63 CI = 0.46 to 0.86, p = 0.005.	Small
Rubin and Brody (2011) (+)	Adult employees	3,504	USA	Relational managerial citizenship	Job satisfaction	$\beta = .271$ , SE = 0.026	Small
					Mental health	$\beta = .179$ , SE = 0.030	Small
Rubin and Brody (2011) (+)	Adult employees	3,504	USA	Operational competence	Job satisfaction	$\beta = .276$ , SE = 0.026	Small
					Mental health	$\beta = .093$ , SE = 0.030	Very small
Rubin and Brody (2011) (+)	Adult employees	3,504	USA	Family supportive behaviours	Job satisfaction	$\beta = .076$ , SE = 0.028	Very small
					Mental health	$\beta = .096$ , SE = 0.032	Very small
Rubin and Brody (2011) (+)	Adult employees	3,504	USA	Ethical behaviours	Job satisfaction	$\beta = .196$ , SE = 0.024	Small
					Mental health	$\beta = .084$ , SE = 0.28	Very small
Schmidt (2013b) (+)	Employees in a professional services company	285	Germany	Transformational leadership	Psychological strain	$\beta = .33$ p<.01	Small
Schreuder et al. (2011) (+)	Nurses	570	Holland	Selling leadership style	Number of days of sickness absence	d = -0.28 SE = 0.1*	Small
					Short episodes of sickness absence	d = -0.15 SE = 0.04*	Small
Schreuder et al. (2011) (+)	Nurses	570	Holland	Delegating leadership style	Number of days of sickness absence	d = 0.53 SE = 0.19*	Medium

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					Short episodes of sickness absence	d = 0.49 SE = 0.04*	Medium
Schreuder et al. (2011) (+)	Nurses	570	Holland	Telling leadership style	Number of days of sickness absence	d = 0.54 SE = 0.19*	Medium
					Short episodes of sickness absence	d = 0.61 SE = 0.19*	Medium
Top et al. (2013) (+)	Hospital personnel	804	Turkey	Transformational leadership	Job satisfaction	d = 0.47, p < 0.01**	Small

\* Odds Ratios (OR) converted to Cohen's d (Chinn S 'A simple method for converting an odds ratio to effect size for use in meta-analysis', *Statistics in Medicine* 2000 19:3127-3131)

\*\* r values converted to Cohen's d (Borenstein M, Hedges L, Higgins J, Rothstein H *Introduction to Meta-Analysis.*, Wiley and sons, 2009)

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## 5.6 Conclusion

This review has found a clear positive relationship between the degree and form of line management support and style and employee well-being, as measured mainly by job satisfaction, but also by measures of psychological strain, sickness absence and presenteeism and intention to leave. A few studies have also found a relationship between measures of line management support and employee or team performance. These studies are set in a variety of sectors and in a range of countries. However it should be noted that the strength of these relationships are generally small and often moderated by other aspects of the workplace.

The results of the 16 separate studies in Table 5.1 which examined the direct relationship between line management and employee well-being all point in the same, positive, direction. While the strengths of the associations are generally small, they could still indicate an important influence that line managers could have on employee well-being.

Many of the other studies in this review also found results that point in a similar direct but go on to show that the effects of line management is affected to a greater or lesser extent by other workplace factors including perceptions of workplace justice and fairness; workload; work organisation and the content of work, as indicated in Figure 5.1.

The studies in this review also identify some of the key characteristics and behaviours associated with supportive line management. These include:

- Having an open approachable style, and the characteristics associated with transformational leadership;
- Helping employees perform their role;
- Regularly consulting employees about workplace decisions and then ensuring that decisions are then carried through to action;
- Treating employees fairly;
- Giving employees an element of autonomy over way the carry out their work and a degree of challenge in the tasks they are asked to do;
- Understanding external sources of stress and where possible schedule work flexibly to deal with, for example, family pressures;
- Placing a high priority on workplace safety, correcting unsafe working practices and empowering employees to raise safety concerns;

- Having a consistent approach to managing employees, from senior management downwards, in line with espoused organisational values;
- Recognising good employee performance.

This review also identifies a series of negative behaviours that are associated with lower levels of employee well-being including aggressive behaviour and acting in an opposite way to the behaviours outlined above such as not showing interest in employees, remaining aloof and not involving employees in decision-making. However, as was seen in Reviews 1 and 2, there is less evidence about the effectiveness of interventions to bring about more supporting management practices and thereby enhanced employee well-being.

## Appendix 1: Evidence Tables

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## Airila et al. (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Airila, A., Hakanen, J., Punakallio, A., Lusa, S., and Luukkonen, R.</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Airila, A., Hakanen, J., Punakallio, A., Lusa, S., and Luukkonen, R. (2012). Is work engagement related to work ability beyond working conditions and lifestyle factors? <i>International Archives of Occupational and Environmental Health</i>, 85, 915-925.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The central aim of the study among Finnish firefighters was to examine whether work engagement, as a motivational well-being concept is associated with work ability after adjusting for age, life-style and work related factors, and the baseline work ability 10 years earlier. Research questions were: Are age, lifestyle factors and working conditions associated with the work ability index (WAI)? Does work engagement relate to the WAI even after adjusting for age, lifestyle factors and working conditions? Are age, lifestyle factors, working conditions, and particularly work engagement associated with the different sub-dimensions of the WAI?</p> <p><b>Research approach:</b> Cross-sectional analysis of survey</p> <p><b>Data collection:</b> Data consists of a questionnaire study among Finnish firefighters.</p> <p><b>Method(s):</b> A questionnaire was conducted with Finnish firefighters in 1999 (baseline WAI was measured) and in 2009 (other variables present in the study were measured). Study focused in both the physical and mental conditions of fire and rescue work, and the well-being of professional firefighters. 10 year interval between data collection was based on practical decisions and financial arrangements and could not be influenced by researcher.</p>	<p><b>Sample population:</b> Sample consisted of male firefighters who had responded to the questionnaires in both 1999 and 2009 and were still employed in 2009.</p> <p><b>Sampling approach:</b> N/A (the research process is mentioned in detail in different papers)</p> <p><b>Inclusion/exclusion criteria:</b> To be included in the study you had to have taken the questionnaire in both 1999 and 2009 and still be employed in 2009.</p> <p><b>Number and characteristics of participants:</b> N=403. A total of 148 of the respondents from 1999 did not answer in 2009. The drop outs were older, had lower education, smoked more often and had a lower WAI, and their medical condition was slightly weaker than those who responded at both times, indicating a slightly better lifestyle and work ability among this sample of this study. In 2009, the average age of the study</p>	<p><b>Brief description of method and process of analysis:</b> Exploratory factor analysis was used to examine whether the different scales of working conditions could be distinguished from each other. Linear regression analysis was used to examine whether lifestyle and work related factors and work engagement were related to the WAI.</p> <p><b>Key findings relevant to the review:</b> Descriptive results: All variables, except alcohol consumption were significantly correlated with the total WAI score. Work engagement was significantly related to the total WAI score and all its sub-dimensions, except number of diseases. Antecedents of the total work ability index: sleep problems were negatively and physical exercise positively related to work ability. Alcohol consumption, BMI and smoking were not related to the total WAI score. The results also showed a positive relationship between work engagement and work ability. Antecedents of the sub-</p>	<p><b>Limitations identified by author:</b> Study was based on self-report measures, which may cause systematic measurement errors - although they did control for baseline work ability in the study. Like life-style and other work-related variables, work engagement was only measured once and therefore the analysis was cross-sectional and no causality between work ability and work engagement can be determined. But the work ability baseline could be adjusted. Only focussed on one profession, firefighters which may potentially threaten the generalisability of the findings.</p> <p><b>Limitations identified by review team:</b> All male sample. 10 year gap created more drop outs. Differences between Finland and UK in terms of training etc.</p> <p><b>Evidence</b></p>

	<p>Work ability was measured twice by the WAI questionnaire, most widely used and validated measure of workability. Survey looks at 7 dimensions of work ability: subjective estimate of current and life time's best of workability, subjective work ability in relation to job demands, the number of current diseases diagnosed by a physician, subjective estimation of working impairment due to diseases, sick leave during the past year, own prognosis of work ability 2 years from now, psychological resources. Calculated the continued sum score.</p> <p>Lifestyle variables including alcohol consumption, BMI, smoking and sleep problems were studied as indicative of lifestyle.</p> <p>Working conditions were measured with four scales: physical workload (4 items), job demands (3 items), supervisory relations (5 items) and task resources (3 items).</p> <p>Work engagement was measured with a Finnish translation of the short version of the Utrecht Work Engagement Scale, the most widely used and validated measure for work engagement (9 items of three sub-scales: vigour, dedication and absorption).</p> <p><b>Setting(s):</b> Finland, firefighters</p> <p><b>Dates:</b> 1999-2009</p>	<p>population was 48.5, 80.9% (n=321) had primary or elementary school education, and 19.1% (n=76) a secondary education. A large majority (n=315) had a firefighter qualification, 29.4% (n=105) had a sub-officer qualification, and 9.8% (n=35) a fire chief qualification. Mean work experience in the fire and rescue services was 25.3 years. A large majority (84.3%, n=337) of the participants did shift work.</p> <p><b>Response rate (if relevant):</b> In 1999, 1,124 questionnaires were posted, and 72% (n=794) returned the questionnaire. In the follow up 10 years later, 68% (n=721) returned the questionnaire)</p>	<p>dimensions of the work ability index: sleep problems and physical exercise were negatively related to current work ability, work ability in relation to job demands and psychological resources, Frequent physical exercise was positively associated with current work ability and work ability in relation to job demands and negatively with sick leave. Smoking was negatively related to work ability in relation to job demands. High job demands were negatively related to work ability in relation to job demands and psychological resources. High physical workload was positively associated with higher frequency of diseases and sick leave. Supervisory relations were not associated to any of the sub-dimensions of the WAI. Work engagement was positively related to three sub-dimensions of the WAI: good current work ability, good work ability in relation to job demands, and higher levels of psychological resources.</p>	<p><b>gaps/recommendations for future research:</b></p> <p>Including more objective measures of life-style and work-related factors would strengthen the design.</p> <p>In the future, the effect of work engagement on work ability should be studied using a longitudinal, full-panel design.</p> <p>Would be interesting to conduct a similar study using a heterogeneous sample of employees that would also enable the examination of the role of socio-economic status in WAI.</p> <p><b>Source of funding:</b> Study was supported by grants from the Fire Protection Fund, Finland, and the Emergency Services College, Kuopio, Finland.</p>
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## Ashby and Mahdon (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Ashby, K and Mahdon, M.</p> <p><b>Year of publication:</b> (2010)</p> <p><b>Citation:</b> Ashby, K and Mahdon, M. (2010). <i>Why do employees come to work when ill? An investigation into sickness presence in the workplace.</i> The Work Foundation, London.</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> Aim of the project was to explore the effect of different employee and work-related factors on sickness presence and critically to establish if sickness presence was associated with manager-assessed and self-reported levels of performance.</p> <p><b>Research approach:</b> Multi-method study - interviews and survey study</p> <p><b>Data collection:</b> Interviews and on-line survey</p> <p><b>Method(s):</b> 3 items were used to create the perceived pressure to attend work when unwell measure (<math>\alpha = 0.83</math>), low score (1) indicated strong disagree, and high score (7) strongly agreed. Sickness performance was adapted from the Stanford six score, based on 6 items (<math>\alpha = .83</math>), high score indicated strongly agreed, and low score indicated that they strongly disagreed. 10 items were averaged to create the measure of line manager support (<math>\alpha = .95</math>) High score indicated positive view of line manager, low score they disagreed. Four items were averaged to</p>	<p><b>Sample population:</b> Project explicitly explores AXA PPP employees' views</p> <p><b>Sampling approach:</b> Purposed sample</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Interviews with 25 employees (including managers) from 3 teams drawn from different departments within the organisation and with different demographic profiles in terms of age and gender. Detailed demographic and role information is not provided.</p> <p>510 AXA PPP employees took part in the survey. The majority were female (68%) of white ethnic origin (98%) and worked full-time (86%). Employees were aged between 20-69 years, with a median age of 36 years. Just under half were married or in a civil partnership (45%)</p>	<p><b>Brief description of method and process of analysis:</b> Does not report how the interview data was analysed. In the quantitative analysis linear regression analyses were conducted.</p> <p><b>Key findings relevant to the review:</b> Qualitative results: Key factors identified by employees that increase the likelihood of coming to work unwell were: The type and severity of the illness (including a distinction between psychological and physical health conditions); Pressure from senior managers, line managers, team and/or self to come into work when unwell to prove their illness; Responsibility towards the team - the idea of not letting the team down, and to be viewed in a positive light as showing their commitment; Ability to adjust when unwell, was the extent to which the illness affected the employee's ability to carry out their specific role and whether this affected attendance at work; There was no one to cover their workload and feeling under stress at work, so high workload affected sickness presence especially by those who felt under a great deal of stress at work; Commission and pay made some employees reluctant to take time off work when unwell because this could adversely affect their individual performance targets and financial rewards. Employees' views on managerial and organisational support for their health and well-being varied across and within teams. Positive perceptions of managerial support were linked to line managers supporting the work-related conditions of workplace well-being. Positive perceptions of organisational support for employees' health and well-being included provision of employment benefits, pay, staff voice, opportunities for progression. Negative perceptions included lack of control, strict sickness absence procedures and aspects of the work environment.</p> <p>Quantitative results: Health and well-being: 31% of employees reported that their work had a negative impact on their health. 54% of employees agreed that their employer cared about the health and well-being of its employees, 24% disagreed. 35% reported there was no one to cover their work if they were absent, 71% they were worried about placing an extra burden on the team, 41% felt under a great deal of stress at work, 27% said they put themselves under pressure to come to work when unwell, 28% felt under pressure from senior managers and 43% were unable to adjust their work if unwell.</p>	<p><b>Limitations identified by author:</b> Research into sickness presence is still in its infancy, especially when compared with absence. Causality still cannot be established from these findings, and there are still many unknowns in this field.</p> <p><b>Limitations identified by review team:</b> Based in one organisation - generalisability issues We do not know about the culture of the organisation No difference in occupations - some may be more pressured than others - skewed the</p>

<p>create the measure of team and colleague support (<math>\alpha=.73</math>).          Three items averaged to create measure of complexity of work (<math>\alpha=.81</math>)          Four items were averaged to create measure of skills use and development opportunities (<math>\alpha=.74</math>).          5 items were created to measure control and autonomy (<math>\alpha=.89</math>).          3 items were averaged to create the self-reported anxiety and psychological well-being measure (<math>\alpha=.75</math>).          4 items were averaged to create the measure of people experiencing financial difficulties (<math>\alpha=.85</math>).          Social contact and support was measured by two items.          The perceptions of the organisation caring for the health and well-being of employees was (<math>\alpha=.94</math>)          .  <b>Setting(s):</b>          AXA PPP organisation  <b>Dates:</b>          Not reported</p>	<p>and a further 24% lived with their partner (unmarried). In total 33% had caring responsibilities for children aged less than 18 years. Almost half of the sample had customer service or sales occupations (49%), 30% were managers or professionals and 13% had administrative or secretarial occupations. Just over a quarter of respondents (26%) had a supervisory role. The majority worked from 9am-5pm, but 20% worked rotating shifts (the remainder worked evening or nights). Five employees (1%) were registered disabled. However, 75% of employees reported currently suffering from one or more health problems. 75% of employees reporting health problems, 34% suffered from one condition, 28% suffered from two, 19% suffered from three, 7% suffered from four and 12% suffered from 5 or more.</p>	<p>Self-reported sickness absence was low (18%) one or more day off in the previous 4 weeks. Mean sickness absence was 8.15 days. 45% of employees reported one more day of sickness presence in the last four weeks. Number of days sickness presence reported ranged from 0-25 days.          People with a higher number of days of sickness absence also had a higher numbers of days sickness presence. Sickness presence was significantly related to performance - those with fewer days sickness press had higher performance ratings. Physical health conditions compared to mental health conditions were a better predictor of sickness presence.          Feeling under pressure from line managers, senior managers and colleagues to come to work when unwell and work related stress were two of the biggest predictors of sickness presence and sickness performance.          Personal finances (<math>p=0.033</math>), work related stress (<math>p=0.002</math>) and pressure from managers (<math>p=0.005</math>) were significant predictors of sickness presence. The perceived impact of sickness presence on performance were significantly predicted by: gender (<math>p=0.001</math>), ability to adjust work (<math>p&lt;0.001</math>), pressure from managers (<math>p=0.001</math>).          Two variables were significant predictors of perceived sickness absence: presence of physical health conditions (<math>p=0.03</math>), and pressure from managers (<math>p&lt;0.001</math>). Employees with a physical health condition and who felt under pressure from senior managers, line managers and the team to come to work when unwell were significantly more likely to report a higher number of days of sickness absence compared with those without a physical health condition and less pressure to come to work when unwell. This model explained 6 per cent of the variance in self-reported absence.          Pressure of mental health conditions (<math>p=0.01</math>), and pressure from managers (<math>p=0.002</math>) were significant predictors of recorded sickness absence. Employees with a mental health condition and who felt under pressure from senior managers, line managers and colleagues to come to work when unwell were significantly more likely to report higher number of episodes of sickness absence compared with those without a mental health condition and less pressure to come to work when unwell. This model explained 10 per cent of the variance.</p>	<p>results.  <b>Evidence gaps/recommendations for future research:</b>          Further monitoring of sickness presence and the factors associated with it is needed in the UK.          Longitudinal studies tracking the effects of sickness presence over time on well-being and performance are also required.  <b>Source of funding:</b>          AXA PPP healthcare sponsored this work.</p>
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## Beauregard (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Beauregard, T.A.</p> <p><b>Year of publication:</b> (2011)</p> <p><b>Citation:</b> Beauregard, T.A. (2011). Direct and indirect links between organisational work-home culture and employee well-being. <i>British Journal of Management</i>, 22, 218-237.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> This study tests a model with a mix of mediated and moderated relationships to investigate direct and indirect routes by which work-home culture may affect employee well-being. The paper outlines 3 possibilities in order to generate hypotheses that can be tested empirically (work-home culture predicting employee strain directly, effect of work-home culture on strain may be mediated by work-home interference, or work-home culture may moderate the relationship between work-home interference and employee strain. Study also investigates the presence of sex differences in the relationship between home-work culture.</p> <p><b>Research approach:</b> Cross-sectional survey</p> <p><b>Data collection:</b> Surveys were sent to all regular (not seasonal or temporary) employees</p> <p><b>Method(s):</b> Strain symptomology measured using Gotlieb et al.(1998) ten item scale (extent to which respondents experience anxiety, fatigue, depression and overall strain the last 6 months). Indicating extent in Likert scale, Cronbach's alpha for scale is 0.95. Organisational work-home culture was measured using Thompson's et al., (1999) three component scale (measuring</p>	<p><b>Sample population:</b> Participants in this study were drawn from a local government organisation in the south of England - includes all employees of the target organisation.</p> <p><b>Sampling approach:</b> Selected sampling</p> <p><b>Inclusion/exclusion criteria:</b> All employees were invited to take part, not just those with dependent children.</p> <p><b>Number and characteristics of participants:</b> After exclusion due to missing responses, there was a sample size of 224. The majority of respondents were women (62.3%). Participant ages ranged from 17 to 68, with an average age of just over 41 years, Sixty nine men (83.1%) and 108</p>	<p><b>Brief description of method and process of analysis:</b> Before hypotheses were tested, confirmatory factor analysis was conducted to examine the distinctiveness of the measures used in the study. Although it was possible that common method variance may be present in the data, it was not thought to be a serious issue hindering the satisfactory testing of our hypotheses. Ordinary least squares regression were used to test the model using SPSS</p> <p><b>Key findings relevant to the review:</b> Work-home culture - men reported significantly higher levels of organisational time demands (<math>t=2.09</math>, <math>p&lt;0.05</math>) than women. Men also worked significantly longer hours than women (<math>t=3.68</math>, <math>p&lt;0.001</math>). Work interference with home fully mediated the effects of organisational time demands on strain for women, and partially mediated the effects of organisational time demands on strain for men. Neither managerial support nor negative career consequences were mediated by either work interference with home or home interference with work. The two-way interaction between work interference with home and managerial support was significant (<math>B = -0.16</math>, <math>p&lt;0.05</math>). The relationship between work</p>	<p><b>Limitations identified by author:</b> The cross sectional design of the study does not allow for conclusions regarding causality. None of the interactions explained a significant amount of variance in the dependent variable - a larger sample size would have produced better results and would also help to ensure greater accuracy and generalisability in the future, as would a higher response rate than that obtained by the present study. The average age of the youngest child in this study was their early teens; respondents with younger families may have different experiences balancing work and home responsibilities, which may generate different findings. As the respondent sample was composed entirely of public sector employees, it is debatable as to whether the findings obtained can be generalised to other populations such as individuals employed in the private sector.</p> <p><b>Limitations identified by review team:</b> Study located in south of England, different regions in the UK have different ethnic/age/household characteristics, so may not be representative of the whole UK, just that part. Also, majority of respondents were women - could have had an impact on the results. Would the same be reported with a more male sample?</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research employing a longitudinal design would be better placed to assess issues of directionality and research collecting multi-</p>

	<p>managerial support, negative career consequences and organisational time demands, with Cronbach's alpha scores of 0.91, 0. and 0.94 respectively). Work interference with home was measured using the six time-based and strain-based items from Carlson et al.(2000) multidimensional measure of work and family conflict. The statements were modified in order to be applicable to respondents both with and without family responsibilities. Items assessed the extent to which respondents experienced both time and strain based interference from the work to the home domain. Reliability alpha for this scale was 0.92.</p> <p>Home interference with work was also measured using the six time-based and strain-based items from Carlson et al.(2000) multidimensional measure of work and family conflict. Again items were modified in order to be applicable to respondents both with and without family responsibilities. Items assessed the extent to which respondents experienced both time and strain based interference from the home to work domain. Cronbach's alpha for this scale was 0.84.</p> <p><b>Setting(s):</b> Local government in the south of England</p> <p><b>Dates:</b> Not reported</p>	<p>women (77.7%) reported living with a spouse or partner; of these 58.3% of men and 71.2% of women were members of dual-earner households, where the spouse or partner was also employed. 61 men (72.6%) and 79 women (56.8%) reported having children; the average age of the youngest child was 15.5 for men and 13.6 for women. Ages ranged from 9.6 months to 34 years. 13 men (15.5%) and 20 women (14.4%) reported having caregiving responsibilities for adult dependents (other than children)</p> <p><b>Response rate:</b> 29%.</p>	<p>interference with home and employee strain was weaker in the presence of high levels of managerial support (<math>\beta = 0.29, p &lt; 0.01</math>) then in the presence of low levels of managerial support (<math>\beta = 0.65, p &lt; 0.001</math>). Managerial support did not moderate the link between home interference with work and strain. A significant three-way interaction predicting strain was found among sex, managerial support and work interference with home (<math>\beta = -0.17, p &lt; 0.05</math>), the positive relationship between work interference with home and strain was weaker in the presence of high managerial support, more so for women than men. There was also a significant difference between the slopes for high managerial support women and low managerial support women (<math>t = -2.71, p &lt; 0.01</math>). Significant interactions were found between sex, organisational time demands and both work interference with home (<math>\beta = 0.18, p &lt; 0.05</math>) and home interference with work (<math>\beta = -0.21, p &lt; 0.05</math>). The positive relationship between work interference with home and strain was stronger in the presence of high organisational time demands, more so for men than women. There was a stronger link between home interferences with work and strain for women rather than men, when organisational time demands were high.</p>	<p>source data would be better placed to avoid the potential for common method bias associated with the use of a single data source, such as the self-report questionnaires employed in the present study.</p> <p>Study generates further questions:          Might other coping resources such as scheduling activities in one domain to accommodate demands in another also influence the degree to which interference between work and home affects employee strain? Do elements of work-home culture moderate the link between work-home interference and other organisational outcomes such as commitment or workplace deviance?          Future research comparing public to private sector employees may reveal differences in the way each responds to organisational work-home culture, and thus yield meaningful implications for how organisations in each sector should provide and communicate work-home support.</p> <p><b>Source of funding:</b>          Social Sciences and Humanities Council of Canada Doctoral Fellowship, an LSE Basil Blackwell Teaching Fellowship and an Overseas Research Studentship award.</p>
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Berkman et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Lisa F. Berkman, Orfeu Buxton, and Karen Ertel, Harvard University, Cassandra Okechukwu, University of California, San Francisco</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Berkman L. F., Buxton O., Ertel K., Okechukwu C., 2010 <i>Managers' Practice Related to Work-Family Balance Predict Employee Cardiovascular Risk and Sleep Duration in Extended Care Settings</i> Journal of Occupational Health Psychology, Vol 15 No 3 pp. 316-329</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Four extended care facilities in Massachusetts, USA.</p> <p><b>Research questions:</b> To determine whether employees in extended care settings whose managers are supportive, open, and creative about work-family needs, such as flexibility with work schedules, have lower cardiovascular disease (CVD) risk and longer sleep than their less supported counterparts.</p> <p><b>Overall research approach:</b> Survey of employees and interviews with managers</p> <p><b>Data collection method and coverage:</b> Trained research assistants administered the survey in English, Spanish, and Haitian Creole between September 2006 and July 2007. Interviews were conducted during employees' work shifts. Interviews took approximately 40 min, and subjects were given debit cards as incentives.</p> <p>Presence of two or more CVD risk factors was the primary outcome. We assessed five modifiable CVD risk factors on the basis of the risk factor categories developed in the</p>	<p><b>Sample population:</b> Employees and managers in four extended care facilities (nursing homes) in Massachusetts, USA.</p> <p><b>Sampling approach:</b> No detail given</p> <p><b>Inclusion/exclusion criteria:</b> All eligible employees were invited to participate (N=590) with a response rate of 76.6% (n=452). Managers were given a score for openness and creativity in relation to work-family needs. Employees whose managers did not have a work family score were excluded (n=393, 66%). Employees were also excluded if they were missing data from one or more of the 5 CVD risk factors.</p> <p>All managers were invited to participate (N=62); 56 (92%) completed the interview. Analysis was carried out on 45 (72%) who were identified as the employees of who completed the survey.</p> <p><b>Number and characteristics of participants:</b> The cohort used in this</p>	<p><b>Analysis method:</b> Qualitative analysis of interviews with managers to establish score for openness and creativity in relation to work family needs. Employee survey data (interview + medical tests) Examined the bivariate relation between manager score and employee characteristics and outcomes &amp; correlation btw manager score and employee-reported assessment of their jobs &amp; workplace policies in relation to work-family concerns. Multilevel regression analysis was carried out on the relation btw exposure to a manager with low-,middle work family balance score compared to one with high score and the outcomes.</p> <p><b>Key findings relevant to the review:</b> Manager score was significantly associated with CVD risk. Among employees with managers who scored low on the scale, 28.57% had two or more risk factors, whereas only 18.49% of employees whose managers scored high had two or more risk factors (p = .02). The manager score was not significantly correlated with any of these measures (data available on request), nor were other dimensions of the job, including demands, control, support, or flexibility, strongly related to manager scores. Multilevel models were used to assess the association between manager score and employee CVD risk and sleep outcomes while controlling for potentially confounding factors. Overall, employees with managers who had low or middle scores had odds ratios of 2.11 (95% CI [0.90,</p>	<p><b>Limitations identified by author:</b> The database is that it is cross sectional - implies that cause cannot be distinguished from consequence. Self-reported data for some of the health data (doctor's diagnoses, weight &amp; height, smoking behaviour). NB: other health data was based on blood samples taken during the interview (HbA1c and cholesterol levels) and actigraphy (sleep duration). The four extended care facilities were used because they volunteered to take part in the study - the researchers did not conduct a systematic selection of facilities. It is possible that non-respondents were different from study participants in ways that may have caused bias.</p> <p><b>Limitations identified by review team:</b> The researchers state that they have approached all</p>

	<p>Framingham Study (Wilson et al., 1998): current smoking, obesity, high blood pressure or hypertension, high total cholesterol from dried blood spots, and presence of either a diagnosis of diabetes or high HbA1c. Through employee interviews, self-reports of current smoking and height and weight to calculate obesity (body-mass index <math>\geq 30</math>) were collected. High blood pressure with self-reports of current medication for hypertension and measured blood pressure was assessed during the survey. Three blood pressure measurements were collected at selected intervals during the survey with a wrist blood pressure monitor (Omron HEM- 637). Systolic blood pressure greater than or equal to 140 mmHg and diastolic blood pressure greater than or equal to 90 mmHg was considered high. Cholesterol and HbA1c information from blood samples. Total cholesterol above 200 was considered high. The presence of diabetes was assessed through self-reports of physician diagnosis. Sleep duration as assessed by the actigraphy monitor</p> <p><b>Dates:</b> Data collection btw Sept 2006 and July 2007.</p>	<p>analysis comprised 393 men and women who completed the surveys and clinical assessments in the four extended care facilities. They had a mean age of 41 years, and 84.5% were women. They were predominantly low-wage employees, with a mean hourly wage of \$15.73. The employees were from diverse racial and ethnic backgrounds, with about 60% from Black, Hispanic, or another minority groups. In Boston, many recent immigrants working in nursing care are from Haiti, Brazil, and the Dominican Republic. About 8% of the interviews were conducted in Haitian Creole. Just over half of employees had a child under 18 in the household. Over a quarter had two or more CVD risk factors.</p> <p><b>Response rate:</b> Response rate = 76.6% (employees) and 92% (managers)</p>	<p>4.90]) and 2.03 (95% CI [1.02, 4.02]), respectively, of having two or more CVD risk factors compared with employees whose managers had high scores on work-family balance. Although the differences were not statistically significant, the trend was for employees of managers with low scores to have higher risks. This was especially apparent for employees with diabetes (OR for low manager score <math>\geq 1.64</math>; 95% CI [0.49, 5.47]), high blood pressure (OR for low manager score <math>\geq 1.89</math>; 95% CI [0.73, 4.89]), and obesity (OR for low manager score <math>\geq 1.44</math>; 95% CI [0.67, 3.05]).</p> <p>A very strong association between sleep duration and manager score was found. In fully adjusted multilevel models, employees whose managers scored low slept almost 29 min less per day than employees whose managers scored high (<math>p = .03</math>). In these analyses, the sample size dropped to 320 because not all respondents provided actigraphy data. Subjects with actigraphy data (<math>n = 320</math>), compared with those without actigraphy data (<math>n = 73</math>), had a slightly lower mean hourly wage (\$15.40 compared with \$17.17, <math>p = .06</math>), worked, on average, more hours per week (34.9 compared with 32.8, <math>p = .11</math>), had slightly lower mean household income adjusted for household size (\$27,883 compared with \$31,663, <math>p = .04</math>), were less likely to have a college degree or more (13.8% compared with 30.1%, <math>p = .01</math>), and were more likely to work full time at the extended care facility (76.3% compared with 63.0%, <math>p = .02</math>).</p>	<p>full-time employees in the nursing homes. However the data table 1 shows that 25% of respondents worked part-time. This inconsistency is a cause for concern. Equally if all ees approached were full time this might miss the possibly different perspective on work family needs than part-time employees may have.</p> <p><b>Evidence gaps/recommendations for future research:</b> Researchers state that it is possible that employees with better health and more resources learn of the attitudes and practices of managers and move roles to work in improved settings. The researchers plan to conduct a RCT to test some of these issues.</p> <p><b>Source of funding:</b> The Work, Family, and Health Network and the National Institute of Aging and National Institute of Child Health and Human Development supported this project under Grant U01 5186989-01.</p>
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Bernhard and O’Driscoll (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Bernhard, F. and O’Driscoll, M.P.</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Bernhard, F. and O’Driscoll, M.P. (2011). Psychological ownership in small family-owned businesses: Leadership style and nonfamily-employees’ work attitudes and behaviours, <i>Group &amp; Organisation Management</i>, 36, 345-384.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> Research focusses on the emergence and consequences of ownership feelings among nonfamily employees in different leadership style environments. Specifically, they examine the relationship of leadership style with psychological ownership. They also investigate the mediating role of psychological ownership in creating desirable outcomes (favourable organisational attitudes and behaviours).</p> <p><b>Research approach:</b> Cross sectional survey data</p> <p><b>Data collection:</b> Family businesses owner-managers in close geographical proximity of the first author were contacted, explaining the purpose of the study. The first author distributed and collected questionnaires.</p> <p><b>Method(s):</b> Study design involved data collection from two sources: first self-report data were collected from nonfamily employees working in businesses, also providing an assessment of the leadership style of the owner-manager. Employees were introduced to the study and given assurances of confidentiality. Questionnaires were distributed and voluntarily completed and collected in the employees; regular working environment in the absence of the owner-manager. Second, family business owner-managers were asked to assess each of their employees’ in-role performance and OCB.</p> <p><i>Psychological ownership of the organisation:</i> 7 item instrument developed by Pierce et al. (1992), and translated into German. 7 point Likert scale ranger from 1 (strongly disagree) to 7 (strongly agree). Cronbach</p>	<p><b>Sample population:</b> Empirical analysis is based on a sample of 52 small family-owned and managed businesses in South-West Germany.</p> <p><b>Sampling approach:</b> Sample was based on geographical proximity of owner-managers of family businesses to the first author’s university.</p> <p><b>Inclusion/exclusion criteria:</b> To ensure each employee knew and reported to the owner-manager, only businesses with a maximum of 20 employees, only one managing owner and no formal hierarchical</p>	<p><b>Brief description of method and process of analysis:</b> Interclass correlation (ICC) used to assess the proportion of variance in the outcome that can be attributed to organisational membership. Hierarchical linear modelling (HLM) was used to test study hypotheses. Sobel test was used to measure the significance of the mediation effects.</p> <p><b>Key findings relevant to the review:</b> Both types of psychological ownership were correlated with affective commitment, job satisfaction and turnover intentions. Of the three leadership styles, extra role behaviour was significantly correlated only with transformational leadership. No significant relationships between in-role behaviour and any of the leadership styles. Transformational leadership was positively related to psychological ownership of the organisation (<math>B = .75, p &lt; .01</math>) and the job (<math>B = .52, p &lt; .01</math>) as was transactional leadership (<math>B = .60, p &lt; .01</math> and <math>B = .33, p &lt; .01</math>, respectively). Passive leadership showed a significant negative relationship with psychological ownership of the organisation (<math>B = -.36, p &lt; .01</math>). Transformational leadership to psychological ownership of the organisation was significantly different to that between transactional leadership and psychological ownership (<math>p &lt; .05</math>). Differences between the</p>	<p><b>Limitations identified by author:</b> One of the main weaknesses is the cross-sectional data, which pre-empt judgements of causality. Cannot test whether leadership style causes psychological ownership, nor whether psychological ownership causes any of the other behavioural or attitudinal constructs. Impossible to rule out the possibility of reverse causality. Possibility of common method variance due to use of self-reports for several variables. A final limitation concerns the validity of owner-managers’ assessment of employees’ performance. There is a possibility that owner-managers’ responses were biased when providing overly positive assessments of their employees’ in-role performance and extra role behaviours. Potential for additional bias applies to the selection of owner-managers who decided to participate in the research. It is possible</p>

	<p>alpha of .91.</p> <p><i>Psychological ownership of the job</i>: 4-item measure translated in to German, with a Cronbach alpha of .88. Family business owner-managers' <i>Leadership styles</i> assessed by non-family employees on Avolio and Bass' (1995) Multi-Factor Leadership Questionnaire. Testing the scale's internal validity yielded Cronbach's alphas for transformational, transactional and passive leadership of .96, .76 and .85 respectively.</p> <p>To measure <i>affective organisational commitment</i> Allen and Meyer's (1990) scale was used - German version had already been validated. Contains 5 items on a Likert scale ranging from strongly disagree (1) to strongly agree (7). Cronbach's alpha of .90.</p> <p>A global rating of employees' <i>job satisfaction</i> using two items from a validated translated survey. Cronbach's alpha for this measure was .82.</p> <p><i>Turnover intentions</i> were assessed by three items compiled by Adams and Beehr (1998). Rated on 7 point Likert scale ranging from 1 (disagree strongly) to 7 (agree strongly). The internal reliability was alpha of .91.</p> <p>Family business owner-managers independently provided an evaluation of employees' <i>in-role performance and OCB</i>. 5 items were used from 1 (never) to 5 (always). The 5 item measure displayed an alpha of .90.</p> <p>One factor model was used for <i>OCB</i>, for which the internal reliability coefficient for <i>OCB</i> was .90.</p> <p><b>Setting(s):</b> Family-owned and managed businesses in South-West Germany.</p> <p><b>Dates:</b> Not reported</p>	<p>organisation among employees were selected.</p> <p><b>Number and characteristics of participants:</b> Received responses from 50 out of 52 owner-managers and 229 non-family employees, of which they could match 224. On average business had 9.8 employees, all employed in white collar jobs. The mean age of participating employees was 39 years (SD = 12.04 years, range 18-64). Average length of tenure was 9.1 years (SD = 10.47 years) and 76% of the employees were female.</p> <p><b>Response rate (if relevant):</b> 47%</p>	<p>two leadership styles were not significant when correlated with psychological ownership of the job. There were no significant differences between the standardised regression coefficients of transformational leadership on psychological ownership of the organisation and on psychological ownership of the job. HLM results suggested that the link between transformational leadership and affective commitment, job satisfaction and turnover intentions were partially mediated by psychological ownership of the organisation and psychological ownership of the job. Full mediation effects between both types of psychological ownership and extra-role behaviour. These were all statistically significant except that for psychological ownership of the job and extra-role behaviour. Psychological ownership was a partial mediator between transactional leadership and affective organisational commitment, job satisfaction as well as turnover intentions. Psychological ownership of the organisation partially mediated the relationship between passive leadership and affective commitment, job satisfaction and turnover intentions. They did not find support for any mediation effects of the psychological ownership of the job in the relationship between passive leadership and the attitudinal behavioural variables.</p>	<p>that owner-managers who decided to participate perceived their followers' performance as superior.</p> <p><b>Limitations identified by review team:</b> Generalisability of results as research conducted in one area of Germany. Also sample were 76% female - would men have similar views. No information of ethnicity of the sample.</p> <p><b>Evidence gaps/recommendations for future research:</b> Longitudinal study designs could provide additional insight into the causal effect chain. To strengthen credibility of small family business research by obtaining higher response rates, future research needs to find efficient ways to motivate owner's willingness to participate in such studies.</p> <p><b>Source of funding:</b> Authors received no financial support for the research and/or authorship of this article.</p>
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## Bernstrøm et al. (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Bernstrøm, Vilde Hoff and Lars Erik Kjekshus</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Bernstrøm, Vilde Hoff and Lars Erik Kjekshus 2012</p> <p>Leading during change: the effects of leader behaviour on sickness absence in a Norwegian health trust BMC Public Health 12 p.799</p> <p><b>Quality rating:</b> ++</p>	<p><b>Setting(s):</b> The organisation is a large Norwegian health trust with more than 4,000 employees in several locations.</p> <p><b>Research aims/questions:</b> How the line manager's behaviour relates to sickness absence in a Norwegian health trust during major restructuring.</p> <p><b>Overall research approach:</b> Survey and sick register</p> <p><b>Data collection method:</b> Cross-sectional survey. Employees were asked to assess their line manager's behaviour through a questionnaire developed between the University of Oslo and SINTEF research institute as part of a healthcare leadership evaluation. The questionnaire was first developed as part of a top healthcare management program in Norway.</p> <p>The survey consisted of 91 items, formulated as statements, in addition to background variables. Participants were asked to evaluate their line manager's behaviour by assessing, on a 5-point Likert scale, to what degree they agreed with the statements, from 1 ('to a small extent') to 5 ('to a large extent'). The respondents were also given the option to answer 'do not know' or 'not relevant.' The present study uses the data collected</p>	<p><b>Sample population:</b> The individual respondents to the questionnaire were employees from 35 departments at three divisions (surgery, medicine, and nursing) and two support centres (laboratory and picture diagnostics). The departments were selected because they were all influenced by the changes and were of an appropriate size to maintain anonymity. The two centres were created during the restructuring by merging smaller units. The division of nursing was created by moving tasks and responsibilities relating to hospital beds from the surgical and medical units into the new division. In this way, the new organisational structure particularly affected the three divisions.</p> <p><b>Sampling approach:</b> Email contact</p>	<p><b>Description of analysis method:</b></p> <p>The authors created a scale for each leader behaviour by taking the average of the items included for that specific behaviour type. This was done for each individual. Aggregated department scales were then created by averaging the individual scales, giving five continuous variables ranging from 1 to 5. Finally, these variables were standardized for the linear analyses.</p> <p>The unit of analysis was all registered sickness absence measured in days of absence, divided by man-days, giving a department average of days missed. The variables were standardized for the linear analyses. More precisely, the variable includes the number of weekdays (Monday-Friday) registered as missed due to own ill health, from day one and until the person returned or no longer qualified for sickness absence benefits. In cases of part-time sickness absence, when a full day was not missed, only the appropriate portion of the day was counted as missed (eg, 25%, 50%, etc.).</p> <p>To extract appropriate latent variables from the data material, the data were randomly divided in two. An exploratory factor analysis was conducted on the first half and a confirmatory factor analysis was conducted on the second. The factors were also evaluated based on their theoretical meaningfulness and appropriateness for the study's purpose. A factor was kept if <math>\alpha &gt; .70</math>. The analyses were weighted by department size.</p> <p><b>Key findings relevant to the review:</b></p> <p>This study shows that much of the variance in sickness absence between departments during organisational change can be predicted by the line manager's behaviour prior to change. Four leader behaviours were related to employee sickness absence. However, contrary to our expectations, social support was related to higher, not lower, levels of absence.</p> <p><b>Individual level leader evaluation:</b> social support (mean = 3.38, SD = 1.24, skewness = -0.44), task monitoring (mean = 3.05, SD = 1.04, skewness = -0.13), negative leader behaviour (mean =</p>	<p>Limitations identified by author:</p> <p>When the questionnaire was executed, February 2008, the health trust was in the starting phase of organisational change, as described above. Though this study looks at some specific changes occurring in 2008, it is important to add that the health trust had been in a state of change for quite some time prior to the study period.</p> <p>The low response rate might be due to the fact that questionnaires were administered by email and that most employees had limited access to email during the workday, presenting a possibility of non-response bias</p> <p>Authors were unable to directly control for factors such as age, work tasks, and education, as these data were deemed as</p>

	<p>during the leadership evaluation in 2008; however, it uses only those questions relating to the line manager's behaviour towards employees. <b>Leader evaluation:</b> social support (<math>\alpha = .94</math>), task monitoring (<math>\alpha = .89</math>), negative leader behaviour (<math>\alpha = .92</math>), problem confrontation (<math>\alpha = .93</math>), loyalty to supervisors (<math>\alpha = .73</math>)</p> <p>The data on sickness absence were collected from the health trust's own register. Sickness absence was measured twice, average sickness absence from 1-6 months after the survey, and 7-18 months after the survey. The times were chosen based on their relations to different parts of the change process. The questionnaire was administered shortly after the establishment of the nursing division as an independent unit, allowing for the use of flexible beds. Seven months after the questionnaire was administered, the health trust moved to its new premises. Due to concerns about the participants' anonymity, the statistics on sickness absence were aggregated to department level by the health trust before they were given to the authors. Employee responses were aggregated to department level as well and analysed differences in level of sickness absence between departments. Wave analysis was conducted controlling for response bias, comparing those who responded before a reminder was sent out with those who responded after. No significant differences were found for any of the variables (<math>p &gt; 0.05</math>).</p> <p><b>Dates:</b> February 2008</p>	<p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Among the respondents to the questionnaire, 86% were female, about 10% had managerial responsibilities, about 14% were doctors, and 45% were nurses or midwives. Participants ranged in age from 21 to 69, with an average age of 44. In total, 62% of respondents worked full time (37.5 hours a week or more) and 11% worked less than 70%.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> In all, 1008 employees answered the questionnaire, an estimated response rate of 40% (calculated by dividing the number of usable responses by the number of employees at the departments). The response rate was higher in the smaller divisions than in the larger. The youngest age group (below 29) had a significantly lower response rate (<math>p &lt; 0.05</math>).</p>	<p>1.74, SD = 0.81, skewness = 1.40), problem confrontation (mean = 3.62, SD = 1.11, skewness = -0.67), loyalty to supervisors (mean = 4.14, SD = 0.77, skewness = -0.97). N = 1008</p> <p><b>Department level leader access:</b> social support (mean = 3.39, SD = .46, skewness = -0.28), task monitoring (mean = 3.15, SD = .44, skewness = .48), negative leader behaviour (mean = 1.71, SD = .40, skewness = 2.04), problem confrontation (mean = 3.69, SD = .48, skewness = -.70), loyalty to supervisors (mean = 4.03, SD = .34, skewness = -1.35). N = 35</p> <p><b>Sickness absence:</b> Time 1 (mean = 6.37, SD = 3.80, skewness = .23), time 2 (mean = 6.77, SD = 3.96, skewness = .33)</p> <p>At time 1, three leader behaviours were significantly related to sickness absence. Task monitoring (<math>\beta = -0.69</math> <math>p &lt; 0.01</math>) was related to lower levels of absence, whereas loyalty to superiors (<math>\beta = 0.36</math> <math>p &lt; 0.05</math>) was related to higher absence. Social support was also related to higher absence (<math>\beta = 0.69</math> <math>p &lt; 0.01</math>). An interaction between social support and problem confrontation was identified which was correlated to lower absence. The interaction did not remain significant when controlling for division affiliation (<math>\beta = -0.26</math> <math>p = 0.058</math>).</p> <p>At time 2, three leader behaviours were significantly related to sickness absence. Loyalty to superiors (<math>\beta = 0.42</math> <math>p &lt; 0.05</math>) had a positive relationship to absence. The interaction variable between social support and problem confrontation (<math>\beta = -0.34</math> <math>p &lt; 0.05</math>) remained significant, even when controlling for division affiliation.</p> <p>Social support is significantly related to higher absence at both times when problem confrontation is one standard deviation below average (<math>\beta = 0.72</math> and <math>\beta = 0.59</math> <math>p &lt; 0.05</math>). Social support is not significantly related to absence at either time point when problem confrontation is one standard deviation above average. Problem confrontation is significantly related to lower absence at both times when social support is one standard deviation above average (<math>\beta = -1.02</math> and <math>\beta = -0.99</math> <math>p &lt; 0.01</math>). Problem confrontation is not significantly related to absence at either time point when social support is one standard deviation above average. This analysis indicates that social support's effect is no longer present when the leader also displays high levels of problem confrontation. Similarly, problem confrontation seems to be beneficial only if the leader also displays supportive behaviour.</p>	<p>jeopardizing respondents' anonymity.</p> <p>The relationship between leader behaviour and sickness absence might therefore be mediated by both motivation and ill health.</p> <p>Aggregating leader behaviour to department level also limits the authors' ability to make conclusions at an individual level.</p> <p>The study did not use a previously validated questionnaire to measure leader behaviour; instead, the authors used data collected as part of a leader evaluation.</p> <p><b>Limitations identified by review team:</b> Data collected via self-response (for leader behaviour) Recruitment of participants not fully described</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> Not reported</p>
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Beutell (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Beutell, N.J.</p> <p><b>Year of publication:</b> (2010)</p> <p><b>Citation:</b> Beutell, N.J. (2010). Health, supervisory support, and workplace culture in relation to work-family conflict and synergy, <i>Psychological Reports</i>, 107, 3-14.</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> Research was examining health, supervisory support and workplace culture as predictors of work interfering with family, family interfering with work and work-family synergy. One goal of the present study was to consider the prediction of work-family synergy in addition to the other two more widely used interference measures, work interfering with family and family interfering with work. This study also wanted to demonstrate the importance of examining informal organisational support in decreasing work-family conflict and turnover intentions.</p> <p><b>Research approach:</b> Cross-sectional self-report</p> <p><b>Data collection:</b> Phone interviews.</p> <p><b>Method(s):</b> Phone interviews were completed with a nationwide cross section of employed adults. An incentive of US \$25 was offered for participation. Each of the measures used were developed by the Families and Work Institute (2002). Many measures have been used previously.</p> <p><i>Work interfering with family, family interfering with work and work-family synergy:</i> Factor analysed to the work and family items from the National Study of Changing Workforce for all wage and salary participants. 14 items were found to converge on the 3 factors.</p>	<p><b>Sample population:</b> Participants in the 2002 National Study of the Changing Workforce</p> <p><b>Sampling approach:</b> Nationwide cross-section of employed adults. In households with more than 1 eligible participant, they were randomly selected.</p> <p><b>Inclusion/exclusion criteria:</b> Sample eligibility was limited to people who were 18 years of age or above, employed at or operating a business in the civilian workforce, residing in the contiguous 48 states and living in a non-institutional residence.</p> <p><b>Number and characteristics of participants:</b> 3,504 interviews were completed. The present sample included 2,796 wage and salary workers including 1,361 women (48.7%) and 1,435 men (51.3%). The average length of time with current employer or in current line of work was 7.6 years (SD = 8.4). The largest</p>	<p><b>Brief description of method and process of analysis:</b> Factor analyses were conducted to see if the items in the scale were correlated. Regression analyses were then used to test the hypotheses.</p> <p><b>Key findings relevant to the review:</b> Mental health symptoms were positively and significantly related to work interfering with the family (<math>\beta = .29, p &lt; .01</math>) and family interfering with work (<math>\beta = .28, p &lt; .01</math>), while mental health symptoms were negatively related to work-family synergy (<math>\beta = -.12, p &lt; .01</math>; ie as mental health symptoms decreased, work-family synergy increased). As self-rated health decreased, work interfering with family (<math>\beta = -.09, p &lt; .01</math>) and family interfering with work (<math>\beta = -.1, p &lt; .01</math>) increased, but as health scores</p>	<p><b>Limitations identified by author:</b> Although the data came from a well-conducted national probability sample, all the measures were self-reports collected as ratings in one interview. Such self-reports, cross sectional designs tend to inflate correlations and causal inferences are not possible, including the direction of possible causality.</p> <p>Cross-sectional self-report measures do not afford the ability to rule out the fact that measured constructs share a common cause. A portion of the variance in any observed relation is likely to be spurious.</p> <p>Cross-sectional designs to assess synergy are subject to temporal effects in work and family issues that vary by time of day or day of week.</p> <p>There were no external or independent behavioural measures from either the work or family domain.</p> <p><b>Limitations identified by review team:</b> Different occupations may be affected more by workplace culture and work-family synergy.</p> <p>Other factors that that could influence this not measured, eg family size etc.</p> <p>Effect of providing the incentive - does that have an effect on participation?</p> <p><b>Evidence gaps/recommendations for future research:</b></p>

	<p><b>Mental Health Index</b> This was derived through a principal components analysis of items measuring stress and depression. Respondents indicated how frequently they experienced minor health problems, sleep problems affecting job performance, feeling nervous or stressed, unable to control important things in life etc. the scale came as a standardised score with a mean approximating zero and a SD of 1. High scores indicate poor mental health. (Cronbach's alpha = .78). <b>Self-rated health:</b> measured by a 1 item scale (on a 4 point Likert scale), high scores indicate better physical health. <b>Supervisory support:</b> measured using a 9 item scale with a 4 point response. The items were summed so high scores indicated more support. Coefficient alpha was .90. <b>Work-family Culture: Career Concerns:</b> This variable was measured with a 4 item scale on which respondents rated how much they believed attempts to balance work and family responsibilities would negatively affect their careers. Coded so that higher numbers indicated higher support (ie a more family-supportive workplace). <b>Setting(s):</b> Nationwide <b>Dates:</b> October 2002-June 2003.</p>	<p>proportion of respondents worked for a private for-profit business (67.1%), 22.1% for government, and 9.8% worked for a non-profit organisation (accounting for 99% of the sample). The mean age of the participants was 41 years (SD = 12.9). <b>Response rate (if relevant):</b> Of the telephone numbers called, 3,578 were determined to represent eligible households and interviews were completed with 3,504 (a 98% completion rate).</p>	<p>increased, the synergy of work and family also increased (<math>B = .12</math>, <math>p &lt; .01</math>). The hypothesised relationship between supervisory support and work interfering with family (<math>B = -.38</math>, <math>p &lt; .01</math>) was strongly supported. However, the relationship between supervisory support and family interfering with work was significant (<math>B = .09</math>, <math>p &lt; .01</math>). This finding indicated that increased family to work interference is reported as supervisory support increased. The hypothesised relationships between supervisory support and work-family synergy were confirmed (<math>B = .19</math>, <math>p &lt; .01</math>). Career concerns were negatively related to work interfering with family (<math>B = -.31</math>, <math>p &lt; .01</math>), positively related to work-family synergy (<math>B = .10</math>, <math>p &lt; .01</math>), but not statistically significant for family interfering with work (<math>B = -.01</math>, ns)</p>	<p>While the bidirectional effects of work interfering with family and family interfering with work are well-documented, more research needs to be done on the beneficial, synergistic effects of participating in multiple roles. More research is needed on self-rated and mental health, and by extension, other individual difference factors such as personality, as well as the organisational antecedents and consequences of role conflict and work-family synergy. <b>Source of funding:</b> Not reported</p>
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Bishop et al. (2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Bishop, C.E., Squillace, M.R., Meagher, J., Andersonm W.L., and Wienerm J.M.</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Bishop, C.E., Squillace, M.R., Meagher, J., Andersonm W.L., and Wienerm J.M. (2009). Nursing home work practices and nursing assistants' job satisfaction. <i>The Gerontologist</i>, 49, 611-622.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The purpose of the study was to estimate the impact of nursing home work practices, specifically compensation and working conditions, on job satisfaction of nursing assistants employed in nursing homes.</p> <p><b>Research approach:</b> Cross-sectional analysis of survey</p> <p><b>Data collection:</b> A telephone National Survey of Nursing Assistants.</p> <p><b>Method(s):</b> Nursing assistants reported their satisfaction with their jobs, the dependent variable on a 4 point scale.</p> <p>Independent variables were developed to reflect job characteristics, personal characteristics and job alternatives for each individual worker based on the responses of the nursing assistant and the responses of their employer.</p> <p>Compensation -whether they received extra pay for working on holidays, paid personal days and paid sick-leave.</p> <p>Job Demands - A variable representing licensed nursing hours per resident day was included to assess whether nursing assistants were more satisfied when there were more registered nurses and licensed practical nurses to supervise and support resident care.</p> <p>Nursing assistants also reported directly on job demands in their responses on two questions concerning whether they had enough time to meet the needs of the residents for assistance with ADLs and whether they had enough time to perform other assigned tasks.</p> <p>Supervision and co-workers - Measured using the proportion of licensed nursing hours at the nursing home supplied by RN's, the proportion of licensed nursing hours supplied by contract RNs and LPNs, and an indicator set if the director had been at the nursing</p>	<p><b>Sample population:</b> Study participants were incumbent certified nursing assistants surveyed by telephone in the 2004 NNAS, the first national survey of nursing assistants working in nursing homes. Nursing assistant sample was drawn from all nursing assistants working at 790 nursing homes drawn at random from the 1,500 nursing homes in the sample for the 2004 National Nursing Home Survey (NNHS).</p> <p><b>Sampling approach:</b> Sampling methods described in a different article</p> <p><b>Inclusion/exclusion criteria:</b> Nursing assistants were eligible to participate in the NNAS if they were paid to provide assistance with activities of daily living, were certified (or in the process of certification), worked at least 16 hours a week and</p>	<p><b>Brief description of method and process of analysis:</b> Ordered logistic regressions were undertaken</p> <p><b>Key findings relevant to the review:</b> The study found that supervisors support was one of a number of factors that positively affected job satisfaction (<math>p &lt; .01</math>). Nursing assistants with higher hourly wages were more likely to be satisfied.</p> <p>Nursing assistants with higher hourly wages were more likely to be satisfied. They were significantly less likely to be dissatisfied when the nursing home provided paid personal days and paid sick leave. Retirement benefits and extra pay for working in holidays did not affect satisfaction. Their hours per resident day in the nursing home (job demands) were positively associated with satisfaction. An increase in licensed nurse hours per resident day increased dissatisfaction. Those who reported not having enough</p>	<p><b>Limitations identified by author:</b> The workplace survey (NNHS) that was combined with the satisfaction survey (NNAS) was not designed to provide information on the many aspects of human resources management practices that are likely to affect nursing assistant satisfaction.</p> <p>Working conditions represented by staffing ratios, supervisor qualifications, and co-worker characteristics can differ from unit to unit.</p> <p>Variables used here were measured at the nursing home level rather than for the assistant's unit.</p> <p>It is a challenge for any workplace to capture the philosophy of care and management held by nursing home leadership and implemented on nursing home units, which sets out the context for how work is done and how nursing assistants feel about their work. This</p>

	<p>home for less than 2 years. Also used responses to the NNAS question asking whether individual supervisors were a reason why they remained employed in their particular jobs. Co-worker variables were the proportion of nursing assistant hours supplied by contract workers rather than direct hours and the proportion of nursing assistants whose first language was not English. NNAS question about whether jobs gave them opportunity to work in teams was also included as a direct reflection of their experience with co-workers - but this can indicate management practices as well.</p> <p>Job design and organisational context - included variables reflecting nursing assistants' perceptions about scope for independent decision making, their involvement in challenging work, whether they were assigned to the same residents or were given rotating resident assignments, whether their supervisors encouraged them to discuss resident care and well-being with resident's families and whether they had been required to work overtime in the past month. Nursing home's response about how often nursing assistants attended care plan meeting was used to capture nursing assistant involvement in care planning. The variable of trays and food delivery checking was included in the model as a proxy for the nursing home's early commitment to culture change. Looked at whether the assistant felt respected, rewarded and valued by the employer.</p> <p>Personal Characteristics - age, gender, race and ethnicity, education, immigrant status, marital status, and care giving responsibilities were also collected.</p> <p>Local Labour Market Conditions - urbanisation category, the county unemployment rate were used, and the availability of nursing assistant jobs in the local area.</p> <p><b>Setting(s):</b> Nursing homes, USA  <b>Date:</b> 2004</p>	<p>were employees of the nursing home (not contract employees).</p> <p><b>Number and characteristics of participants:</b>          From the 582 eligible facilities that agreed to take part in the NNAS, 4,542 nursing assistants were sampled, of these 4,274 were eligible and 3,017 responded. The sample used in this analysis consisted of 2,252 of the original 3,017 respondents who were still working at the nursing home at the time of the interview and who provided complete information of the variables of interest.</p> <p>Report notes that a description of the characteristic of the workforce is available elsewhere.</p> <p><b>Response rate (if relevant):</b>          70.6%</p>	<p>time for their tasks were much more likely to be dissatisfied.</p> <p>Nursing assistants who reported that their supervisors were a reason to stay in their jobs had a much lower estimated probability of dissatisfaction than those who answered this question in the negative: .119 rather than .307.</p> <p>Jobs that provided opportunity for teamwork were significantly more satisfying for nursing assistants.</p> <p>Nursing assistants were more satisfied when they regarded their work as challenging and when supervisors encouraged them to discuss resident care with resident's families.</p> <p>Those who reported feeling respected and rewarded for their work were less likely to be dissatisfied with their jobs (.132 vs .308) as were those who reported that their employer valued their work (.163 vs. .382).</p>	<p>critical organisational policy variable van only be observed indirectly here, through worker's reports of respect and good working relationships.</p> <p><b>Limitations identified by review team:</b>          Items used to measure one variable, could measure something different (ie co-worker support and management practices)          Self-reporting bias.</p> <p><b>Evidence gaps/recommendations for future research:</b>          NR</p> <p><b>Source of funding:</b>          Funding was provided by the Office of Disability, Aging and Long-Term Care Policy, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services through a subcontract from RTI International.</p>
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Bogo et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Bogo , Marion, Jane Paterson, Lea Tufford and Regine King</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Bogo , Marion, Jane Paterson, Lea Tufford and Regine King 2011 <i>Supporting front-line practitioners' professional development and job satisfaction in mental health and addiction</i> Journal of Interprofessional Care 25 pp. 209-214</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> Centre for Addiction and Mental Health (CAMH) in the city of Toronto - Canada's largest mental health and addiction teaching hospital, and one of the world's leading research centres</p> <p><b>Research aims/questions:</b> This study aims to explore practitioners' perceptions of their professional work in a large urban centre for addiction and mental health that has undergone organisational change, as a result of which clinical supervision was no longer provided by senior staff in their own profession. Instead clinical supervision was now provided by program managers or specially designated advanced practice nurses and clinicians from various</p>	<p><b>Sample population:</b> 611 front-line practitioners: 400 nursing staff, 123 social workers, 30 occupational therapists, 25 recreational therapists, 31 caseworkers/child and youth workers and 2 stress management therapists</p> <p><b>Sampling approach:</b> Following approval from the Research Ethics Board at CAMH, participants were recruited through email announcements, posters, flyers, and presentations at team and discipline meetings.</p> <p><b>Inclusion/exclusion criteria:</b> Physicians are not part of the supervision arrangements and hence were not recruited for the study.</p> <p><b>Number and characteristics of participants:</b> 76 front-line practitioners participated in 13 focus groups from a range of professions. Groups comprised up to 13 participants (where only one participant attended, an interview was held) and consisted of members from the</p>	<p><b>Brief description of method and process of analysis:</b> After three focus groups, three researchers independently read and coded the same three transcripts using brief descriptors identified from the phenomena studied. They met to compare coding, resolve discrepancies, and worked iteratively to develop a preliminary coding framework. The data were managed by means of NVivo qualitative analysis software.</p> <p>Four more focus groups were conducted and analysed by two researchers using the coding framework. The constant comparison method (Charmaz, 2006) was used to refine and organize codes into categories for an expanded framework. It quickly emerged that clinicians spoke about supervision as only one of other interacting factors that affected their sense of professional competence, development, and job satisfaction. Accordingly, subsequent focus groups also inquired in more depth about these factors; the nature of the client population, the team, and the organisation. During the analysis, it emerged that some nurses held perceptions of clinical supervision different from those expressed by most participants. Consequently, increased efforts were made to recruit nurse participants to explore their perceptions in greater depth. Five additional focus groups and one individual interview were conducted, transcribed, and analysed. Although all transcripts were coded it became apparent that saturation of categories was achieved after coding the first three of these. Emerging findings were discussed with an advisory group of advanced practice nurses and clinical supervisors.</p> <p><b>Key findings relevant to the review:</b> Clinicians spoke about supervision as only one of other interacting factors that affected their sense of</p>	<p><b>Limitations identified by author:</b> This study contains a number of limitations. Importantly, the voluntary and self-selected nature of the participants suggests caution in generalizing the findings to the front-line population and to other settings. Other participants with different experiences in their respective organisations may offer other insights and opinions. In addition, this study offers practitioners' perceptions of their experiences, which may differ (ie due to memory recall biases) of their actual experiences.</p> <p><b>Limitations identified by review team:</b> Demographics of participants not reported. A greater number of participants may have been of benefit A greater proportion of nurses was recruited due to the emergence of view that differed from those in other roles - may have biased the findings as they are generalised. The make-up of and questioning</p>

	<p>professions.</p> <p><b>Overall research approach:</b> Focus groups and constant comparison method</p> <p><b>Data collection method:</b> 13 focus groups lasting 1.5-2 h were held throughout CAMH. Two members of the research team (not employed at CAMH) led the discussions, following a semi-structured interview guide. Questions were asked about participants' perceptions of clinical supervision, experiences with supervision in the setting, and organisational impacts on supervision.</p> <p><b>Dates:</b> 2008-2009</p>	<p>same profession in different programs, members of the same program from different professions, and members from both the same program team and same profession. Group composition was determined by participants' scheduling preferences.</p> <p>Focus group attendees: 22 nurses, 29 social workers, 5 occupational therapists, 10 recreational therapists, 9 caseworkers/child and youth workers and 1 stress management therapist.</p>	<p>professional competence, development, and job satisfaction.</p> <p>Reactions to new supervisor arrangements varied.</p> <p>Negative reactions were related to experiencing supervisors as more similar to managers than to clinical supervisors. A nurse commented: 'I'm told what I'm supposed to be doing and what I'm not supposed to be doing . . . rather than discussion . . . it's more a performance review.'. Other participants, however, experienced their current supervision arrangements more positively than before: 'It's more about your feelings, and your style, and what you're doing rather than the focus before was on planning care for the patient.'</p> <p>The emotional climate of supervision was of importance, appreciating a 'safe . . . confidential holding environment' to process the personal impact of practice experiences. Participants described disclosing their feelings and struggles about the work and its relationship to their internal dynamics and reactions, cultural or gender biases, and gaining perspective about their sense of self-competence. Also, active involvement of supervisees was valued where concerns and recommendations for improvement were part of a reciprocal partnership. Giving and receiving feedback was mutual and modelled a parallel process with clients. One social worker stated that 'ideal supervision comes from someone who is not also responsible for your performance appraisal'.</p> <p>Clinical supervision emerged as only one component that affected perceived competence, development, and job satisfaction.</p>	<p>in focus groups changed over time and so may not be directly comparable.</p> <p>Focus group methodology can suffer if there are particularly dominant participants</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> Not reported</p>
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Boot et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis Results	Notes by review team
<p><b>Authors:</b>                      Boot , Cécile R. L., Lando L. J. Koppes, Seth N. J. van den Bossche, Johannes R. Anema, Allard J. van der Beek</p> <p><b>Year of publication:</b>                      2011</p> <p><b>Citation:</b>                      Boot , Cécile R. L., Lando L. J. Koppes, Seth N. J. van den Bossche, Johannes R. Anema, Allard J. van der Beek 2011 <i>Relation Between Perceived Health and Sick Leave in Employees With a Chronic Illness</i> Journal of Occupational Rehabilitation 21 pp. 211-219</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b>                      A random selection of workplaces in the Netherlands.</p> <p><b>Research questions:</b>                      To improve work participation in individuals with a chronic illness, insight into the role of work-related factors in the association between health and sick leave is needed. The aim of this study was to gain insight into the contribution of work limitations, work characteristics, and work adjustments to the association between health and sick leave in employees with a chronic illness. A secondary aim was to gain insight into differences and similarities between various chronic illnesses with regard to the contribution of work limitations, work characteristics, and work adjustments to the association between health and sick leave.</p> <p><b>Overall research approach:</b>                      Cross-sectional analysis of a survey</p> <p><b>Data collection method and coverage:</b>                      Data were collected by means of Paper and Pencil Interviewing and Computer Assisted Web Interviewing. The participants were free to choose whether they</p>	<p><b>Sample population:</b>                      All employees with a chronic illness, between 15 and 65 years of age (n = 7,748) were selected from The Netherlands Working Conditions Survey.</p> <p>Data were obtained from The Netherlands Working Conditions Survey (NWCS), which is a large scale periodical investigation into the working conditions of employees in the Netherlands, for which random sampling from the 'jobs register' was carried out by Statistics Netherlands. This database contains information on all jobs falling under the Dutch Employee Benefit schemes that are liable to income tax. The NWCS focuses on employees aged between 15 and 65 years of age. Self-employed individuals are excluded from the sampling framework.</p> <p><b>Sampling approach:</b>                      Random sampling</p> <p><b>Inclusion/exclusion criteria:</b>                      Only the 7,748 (34%) participants who reported at</p>	<p><b>Analysis method:</b>                      All analyses were performed twice. First, all employees with a chronic illness were analysed as one group, and then the same analysis was performed separately for all chronic illness groups containing at least 500 cases.</p> <p>Sick leave (ie sickness absence percentage) was the dependent variable in all analyses. Perceived health, work limitations, work characteristics, and work adjustments were the independent variables. Block-wise linear regression analyses were performed with the Enter method. The first block contained perceived health with gender, age and level of education as confounders; the second block contained the limitations at work, the third block contained all work characteristics, and the fourth block consisted of the work adjustment variable. In block 1, the association between health and sick leave was examined (B 1). In block 2, the association between health and sick leave was examined again (B 2), and the difference between B 2 and B 1 for health was calculated (<math>\Delta B 2-1</math>). By adding blocks 3 and 4, the Bs were calculated in a similar way, thus leading to B 3, B 4, <math>\Delta B 3-2</math> and <math>\Delta B 4-3</math> for the health variables. A change in B was considered to be relevant if the B had a P value lower than 0.05 and the change in B was at least 10%.</p> <p><b>Key findings relevant to the review:</b>                      Mean social support by supervisor = 2.8, SD = 0.7. (Scale = 1 (little) to 4 (much)).</p> <p>More sick leave was associated with a permanent contract (compared to a temporary contract), never working in evenings or nights, never working</p>	<p><b>Limitations identified by author:</b>                      The database is that it is cross sectional - implies that cause cannot be distinguished from consequence. Lower health status may be the cause of sick leave, but episodes of sick leave, or work disability may lead to lower perceived health, and even mortality. Self-reported data.</p> <p>Relying on respondents to report the cause of sick leave will lead to an under-estimation of sick leave related to their chronic illness.</p> <p>The use of sick leave percentage in the current analyses implies that we cannot distinguish between short-frequent and long term sick leave. This distinction may be of added value, because it has been found that the association between sick leave and low health status and</p>

	<p>completed the paper and pencil questionnaire (which was sent to them by post), or accessed the questionnaire on the internet by means of a personal code. Pilot studies were conducted before the start of the actual study to evaluate the length and clarity of the questionnaire.</p> <p>Survey covered demographics, chronic illness, perceived health, limitations at work, work characteristics (inc. social support from supervisor (average score of 4 items, range 1-4)), work adjustments and sick leave. The responses are weighed for gender, age, professional group, ethnic origin, level of urbanization, geographical region, and level of education, to obtain a representative sample of the distribution of these factors in all employees in The Netherlands. In all cases, weight coefficients and standard deviations fall within acceptable limits.</p> <p><b>Dates:</b> November/December 2007</p>	<p>least one chronic illness were selected for analysis in the present study.</p> <p><b>Number and characteristics of participants:</b> The sample consisted of 7,748 employees with a chronic illness (average age 43 years - SD =12 - 49% female). Low/middle levels of education were the most common (73%). Disorders of the neck or back had the highest prevalence (28%), followed by migraine and severe headache (16%), problems with arms and hands (15%), and asthma/COPD (15%). Sixty-one per cent reported at least one episode of sick leave in the past 12 months, and the average number of episodes was 1.6. The mean sick leave was 7.5%.</p> <p><b>Response rate:</b> Response rate of whole survey = 34%, unclear what response rate was of the desired sub-sample.</p>	<p>overtime, less autonomy, a higher emotional workload, less social support from the supervisor, and more interference of home in the work situation.</p> <p>Adding the work characteristics to the multivariate model resulted in no relevant change (B change &lt; 10%) in the association between perceived health and sick leave, but the association between limitations at work and sick leave fell by 14.3%.</p> <p>Adding work characteristics to the multivariate model resulted in a relevant decrease in the association between perceived health and sick leave in the groups with problems with back or neck, migraine or severe headache, asthma, bronchitis or emphysema, stomach or bowel disorders, and mental disorders.</p> <p>Realised work adjustments only resulted in a relevant decrease in the association between health and sick leave in the group with complaints of legs/feet.</p> <p>Experiencing more limitations at work because of a chronic illness was significantly associated with more sick leave in all chronic illness groups. Adding work characteristics to the model decreased this association within the groups with problems with back or neck, asthma, bronchitis or emphysema, problems with legs or feet, stomach or bowel disorders, cardiovascular disease, and mental disorders.</p> <p>When work adjustments were added to the model, the Bs between sick leave and work limitations and work characteristics changed from 4.5 to 3.4 for work limitations and from 2.1 to 1.9 for temporary contract and from -0.8 to -1.0 for supervisor support. Delta B of supervisor support (%) = 23.5.</p>	<p>mortality applied to long-term sick leave in particular</p> <p><b>Limitations identified by review team:</b> Whilst response rate for whole survey is given, it is not possible to ascertain what the response rate of the desired subsample was. Recruitment of participants unclear.</p> <p><b>Evidence gaps/recommendations for future research:</b> More longitudinal research is needed to determine the direction of the associations, and to distinguish between causes and consequences.</p> <p><b>Source of funding:</b> N/A</p>
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Borgogni et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Borgogni, Laura, Silvia Dello Russo and Gary P. Latham</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Borgogni, Laura, Silvia Dello Russo and Gary P. Latham 2011 <i>The Relationship of Employee Perceptions of the Immediate Supervisor and Top Management With Collective Efficacy</i> Journal of Leadership and Organisational Studies 18(1) pp. 5-13</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> Main mail delivery company in Italy</p> <p><b>Research aims/questions:</b> Study examines the relationship between self- and collective efficacy in dealing with job responsibilities and tasks, perceptions of immediate supervisor regarding support and encouragement, perceptions of top management regarding the coordination of different units and communication, and affective organisational commitment and job satisfaction. It examines seven hypotheses, the one relevant for this research is: Hypothesis 6: Employee perceptions of the immediate supervisor are positively related to job satisfaction.</p> <p><b>Overall research approach:</b> Paper-based survey.</p> <p><b>Data collection method:</b> Participants were given a paper-and-pencil questionnaire during normal working hours</p> <p>Cross-sectional survey - The 28-item, 7-point, Likert-type questionnaire (1 = strongly disagree to 7 = strongly agree) administered during normal working hours. This</p>	<p><b>Sample population:</b> Not reported but can infer that it was middle managers at the mail delivery company. This does not give any indication as to population demographics</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> None</p> <p><b>Number and characteristics of participants:</b> The participants were 1,149 middle-level managers from the main mail delivery company in Italy (67% response rate of those involved). The respondents were balanced among men and women (51% and 49%, respectively), and their ages ranged from 26 to 64 years (M = 42.3, SD = 9.1). Their mean tenure with the organisation was 12.7 years (SD = 11.1).</p> <p><b>Response rate:</b> 67%</p>	<p><b>Description of analysis method:</b> A confirmatory factor analysis was conducted with EQS (Bentler, 1995; Bentler &amp; Chou, 1987) on all items. A six factor model was specified based on the assumption that self-efficacy, the PoC facets (immediate supervisor and top management), group collective efficacy, job satisfaction, and organisational commitment are six distinct, albeit correlated, constructs. The results supported the appropriateness of each item related to the hypothesized latent factor, in that it satisfied multiple goodness-of-fit tests, with the exception of the chi-square significance. This was likely due to the large sample size (Bollen &amp; Long, 1993; Mulaik, James, &amp; Van Alstine, 1989). These hypothesized links are shown in a general theoretical model. The model shows that a group's members' perceptions of leadership and their beliefs regarding the collective efficacy of their group are related to job satisfaction and organisational commitment.</p> <p><b>Key findings relevant to the review:</b> As predicted, perceptions of the immediate supervisor were related to job satisfaction. Job satisfaction - mean = 5.08, SD = 1.23 Perceptions of immediate supervisor - mean = 4.82, SD = 1.33 Inter-correlation between job satisfaction and perceptions of immediate supervisor = .56, significant at <math>p &lt; .01</math> Parameter estimate of perception of the immediate supervisor related to job satisfaction = .43 The study also found that employees' positive</p>	<p><b>Limitations identified by author:</b> The cross-sectional nature of the present data, in addition to the moderate to high ICs among variables, does not allow causal conclusions. Measures of organisational behaviour (eg, job performance) were not collected. The current study is based on self-report measures; hence, the responses might suffer from common method variance.</p> <p><b>Limitations identified by review team:</b> Recruitment and selection of participants not reported. Demographic variables given are not sufficient to assess whether the sample is representative. The practical significance</p>

	<p>addressed the following variables: <u>self-efficacy perceptions of leadership</u> (inc. perception of immediate supervisor - Five items measured the perception of the immediate supervisor in assigning goals, supporting coworkers, and encouraging co-workers involvement (eg, ' My immediate supervisor (a) encourages suggestions and ideas from all the members of our group, (b) takes care of our professional development, (c) allows the group to work at its best by providing support' ). Cronbach's <math>\alpha</math> coefficient for this scale was .91), <u>group collective efficacy</u>, <u>job satisfaction</u> (single item was used to measure overall job satisfaction, consistent with Wanous, Reichers, and Hudy (1997). The item was ' Overall, I am satisfied with my job.' Research has shown the validity of this item for measuring overall satisfaction (Berson, Oreg, &amp; Dvir, 2008; Cortese &amp; Quaglino, 2006; Wanous et al., 1997) and <u>affective organisational commitment</u></p> <p><b>Dates:</b> Not reported</p>		<p>perceptions of their immediate supervisor were more strongly related to the formulation of their beliefs regarding their group's efficacy than their perceptions of top management. The perceptions of top management had a mean score of 3.93, (SD = 1.15). The parameter estimate of perception of the immediate supervisor related to job satisfaction was 0.35</p> <p>The posited structural model fit the data: <math>\chi^2(340) = 1625.003</math>, <math>p &lt; .001</math>, Tucker-Lewis Index (TLI) = .92, root mean square error of approximation (RMSEA) = .057 (IC 90% = .055, .060), standardized root mean square residual (SRMR) = .061. A statistical test of the indirect (or mediated) effects among the variables was conducted through Sobel's (1982) approximate significance test. Perceptions of leadership partially mediated the link between self-efficacy and group collective efficacy (total indirect effect: <math>\beta = .20</math>, <math>p &lt; .001</math>).</p>	<p>recommendations perhaps base too much on the paper's conclusions.</p> <p>Unclear whether findings are valid for those not in a middle-management position.</p> <p>Sample population not reported.</p> <p>Job satisfaction variable may be insufficient as it only includes one measure.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Future research should assess behavioural outcomes to examine the predictive validity of the model and test the validity of the model at the group level of analysis to verify whether the psychological processes replicate those at the individual level of analysis.</p> <p><b>Source of funding:</b> N/A</p>
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## Bos et al. (2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Bos, Judith T., Nathalie C. G. M. Donders, Karin M. Bouwman- Brouwer, Joost W. J. Van der Gulden</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Bos, Judith T., Nathalie C. G. M. Donders, Karin M. Bouwman- Brouwer, Joost W. J. Van der Gulden 2009 <i>Work characteristics and determinants of job satisfaction in four age groups: university employees' point of view</i> International</p>	<p><b>Setting(s):</b> A Dutch university</p> <p><b>Research aims/questions:</b> To investigate (a) differences in work characteristics and (b) determinants of job satisfaction among employees in different age groups.</p> <p><b>Overall research approach:</b> A cross-sectional questionnaire</p> <p><b>Data collection method:</b> Survey - An invitation to participate in an online survey was emailed to all 2,995 employees at a Dutch university. They all had the Dutch nationality and had been employed for at least 1 year. Each respondent was given a personal number which enabled them to fill in the questionnaire online. The 142 employees who did not have a personal e-mail address received a paper version at their home address, but it was also made possible for them to respond online. One reminder was sent (by e-mail or in writing) after 10 days.</p> <p>The questionnaire was based on preliminary research in which interviews were held with stakeholders and two rounds of focus groups to enquire about barriers and factors to support work ability in (older) workers. Subsequently, relevant scales were selected from the questionnaire that is used extensively by 'IVA Policy research and advice' in their employee studies (Thunissen and Van der Hoek 2001).</p> <p>The questionnaire contained scales and items</p>	<p><b>Sample population:</b> All 2,995 employees at a Dutch university. They all had the Dutch nationality and had been employed for at least 1 year.</p> <p><b>Sampling approach:</b> An invitation to participate in an online survey was emailed to all 2,995 employees at a Dutch university. Each respondent was given a personal number which enabled them to fill in the questionnaire online. The 142 employees who did not have a personal e-mail address received a paper version at their home address, but it was also made possible for them to respond online. One reminder was sent (by e-mail or in writing) after 10 days.</p> <p><b>Inclusion/exclusion criteria:</b> Only participants who had reported their age were included - 185 participants were excluded</p> <p><b>Number and characteristics of participants:</b> A total of 1,297 respondents returned the questionnaire (43%). Age had been filled in by 1,112 respondents, which</p>	<p><b>Description of analysis method:</b> Analyses were conducted on four age groups: younger than 35, 35-44, 45-54 and 55 years and older. This choice of classification was based on the probable major differences in home situation (eg younger versus older children at home) and work experience (eg duration of professional tenure) between the age groups that were likely to interfere with work characteristics and job satisfaction (Lynn et al. 1996). Data were analysed using SPSS version 17.0 (SPSS Inc., Chicago, IL, USA). Differences in personal characteristics were analysed with X<sup>2</sup>-tests. 'Normal job performance is impeded by poor health' was dichotomized. Impediment was assumed when the respondents indicated to agree 'slightly', 'moderately' or 'greatly' with the proposition. In order to answer the first research question, factorial ANOVA was used to test the correlation between age and several work characteristics while adjusting for sex and job classification</p> <p>In order to answer the second research question, blockwise linear regression analyses were used in each age group separately to investigate variables associated with job satisfaction</p> <p><b>Key findings relevant to the review:</b> Job satisfaction had high mean scores in</p>	<p><b>Limitations identified by author:</b> In this study, all the respondents were employees at a university, a work setting with specific characteristics. This has implications for generalization because autonomy is often very broad in university populations and the majority of jobs are 'white collar'.</p> <p>The results concerned faculty and staff together.</p> <p>However, the proportion of youngest employees was lower than in the university population (17 and 24%, respectively). The same applied to the workers with temporary contracts (16% in the sample and 23% in the population, respectively), who are predominantly found in the youngest age group.</p> <p><b>Limitations identified by review team:</b></p>

<p>Archives of Occupational and Environmental Health 82 pp.1249-1259 <b>Quality rating: +</b></p>	<p>measuring work characteristics (ie job demands and job resources) and other relevant scales and items, which are called 'other (work) characteristics'. Most items were scored on a 5-point scale either to indicate the level of agreement with a statement (1 completely disagree, 5 completely agree) or to measure the extent to which a statement applied to the respondent (1 not at all, 5 to a large extent). Measures of interest: The outcome measure <u>job satisfaction</u> was assessed using a 7-item scale (<math>\alpha = 0.87</math>) with questions such as ' I am satisfied with my job at the moment' , ' I enjoy my work' and ' I would choose exactly the same job again' . <u>Work-home facilitation</u> was assessed with one single item ' I can adjust my working hours well in my private life' . ' Able to relax sufficiently at home from job demands' was measured with one single item. The <u>support from supervisor</u> scale contained 16 items (<math>\alpha = 0.96</math>), eg ' my supervisor inspires and motivates me' and ' my supervisor regularly discusses opportunities for my personal development' . <b>Dates:</b> Not reported</p>	<p>resulted in 37% usable questionnaires. Comparison with the total population showed that the sample gave a fair reflection with respect to age, unit and 'job classification' (faculty versus staff). Differences were present especially among faculty. Slightly more women (37% compared to 33%) and older respondents (<math>\geq 55</math> years) (23% compared to 18%) returned the questionnaire. Thus, (older) lectures were overrepresented (33% compared to 26%), while (younger) PhD students (20% compared to 25%) and faculty with temporary contracts of employment (34% compared to 43%) were underrepresented. <b>Response rate / Representativeness of sample (if survey)</b> 43%, of which <u>37%</u> was usable</p>	<p>all the age groups. Higher age was associated with more <u>job satisfaction</u>: Aged &lt;35 (mean = 3.7, SE = 0.05, %N with mean &gt; 3.5 (ie satisfactory) = 72.4), 35-44 (mean = 3.8, SE = 0.04, %N with mean &gt; 3.5 = 65.9), 45-54 (mean = 3.8, SE = 0.04, %N with mean &gt; 3.5 = 66.9), <math>\geq 55</math> (mean = 3.9, SE = 0.05, %N with mean &gt; 3.5 = 75.9). ANOVA F-value = 2.94 (significant at <math>p \leq .05</math>). <u>Supervisor support</u>: Aged &lt;35 (mean = 3.4, SE = 0.06, %N with mean &gt; 3.5 (ie satisfactory) = 46.9), 35-44 (mean = 3.1, SE = 0.05, %N with mean &gt; 3.5 = 36.9), 45-54 (mean = 3.1, SE = 0.05, %N with mean &gt; 3.5 = 39.0), <math>\geq 55</math> (mean = 3.2, SE = 0.06, %N with mean &gt; 3.5 = 34.9). ANOVA F-value = 4.10 (significant at <math>p \leq .01</math>). Linear regression analysis to explain variance in job satisfaction. In the final model 'job resources' including skill discretion and to a lesser extent relation with colleagues was associated with job satisfaction (<math>R^2 = .53</math> to <math>.65</math>). Supervisor support showed a significant positive associate with age among those aged 55 and over: standardised coefficients - &lt;35 = 0.09, 35-44 = 0.07, 45-54 = 0.07, <math>\geq 55</math> = 0.12. The result for the cohort <math>\geq 55</math> represents significance at <math>\leq .05</math>.</p>	<p>Data obtained via self-report. Confounding is not accounted for. <b>Evidence gaps/recommendations for future research:</b> Not reported <b>Source of funding:</b> Not reported</p>
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Braun et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Braun, Susanne, Claudia Peu, Silke Weisweiler, Dieter Frey</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Braun, Susanne, Claudia Peu, Silke Weisweiler, Dieter Frey 2013 <i>Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust</i> The Leadership Quarterly 24 pp. 270-283</p> <p><b>Quality</b></p>	<p><b>Setting(s):</b> A large German research university</p> <p><b>Research aims/questions:</b> To analyse the relations between transformational leadership, trust in supervisor and team, job satisfaction, and team performance via multilevel analysis.</p> <p>Hypothesis 1: Individual perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction.</p> <p>Hypothesis 3: Team perceptions of supervisors' transformational leadership are positively related to individual followers' job satisfaction</p> <p>Hypothesis 4: Trust in the supervisor mediates the positive relationship between individual perceptions of supervisors' transformational leadership and individual followers' job satisfaction</p> <p><b>Overall research approach:</b> Longitudinal survey</p> <p><b>Data collection method:</b> Data collection from employees and supervisors took place at two points of measurement separated by approximately six weeks in 2009. The interval of six weeks was chosen to reduce biases pertaining to single sources and common methods (Podsakoff, MacKenzie, Lee, &amp; Podsakoff, 2003). Before starting data collection, participants were invited to a short informative meeting during which the survey process was introduced. Surveys were administered online.</p> <p>At time 1, team members were asked to rate their supervisor's transformational leadership behaviour,</p>	<p><b>Sample population:</b> Data for this study stem from 39 teams at a large German research university, and comprise ratings of 360 employees and their direct supervisors. Supervisors were professors leading research laboratories or other teams at the university. Team members were part of the scientific (eg, postdocs and PhD students) and non-scientific (eg, technical assistants) personnel.</p> <p><b>Sampling approach:</b> Teams were recruited by means of a university leadership program that offered a leadership profile to supervisors of academic teams. Employees working under the supervision of the same leader were considered a team.</p> <p><b>Inclusion/exclusion criteria:</b> Participants who did not answer the first of two questionnaires were excluded from the survey. However, participants who only completed the first</p>	<p><b>Description of analysis method:</b> Scientific discipline, supervisor tenure with the team, and unit reputation were introduced as covariates. For scientific discipline, three dummy-coded were differentiated to account for their influence on the proposed outcome variables. Overall 19.4% of data was missing, mainly due to a dropout at time 2. Missing values were imputed using multiple imputation procedures in the SPSS 'Missing Values' module based on an iterative Markov chain Monte Carlo (MCMC) method. Multiple imputation-based procedures are superior to casewise deletion, even if data is not missing at random (Lüdtke, Robitzsch, Trautwein, &amp; Köller, 2007). Multiple imputation of five data sets was chosen in accordance with Rubin (1987).</p> <p>The authors used a multilevel mediation approach based on team-mean centred analyses, also termed 'centred within context' or CWC (Kreft &amp; de Leeuw, 1998). In the special case of CWC(M), the subtracted means of each individual-level variable were reintroduced in the Level-2 equations. Thereby, within-team mediation effects are differentiated from between-team mediation effects. The authors tested their approach in a Monte Carlo simulation study, which yielded promising results concerning reduced confounding, sufficient empirical power, and low Type-I error rates (Zhang et al., 2009). The CWC(M) approach was the state-of-science choice for testing Hypotheses 1, 3 and 4.</p> <p>They implemented if by applying hierarchical</p>	<p><b>Limitations identified by author:</b> A major challenge for multilevel leadership research is the suitable assessment of leadership and related constructs (eg, trust) at multiple levels</p> <p>Results are predominantly based on questionnaire data, which may be subject to common source and common method biases.</p> <p>Investigations of the model in different cultural contexts are important.</p> <p>Model was restricted to the positive influence of transformational leadership on team performance and job satisfaction mediated by trust. Thereby, the authors neglected (a) other forms of leadership, (b) additional mediators, and (c) potential downsides to the</p>

<p><b>rating:</b> ++</p>	<p>and their trust in the supervisor. At time 2, team members rated their perceptions of trust in the team, and their individual job satisfaction.</p> <p><u>Transformational leadership</u> was measured with a composite score consisting of 15 items (<math>\alpha = .95</math>) pertaining to the dimensions inspirational motivation (4 items), intellectual stimulation (4 items), individualized consideration (4 items), and idealized influence behaviour (3 items) from the validated German version (Felfe, 2006) of the Multifactor Leadership Questionnaire Form 5x-short (Bass &amp; Avolio, 2000). Participants rated these items on 5-point Likert-scales ranging from 1 (not at all) to 5 (frequently, if not always).</p> <p>Participants' <u>trust in their supervisor</u> was assessed using eight items (<math>\alpha = .97</math>) adapted from Dirks' (2000) scale which takes both affect- and cognition-based aspects of trust into consideration. A sample item is 'If I shared my problems with my supervisor, I know (s)he would respond constructively and caringly'. Participants' ratings were based on 7-point Likert-scales ranging from 1 (strongly disagree) to 7 (strongly agree).</p> <p><u>Job satisfaction</u> was measured with five items (<math>\alpha = .83</math>) regarding satisfaction with one's supervisor, tasks, working conditions, support of one's professional career, and general job satisfaction by means of a validated job satisfaction scale (Neuberger &amp; Allerbeck, 1978). A sample item is 'To what extent are you satisfied with your working conditions?' Participants' ratings were based on 7-point face-scales (Kunin, 1955).</p> <p><b>Dates:</b> 2009</p>	<p>questionnaire were retained for subsequent analyses</p> <p><b>Number and characteristics of participants:</b></p> <p>The resulting data sets comprised 360 members of 39 teams. The average number of participants per team was 9.2 (SD=4.5) with a range from 2 to 20 participants per team. The average response rate per team was 61.0%. Participants in the final sample were 35.7 years old (SD=10.2 years) on average, and 67.5% were female. The majority of participants were PhD students (58.1%), postdocs (14.4%), and non-scientific personnel (16.4%). 5 Supervisors of the 39 teams were on average 45.6 years old (SD=7.3 years), and 69.2% were male. Teams mainly worked in the fields of natural sciences (61.5%) or medicine (30.8%).</p> <p><b>Response rate / Representativeness of sample (if survey)</b></p> <p>88.6% (39 teams out of 44)</p>	<p>linear modelling in the statistical software package HLM 7.</p> <p><b>Key findings relevant to the review:</b></p> <p><u>Transformational leadership</u> (M = 3.54, SD = .56). Correlation coefficient with trust in the supervisor = .86, <math>p &lt; .01</math>, correlation coefficient with job satisfaction = .63, <math>p &lt; .01</math></p> <p><u>Trust in the supervisor</u> (M = 5.28, SD = 1.02) correlation coefficient with job satisfaction = .67, <math>p &lt; .01</math></p> <p><u>Job satisfaction</u> (M = 4.82, SD = .61)</p> <p>Team membership accounted for 21.22% of variance in job satisfaction. A chi-square test confirmed that variance between teams was significant (<math>\chi^2(38)=101.50</math>, <math>pb.001</math>). As expected, individual perceptions of supervisors' transformational leadership (<math>\gamma_{10}=.73</math>, <math>pb.001</math>) as well as team perceptions of supervisors' transformational leadership (<math>\gamma_{01}=.64</math>, <math>pb.001</math>) were positively related to individual followers' job satisfaction. Thus, <u>Hypotheses 1 and 3 were fully supported.</u></p> <p>The following mediation effects were detected: The relationship between trust in the supervisor and job satisfaction was significant at the individual level (<math>\gamma_{20}=.35</math>, <math>pb.001</math>), also when trust in the supervisor was introduced at the team level (<math>\gamma_{02}=.14</math>, <math>p=.119</math>). Sobel's Z with robust standard errors confirmed that the Level-1 mediation effect of trust in the supervisor was significant (Sobel Z=5.70, <math>pb.001</math>). Thus, <u>Hypothesis 4 was fully supported.</u></p>	<p>proposed relationships.</p> <p><b>Limitations identified by review team:</b></p> <p>More demographic variables could have been investigated.</p> <p>More detail could have been given about the differences in the sample between time 1 and time 2.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Further development and validation of measurement methods is clearly necessary.</p> <p>Testing the differential effects of trust in the supervisor and trust among team members in other (eg, Asian) could be enlightening cultures.</p>
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## Brunetto et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Brunetto, Yvonne, Rodney Farr-Wharton &amp; Kate Shacklock</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Brunetto, Yvonne, Rodney Farr-Wharton &amp; Kate Shacklock 2011 <i>Using the Harvard HRM model to conceptualise the impact of changes to supervision upon HRM outcomes for different types of Australian public sector employees</i> The International Journal of Human Resource Management 22(3) pp. 553-</p>	<p><b>Setting(s):</b> Two Australian public hospitals and 10 police stations</p> <p><b>Research aims/questions:</b> Use the Harvard model of human resources management (HRM) to conceptualise how changes in stakeholder interests coupled with changes to situational factors affect public sector HRM policy choices that in turn affect HRM outcomes for different types of public sector employees.</p> <p>Hypothesis 1: There is a significant positive relationship between LMX (leader-member exchange, ie supervisor employee relationships) and employees' subsequent perceptions of well-being.</p> <p>Hypothesis 4: Nurses experience higher levels of satisfaction with LMX compared with police officers and therefore will also have higher perceptions of well-being and affective commitment.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> In all locations, questionnaires were handed out to those nurses and police officers on day shift during a weekday. Because many public sector nurses and police officers engage in shift work, the nurses and police officers captured on day shift should experience a similar work context compared with any other nurses and police officers on day shift.</p> <p>Questionnaires were distributed to nurses in the surgical wards of the two hospitals during a weekday. In total, 180 surveys were distributed in the city hospital and 128 completed surveys were collected, and 55 surveys were</p>	<p><b>Sample population:</b> Public sector nurses and police officers in Queensland, Australia.</p> <p><b>Sampling approach:</b> Two hospitals were approached and both agreed to be involved in the study. One was located in a city and the other in a regional area of south eastern Queensland - so as to capture nurses from a range of Australian public sector hospital settings. In the case of police officers, a region of south eastern Queensland comprising two districts each containing approximately 10 police stations was chosen.</p> <p><b>Inclusion/exclusion criteria:</b> Both hospitals approached agreed to participate. Five out of the 10 police stations in each district were randomly chosen for data collection.</p>	<p><b>Description of analysis method:</b> This study uses LMX as a measure of employees' level of satisfaction with their supervisor-subordinate relationship for two different types of public sector employees. Path analysis is used to test the impact of supervision practices on first, employees' perceptions of well-being and in turn, affective commitment. In particular, path analysis using an ordinary least square (OLS) approach is used to test the hypotheses.</p> <p>Factor analysis was undertaken and the correlation matrix identified many correlations exceeding 0.3, indicating the matrix was suitable for factoring. The Bartlett's test for sphericity was significant (<math>\chi^2</math> value = 2254.117, <math>p &lt; 0.001</math>, <math>df = 153</math>) and the KMO measure of sampling adequacy was 0.9 - well above the requirement of 0.6. When principal axis factoring was undertaken to extract the variables, three factors had eigen values greater than 1 and 67.48% of the variance could be explained using these three factors. The factor transformation matrix suggests a relatively high correlation between factors.</p> <p>To address the fourth hypothesis (Hypothesis 4) an independent t-test</p>	<p><b>Limitations identified by author:</b> The study is limited to public sector nurses and police officers. Self-report surveys causing common methods bias.</p> <p>There was a predominance of males in the police officer sample and a predominance of females in the nurse sample.</p> <p>Presence of some multicollinearities amongst the independent variables</p> <p><b>Limitations identified by review team:</b> Gender disparity was not controlled for as a potential confounder. Demographic variables are restricted to age and gender, not sufficient. Reliability score not given for LMX measure. Survey administration</p>

<p>573 Quality rating: +</p>	<p>distributed in the regional hospital and 36 completed surveys were collected (N = 164). In the case of police officers, 300 surveys were distributed and 178 completed surveys were collected. The police sample captured over a fifth of the population of non-commissioned police officers (constables, senior constables and sergeants) in the region.</p> <p>Responses were captured on a scale: 1, strongly disagree to 6, strongly agree.</p> <p><u>Leader-member exchange</u>: This validated test-bank survey traditionally measures the satisfaction of employees with the quality of the relationship with their supervisor-subordinate relationship (Mueller and Lee 2002). In this study a seven-item uni-dimensional scale (LMX-7), developed by Graen and Uhl-Bien (1995), was used. An example of a question includes 'I am certain to what extent my LM will go to back me up in my decision-making'.</p> <p>This article operationalised <u>psychological well-being</u> as a function of the hedonic part (that focuses on employees' perceptions of pleasure invoking either negative or positive thoughts or feelings) in addition to the eudaimonic part (that focuses on employees' perceptions of fulfilment in achieving their goals; Grant et al. 2007). An example of a survey question aimed at capturing the hedonic part of well-being was 'Overall, I think being a nurse/police officer fulfils an important purpose in my work life'. An example of a survey question aimed at capturing the eudaimonic part of well-being was 'Overall, I think I am reasonably satisfied with my work life'. Cronbach's <math>\alpha</math> for both groups = 0.87.</p> <p><b>Dates:</b> Not reported</p>	<p><b>Number and characteristics of participants:</b></p> <p>The demographics of the nurse population (N = 164) included 20 males and 144 females. 36 were aged under 30, 72 were aged between 31-45 and 56 were aged over 45. The police sample (N = 178) comprised 48 females and 130 males. 1 was aged under 30, 122 were aged between 31 and 45, and 55 were aged over 45.</p> <p><b>Response rate / Representativeness of sample (if survey)</b></p> <p>Nurses: 69.8% Police officers: 59.33%</p>	<p>was undertaken.</p> <p><b>Key findings relevant to the review:</b></p> <p>H1: There is a <u>significant positive relationship between LMX and employees' subsequent perceptions of well-being</u>. A regression analysis was undertaken. The hypothesis is accepted (F = 251.7 p &lt; 0.001, R<sup>2</sup> = 42.5%) Moreover, an examination of the relevant means suggests that the relationship is direct, although weak in effect</p> <p>H4: Nurses experience higher levels of satisfaction with LMX compared with police officers and therefore will also have higher perceptions of well-being and affective commitment:</p> <p><u>Satisfaction with supervisor</u>: Nurses (M = 4.5, SD = 1.8), police (M = 2.6, SD = 0.99). F = 2.011, T = 16.837, df = 340, sig = 0.001.</p> <p><u>Well-being</u>: Nurses (M = 4.27, SD = 2.95), police (M = 2.95, SD = 0.99). F = 0.887, T = 12.066, df = 340, sig = 0.001.</p> <p>The hypothesis is somewhat supported because nurses are significantly more satisfied with both their subordinate-supervisor relationship and had a higher perception of well-being compared with police officers.</p>	<p>methodology unclear.</p> <p>Questionnaires were only administered on one weekday so bias may pertain.</p> <p>Differing of response rate (by 10 percentage points) between police officers and nurses.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Further studies are required using other types of public sector employees - particularly professional employees</p> <p><b>Source of funding:</b> Not reports</p>
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## Brunetto et al. (2013a)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Brunetto Y, Shriberg A, Farr-Wharton R, Shacklock K, Newman S and Dienger J</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> The importance of supervisor-nurse relationships, teamwork, well-being, affective commitment and retention of North American nurses. <i>Journal of Nursing Management</i> 21, 827-837.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b></p> <ol style="list-style-type: none"> <li>1. What is the relationship between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, commitment to the organisation (affective commitment) and turnover intentions?</li> <li>2. For different generational cohorts, what are the similarities and differences in the relationships between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, commitment to the organisation (affective commitment) and turnover intentions?</li> </ol> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> The study used a cross-sectional design to gather data to test the relationship between nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, affective commitment and turnover intention (the dependent variable). Data were collected using a survey-based, self-report strategy (Ghauri &amp; Grønhaug 2002).</p> <p>Measures (supervisor-subordinate</p>	<p><b>Sample population:</b> Nurses in two private sector hospitals.</p> <p><b>Sampling approach:</b> To gather data 1,815 nurses were linked to an online survey in the two hospitals.</p> <p><b>Inclusion/exclusion criteria:</b> Not stated.</p> <p><b>Number and characteristics of participants:</b> Sample comprised 695 (95.7%) females and 31 (4.3%) males.</p> <p>The sample included: 17 supervisors, 98 charge nurses (assigns patients to nurses), 578 registered nurses (RNs), 22 assistant nurse managers, six unit educators, and six advanced practice nurses. In terms of generational cohorts, the sample had 193 Gen Y, 260 Gen X and 273 BB nurses.</p> <p><b>Response rate:</b> Approximately 40%</p>	<p><b>Brief description of method and process of analysis:</b> Survey data were analysed using SPSS. Correlations and regression analyses were undertaken to test nurses' satisfaction with supervisor-subordinate relationships, teamwork, well-being, affective commitment and turnover intentions. In addition, a multivariate analysis of variance (MANOVA) was used to examine the impact of generational cohort upon the variables.</p> <p><b>Key findings relevant to the review:</b></p> <p>Supervisor-nurse relationships, teamwork and well-being explain almost half of nurses' commitment to their hospital and their intentions to leave:</p> <ul style="list-style-type: none"> <li>-the hypothesis that affective commitment is influenced by the quality of supervisor-subordinate relationships, teamwork and well-being is supported because these three factors accounted for 45.9% of nurses' commitment to their hospitals (<math>p = , 0.001</math>).</li> <li>- The hypothesis that turnover intentions are affected by the quality of supervisor-subordinate relationships, teamwork, well-being</li> </ul>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-Common method bias is a possibility within self-report cross-sectional studies where common method variance may influence the significance of relationships between variables.</li> <li>-The study was limited to private sector hospitals and therefore cannot be generalised to public or not-for-profit sector hospitals.</li> <li>-The study was limited to one country and therefore cannot be generalised beyond North America.</li> </ul> <p><b>Evidence gaps/recommendations for future research:</b> Further research is suggested for both the public hospital sector and across different countries to support (or otherwise) the findings from this study.</p> <p><b>Source of funding:</b> None.</p>

	<p>relationship; well-being; affective commitment; teamwork and turnover) were presented using statements to be rated on a six-point Likert-type scale.</p> <p>The measure for generational cohorts was determined by calculating the number of nurses born within specific years, which were chosen to include: Baby Boomers (BB) (1943-64), Gen X (1965-79) and Gen Y (1980-2000).</p> <p><b>Method(s):</b> An anonymous online survey was made available to nurses and they were invited to participate. The survey took approximately 20-25 minutes to complete. Informed consent was gained by completion and online submission of each survey and respondents' confidentiality was assured.</p> <p><b>Setting(s):</b> Two private sector hospitals located in mainland USA. Both hospitals were medium-sized, urban (city) and acute clinical settings.</p> <p><b>Dates:</b> 2012</p>		<p>and affective commitment was also supported because, these four factors accounted for 44.8% of nurses' intention to leave (<math>p &lt; 0.05</math>)</p> <p>The workplace relationship variables (satisfaction with relationships) did not differ significantly between generations.</p>	
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## Brunetto et al. (2013b)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Brunetto, Y., Xerri, M., Shriberg, A., Farr-Wharton, R., Shacklock, K., Newman, S. and Dienger, J.</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Brunetto, Y., Xerri, M., Shriberg, A., Farr-Wharton, R., Shacklock, K., Newman, S. and Dienger, J. (2013). The impact of workplace relationships on engagement, well-being, commitment and turnover for nurses in Australia and the USA. <i>Journal of Advanced Nursing</i>, 69. 2786-2799.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The article uses social exchange theory to compare the impact of workplace processes (perceived organisational support, supervisor-subordinate relationships and teamwork) on nurses' engagement and in turn, their psychological well-being, organisational commitment and turnover intentions.</p> <p><b>Research approach:</b> Self-report survey</p> <p><b>Data collection:</b> 1600 anonymous surveys distributed across Australia, and in USA 1815 nurses were linked to a voluntary online survey.</p> <p><b>Method(s):</b> Used previously validated scales to operationalise the constructs, measured on a 6-point Likert-type scale, from 1=strongly disagree and 6=strongly agree. <i>Leader-Member Exchange:</i> 7 item uni-dimensional scale (Graen &amp; Uhl-Bien, 1995). <i>Satisfaction with teamwork:</i> scale adapted by Rubin, Palmgreen and Sypher (1994) on organisational culture. <i>Perceived Organisational Support:</i> used a validated scale by Eisenberger et al., (1997) <i>Well-being:</i> measured using a four-item scale, developed by Brunetto et al., (2011). <i>Employee Engagement:</i> measured using a 9 item scale from Schaufeli and Bakker (2003). <i>Organizational Commitment:</i> measured using an 8</p>	<p><b>Sample population:</b> 1600 anonymous surveys distributed to 5 private sector hospitals across Australia. Two private sector hospitals in USA with a total of 1815 nurses.</p> <p><b>Sampling approach:</b> Purposive sampling</p> <p><b>Inclusion/exclusion criteria:</b> All nurses were invited to participate,</p> <p><b>Number and characteristics of participants:</b> Predominantly female (Australia 93.7%; USA 96.1%). In Australia 61% were aged 45 years or above, 31.2% were aged 31-44 years and 7.8% were aged 30 years or below. In the USA 40.8% were aged 45 years or above, 37.6% were aged 31-44 years and 21.6% were aged 30 years or below. Nurses from all levels of the nursing spectrum were represented in both countries</p> <p><b>Response rate (if relevant):</b> Australia - 510 useable surveys (response rate of 31.5%). From USA 718 useable surveys (12 of which</p>	<p><b>Brief description of method and process of analysis:</b> Structural equation modelling was used. SPSS was used to conduct a descriptive statistical analysis, AMOS used to check for common method variance analysis, conduct confirmatory factor analysis and to test the hypotheses. The study used a multi-group SEM analysis to examine the invariance between nurses in Australia and the USA. Chi-square was used to examine the invariance of the hypothesised paths.</p> <p><b>Key findings relevant to the review:</b> Items that did not adequately predict their variable were removed from the scale to provide a better fit of the data. Results from the chi-square difference test indicated that statistically significant differences between the Australian and USA samples, with regards to LMX to teamwork (<math>\chi^2=99.3</math>, <math>p&lt;0.001</math>), engagement (<math>\chi^2=38.8</math>, <math>p&lt;0.05</math>), well-being (<math>\chi^2=42.3</math>, <math>p&lt;0.05</math>) organisational commitment (<math>\chi^2=38.3</math>, <math>p&lt;0.05</math>) and turnover intentions (<math>\chi^2=45.1</math>,</p>	<p><b>Limitations identified by author:</b> Study is limited to one type of employee - hospital nurses, and those working in only two countries. Self-report survey method was used, potentially causing common methods bias (although measures were taken to attempt to reduce this). Results cannot be generalised internationally or even in one or two of the countries examined as the sample was limited to private sector hospital nurses.</p> <p><b>Limitations identified by review team:</b> Results may be different if just one level of nursing was studied. No idea of what department the nurses came from, and this could have an impact of reported outcomes. Impact of any policy changes/political decisions on nursing outcomes not considered. Study used social exchange theory as a lens through which the results were explained, whereas other theories may</p>

	<p>item scale from Allen and Meyer (1990)  <i>Turnover Intention</i>: 3 item scale adopted from Meyer et al, (1993).  <b>Setting(s):</b>                      Five private sector hospitals across Australia and 2 private sector hospitals in mainland USA.  <b>Dates:</b>                      Data were gathered in 2010-2012</p>	<p>were discarded) (response rate of 39.5%)</p>	<p>p&lt;0.01),                      None of the paths related to supervisor-subordinate relationships was significant for the USA, and neither were the paths                      Perceived Organisational Support predicted engagement, organisational commitment, employee well-being and turnover intentions in both Australia and the USA (p&lt;0.001 level for all variables). Supervisor-subordinate relationships supported teamwork in Australia (p&lt;0.001) but not the USA.                      Teamwork has a positive impact on employee engagement and wellbeing in both countries (p&lt;0.001). Teamwork was linked to organisational commitment and turnover intentions in Australia (p&lt;0.001) but not the USA. The study also identified a strong relationship between organisational turnover and commitment (p&lt;0.001).                      The authors concluded that supervisors do not appear to play the mediating role for nurse turnover intentions in the USA compared with Australia.</p>	<p>have had different responses.  <b>Evidence gaps/recommendations for future research:</b>                      Further studies are required to support (or not) the results of this study, examining nurses in other contexts, other types of employees and across different countries.                      More research is needed to find out why there were not significant relationships for the USA sample, when there was for the Australian sample.  <b>Source of funding:</b>                      Research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.</p>
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## Buttigieg and West (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Buttigieg, S.C. and West, M.A.</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Buttigieg, S.C. and West, M.A. (2013). Senior management leadership, social support, job design and stressor-to-strain relationships in hospital practice. <i>Journal of Health Organisation and Management</i>, 27, 171-192.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The study aimed to investigate the relationships between the quality of senior management leadership and social support and job design, and in turn their effects on strains (job satisfaction, turnover intention) and in the moderation of the work stressors (quantitative workload, hostility)-to-strains relationships.</p> <p><b>Research approach:</b> Cross sectional staff survey</p> <p><b>Data collection:</b> UK NHS staff survey</p> <p><b>Method(s):</b> Items were taken from the UK NHS Staff Surveys (2004-2010) and for this investigation measures for senior management leadership, social support, job design, quantitative overload, hostility, job satisfaction and turnover intentions.</p> <p><i>Quality of senior management leadership (QSML):</i> 5 item measure adapted from Transformational Leadership Questionnaire (Alimo-Metcalfe et al, 2001) with three possible responses was used to assess the quality of senior management leadership.</p> <p><i>Social Support:</i> derived from the Job Content Questionnaire (Karasek</p>	<p><b>Sample population:</b> NHS staff in acute and specialist hospitals (138,214)</p> <p><b>Sampling approach:</b> Purposive sampling of NHS staff</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> The number of respondents amounted to 65,142. For the age profile: 28% and 30% lie in the 41-50 and 31-40 year age groups respectively, whereas 81% are women and 19% are men. The occupational categories included management, all healthcare professionals, administration, clerical and maintenance staff, with the highest being 28.4% registered nurses, followed by 21.7% administration and clerical staff.</p>	<p><b>Brief description of method and process of analysis:</b> The analysis was conducted in two stages. Structural Equation Modelling design was used to test the relationship between senior management leadership with social support and job design and the stressor-to-strain relationships. The second stage involved testing for moderation using regression analysis.</p> <p><b>Key findings relevant to the review:</b> Quality of senior management leadership was positively related to social support (<math>r=.33</math>) and job design (<math>r=.37</math>) at <math>p&lt;.001</math>, meaning that quality of senior management leadership is associated with social support and quality of job design.</p> <p>Quantitative overload was negatively associated with job satisfaction (<math>e=-.14</math>) and positively associated with turnover intention (<math>r=.16</math>) at <math>p&lt;.01</math>. Hostility was negatively associated with job satisfaction (<math>r=-.25</math>) and positively associated with turnover intention (<math>r=.22</math>) at <math>p&lt;.01</math>. There is also a negative correlation between job satisfaction and staff turnover intention (<math>r=-.54</math>) at <math>p&lt;.01</math>.</p> <p><i>Social support and job design as moderators of the stressor-to-strain</i></p>	<p><b>Limitations identified by author:</b> Cross sectional nature of the study provides a threat to internal validity of indistinct temporal order of occurrence, which prevents the assertion of the direction of causality.</p> <p>Use of self-reported data highlighted the problem of percept-percept bias which is associated with single source data collection.</p> <p>Study conducted in UK - any generalisations to other countries should take into account cultural differences and variations in health systems, as both these factors could have an impact on the respondents when answering the questionnaire.</p> <p>Although the study had a large sample size, non-respondents may have had stronger intentions to quit, lower levels of job satisfaction and satisfaction with supervisors and senior management leaders than respondents.</p> <p><b>Limitations identified by review team:</b> Predominantly female respondents. Difference between occupational categories were not provided. No difference in representation of those who did not participate in the study given.</p> <p><b>Evidence gaps/recommendations for</b></p>

	<p>et al, 1998). Scale contained 4 items, with a five point Likert scale ranging from strongly disagree to strongly agree (<math>\alpha = .77</math>)</p> <p><i>Job design:</i> scale contained 5 items (<math>\alpha = .73</math>) adapted from the Job Diagnostic Survey (Hackman et al., 1975) Responses range on a 5 point scale from strongly disagree to strongly agree.</p> <p><i>Work stressors:</i> measured using 5 dimensions: three that measured quantitative overload (adapted from studies by Firth-Cozens (1987,1998) and Cox and Griffiths (1995) and two that measure hostile environment (adapted from the Fourth European Working Conditions Survey, 2007).</p> <p><i>Work strains:</i> measured using job satisfaction (Job Satisfaction Scale, Warr et al, 1979) - 4 items, <math>\alpha = .87</math> and turnover intentions, 3 items from a scale by Mobley et al., (1978), <math>\alpha = .92</math>. All based on Likert scales.</p> <p><b>Setting(s):</b> NHS acute/specialist hospitals in the UK.</p> <p><b>Dates:</b></p>	<p><b>Response rate (if relevant):</b> 53%</p>	<p><i>relationships</i></p> <p>Social support as a moderator: Quantitative overload and social support together predicted a significant portion of the variance of job satisfaction (<math>R^2 = .476</math>, <math>p &lt; .001</math>) and staff turnover intention (<math>R^2 = .187</math>, <math>p &lt; .001</math>). Hostility and social support predicted a significant portion of the variance for job satisfaction (<math>R^2 = .483</math>, <math>p &lt; .001</math>) and staff turnover intention (<math>R^2 = .193</math>, <math>p &lt; .001</math>).</p> <p>Job design as a moderator: quantitative overload and job design together predicted a significant portion of the variance in job satisfaction (<math>R^2 = .416</math>, <math>P &lt; .001</math>) and staff turnover intention (<math>R^2 = .220</math>, <math>p &lt; .001</math>). Similarly hostility and job design predicted a significant portion of the variance for job satisfaction (<math>R^2 = .424</math>, <math>p &lt; .001</math>) and staff turnover intention (<math>R^2 = .223</math>, <math>p &lt; .001</math>).</p>	<p><b>future research:</b> Not reported</p> <p><b>Source of funding:</b> Not reported</p>
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## Campbell et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Campbell N S, Perry S J, Maertz C P, Allen D G and Griffeth R W.</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> All you need is.....resources: The effects of justice and support on burnout and turnover. Human Relations 66 (6): 759-782</p> <p><b>Quality rating:</b> ++</p>	<p><b>Research questions:</b> To investigate three forms of justice (distributive, procedural, and interactional justice) and two sources of support (from organisations and supervisors) as they influence the development of three dimensions of burnout (emotional exhaustion, depersonalization, and diminished accomplishment) and subsequent forms of attitudinal withdrawal (organisational commitment and turnover intentions) and behavioural withdrawal (turnover).</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> The following measures were used in the data collection:</p> <p>Justice: Distributive and Procedural justice measured using five item scales. Interactional justice was measured with four items.</p> <p>Perceived organisational support (POS): measured using a 16-item short form of the Survey of Perceived Organisational Support developed by Eisenberger et al. (1986).</p> <p>Perceived supervisor support (PSS): assessed using three items.</p> <p>Burnout: used 22-item Maslach Burnout Inventory (MBI), including three subscales. The subscales were emotional exhaustion (nine items), depersonalization (five items), and personal accomplishment (eight items).</p> <p>Organisational commitment: measured</p>	<p><b>Sample population:</b> 375 social workers. Social workers in the sample locations saw a wide range of cases and had a very heavy case load. All supervisors were social workers first before they were promoted to supervisor.</p> <p><b>Sampling approach:</b> Surveys were distributed to small groups of social workers during working hours.</p> <p><b>Inclusion/exclusion criteria:</b> No involuntary leavers were included in the turnover count.</p> <p><b>Number and characteristics of participants:</b> 343 individuals. The average age of respondents was 39.8 years (SD = 10.5) and 84 per</p>	<p><b>Brief description of method and process of analysis:</b> A confirmatory factor analysis (CFA) was conducted on the measurement model using LISREL. For the measurement model, the authors created three indicators for each construct and examined the chi-square test (<math>\chi^2</math>), root-mean-square residuals (RMR), root-mean-square error of approximation (RMSEA), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the normed fit index (NFI), and the comparative fit index (CFI).</p> <p>After confirming the fit of the measurement model, the authors evaluated the structural model, using scale scores as indicators of the measures rather than the individual items, owing to LISREL's computing limitations and calculated the measurement loadings and error variances.</p> <p><b>Key findings relevant to the review:</b></p> <p>PSS demonstrated robust significant relationships with all three forms of justice and with emotional exhaustion. Distributive justice was found not to be related to POS.</p>	<p><b>Limitations identified by author:</b> The use of cross-sectional and self-report data for the predictors prevents firm conclusions about the causal nature of the relationships within this study.</p> <p>Regarding the dependent variable, turnover, the study had a relatively low base rate (8%) of turnover, which may have attenuated the observed relationship of turnover intentions with turnover. Also turnover was dichotomous, so it potentially violates assumptions underlying LISREL. Also the determination for 'voluntary' turnover was made by the organisation, therefore the authors could not verify that the 26 individuals actually quit voluntarily, and they did not have access to those who left involuntarily during the time period.</p> <p>The study focused on a profession that carries high risk of burnout, which may limit its generalisability.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research should investigate whether different occupations and organisational cultures have differential susceptibility to</p>

	<p>using a nine-item scale.</p> <p>Turnover intentions: measured on a three-item scale with a five-point Likert-type scale.</p> <p>Turnover: One year after surveys were administered, the organisation provided a list of individuals who had left voluntarily. In total, 26 individuals (8%) left voluntarily in that time.</p> <p><b>Method(s):</b> The authors formulated a conceptual model derived from conservation of resources theory, augmented by several domain-specific theories and tested this model using a survey of social workers and organisational turnover data.</p> <p><b>Setting(s):</b> State department of family and children’s services (DFACS) in counties from around a large US metropolitan area in the Southeastern United States</p> <p><b>Dates:</b> Not stated.</p>	<p>cent were female. Some 66 per cent of respondents were Caucasian, 29 per cent were African American, 2 per cent were Hispanic, and 3 per cent selected ‘Other’.</p> <p><b>Response rate:</b> 91 per cent</p>	<p>Procedural justice was strongly related to both POS and PSS, but more strongly with POS.</p> <p>From anecdotal responses in an open-ended section of the survey, respondents viewed procedural justice as partly a function of organisational policy/practice and partly a function of supervisor support, fairness of procedures was apparently attributed to both organisations and supervisors.</p> <p>Interactional justice was most strongly associated with PSS, but it was not significantly associated with POS.</p> <p>POS had a strong, negative relationship with emotional exhaustion.</p> <p>PSS was negatively related to emotional exhaustion, which was positively related to depersonalization, and in turn, diminished personal accomplishment. Emotional exhaustion and diminished personal accomplishment both had significant negative relations with organisational commitment, but depersonalization did not.</p>	<p>different dimensions of justice and support, or to different sources from which they come. The answer may provide specific recommendations for each level of management in different occupations regarding their role in minimising burnout.</p> <p>Future research should directly investigate the attributions for different forms of justice and how these translate into POS and PSS, as well as subsequent employee outcomes.</p> <p><b>Source of funding:</b> No specific grant from any funding agency in the public, commercial, or not-for-profit sectors.</p>
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Choi and Johantgen (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis Results	Notes by review team
<p><b>Authors:</b> Choi JinSun Johantgen Meg</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Choi, J., Johantgen, M., 2012. The Importance of Supervision in Retention of CNAs Research Nursing and Health 2012 (35) 187-199. DOI: 10.1002/nur.21461</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Nursing homes across the USA</p> <p><b>Research aims/questions:</b> The study aimed to examine the relationships of work-related and personal factors to job satisfaction and intent to leave among CNAs (Certified Nursing Assistants) working in nursing homes.</p> <p><b>Overall research approach:</b> Nationally representative survey</p> <p><b>Data collection method:</b> Computer assisted telephone interview.</p> <p>Overall job satisfaction was measured using a single item that asked about current job satisfaction. The item was scored using a 4-point Likert-type scale, ranging from 1 (extremely dissatisfied) to 4 (extremely satisfied).</p> <p>Intent to leave was measured using two questions from the National Nursing Assistants Survey (NNAS): “How likely is it that you will leave this job in the next year?” and “Are you currently looking for a job?”</p> <p>Supportive supervision was examined using 10 items from</p>	<p><b>Sample population:</b> Subsample of randomly selected nursing homes (n=790) was selected from the databases (NNAS and NNHS). The NNHS was a nationally representative sample survey of U.S. nursing homes, their services, and resident characteristics. The NNAS, designed as a supplement to the NNHS, was the first large, nationally representative sample survey of CNAs working in nursing homes; CNAs responded to questions about their working conditions and job satisfaction (Squillace et al. 2007). The survey instrument was multi-topic and consisted of 10 primary sections, including Management and Supervision, Organizational Commitment and Job Satisfaction, Workplace Environment, and Demographics.</p> <p><b>Sampling approach:</b> Stratified multistage</p>	<p><b>Description of analysis method:</b> A separate series of two-level logistic regression models was run in several steps for each of the outcomes, job satisfaction and intent to leave. The first level of the models was individual CNAs and the second level was nursing homes.</p> <p>First, the model without any predictors, the unconditional model, was tested. Second, the fixed effects of the personal factors were estimated and then the fixed effects of CNA-level work-related factors (eg, benefits and health insurance) were estimated. Third, each factor was allowed to be random, one at a time. Fourth, the fixed effects of the only nursing home-level work-related factors (eg, bed size and ownership status) were estimated. Lastly, a full model including both CNA and nursing home-level factors was tested. A sandwich estimator, also known as a robust covariance matrix, and scaled sampling weights were implemented in all analyses to obtain robust standard errors. The best model was determined based on the raw values of Log Likelihood; the smallest value indicated the best model.</p> <p><b>Key findings relevant to the review:</b> The degree of supportive supervision and the perception of being valued by the employers were the strongest predictors of job satisfaction among CNAs working in nursing homes.</p> <p>Job satisfaction was significantly associated with intent to leave while controlling for the other factors in the model. Satisfied CNAs were 72% less likely than dissatisfied CNAs to intend to leave. Supportive supervision was a significant</p>	<p><b>Limitations identified by author:</b> CNAs working fewer than 16 hours were not included in the survey. This might result in underestimating the percentage of part-time CNAs relative to full-time CNAs working in nursing homes. Thus, the results cannot be generalized to all CNAs working in U.S. nursing homes.</p> <p>The second set of limitations relates to measurement. Job satisfaction and intent to leave were measured at the ordinal level and were combined into binary variables. Moreover, job satisfaction and CNA perception of being valued by the employer were measured using a single item. These single-item measures may have led to measurement errors.</p> <p>The staffing data were self-reported by nursing home administrators, however, and covered only 1 week. the effect of current nursing home culture/climate on CNA job satisfaction was not tested in this study because those data were not available.</p> <p><b>Evidence</b></p>

	<p>the NNAS that asked for CNA agreement with statements about supervisors who oversaw them on a daily basis and instructed them on job tasks. The items included: treats all CNAs equally, deals with CNAs' complaints and concerns, is open to new ideas, helps the CNAs with job tasks, supports CNAs working in teams, tells CNAs when they are doing a good job, provides clear instructions, disciplines CNAs not performing well, listens to the CNAs' concerns about residents' care, and is supportive of progress in the CNA's career. In this sample, Cronbach's alpha for this measure was estimated at 0.90. In addition, a dichotomous variable was created from a single item to reflect the CNA's perception of being valued by the employer (</p> <p>Work-related injury was examined using an item from the Work-Related Injuries section of the NNAS.</p> <p><b>Dates:</b> Aug-Dec 2004 Sep-Feb 2005</p>	<p>probability sampling design</p> <p><b>Inclusion/exclusion criteria:</b> To be eligible to participate in the NNAS, participants had to be certified, work at least 16 hours per week in the nursing home, and be employed by the nursing home. Nursing homes were excluded if they had less than three beds and were not certified by Medicare or Medicaid.</p> <p><b>Number and characteristics of participants:</b> 582 nursing homes participated and 2,254 CNAs. 65% of nursing homes had bed size over 100 and 59% were for profit. The average age of CNAs was 38 years.</p> <p><b>Response rate</b> Response rate of nursing homes was 75.7%. The sample was national survey therefore it was representative of nursing homes in the USA.</p>	<p>factor of both job satisfaction (OR 4.09, CI 3.2, 5.20)) and intent to leave (OR 0.53, CI 0.43, 0.65). CNAs who reported that they experienced at least one work-related injury at their facilities within the past year were 47% less likely to be satisfied than those who did not report any work-related injury.</p> <p>Moreover, insured CNAs were 35% less likely to intend to leave their jobs than uninsured CNAs. The majority of nursing home-level work related factors in the model were statistically non-significant for both satisfaction and intent to leave. CNAs working in nursing homes with more than 100 beds were 43% more likely to be satisfied than those working in nursing homes with fewer than 100 beds. CNAs were 30% more likely to be satisfied with an hour increase in CNA hours per patient day. CNAs working in nursing homes in metropolitan areas were more likely to intend to leave than CNAs working in nursing homes in rural areas.</p> <p>Age, education, and job history were significantly related to intent to leave, but none of the personal factors were significantly related to job satisfaction.</p>	<p><b>gaps/recommendations for future research:</b> Improved measures of CNA job satisfaction and nursing home work environments are needed.</p> <p><b>Source of funding:</b> Korean Nursing Foundation -US</p>
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**Crain et al. (2014)**

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and Results	Notes by review team
<p><b>Authors:</b> Crain, Tori Laurelle, Leslie B. Hammer, Todd Bodner, Ellen Ernst Kossek, Phyllis Moen, Richard Lilienthal and Orfeu Buxton</p> <p><b>Year of publication:</b> 2014</p> <p><b>Citation:</b> Crain, Tori Laurelle, Leslie B. Hammer, Todd Bodner, Ellen Ernst Kossek, Phyllis Moen, Richard Lilienthal and Orfeu Buxton 2014 <i>Work-family conflict, family supportive supervisor behaviours (FSSB), and sleep outcomes.</i></p>	<p><b>Setting(s):</b> USA</p> <p><b>Research aims/questions:</b> How work-family conflict is associated with sleep quality and quantity, and how family-supportive supervisor behaviours (FSSB) operate as antecedents of sleep quality and quantity, and mediate the relationship between work-family conflict and sleep outcomes. H2: FSSB will be positively related to sleep quality and quantity, H3: FSSB will moderate the negative relationship between work-to-family conflict (WTFC) and family-to-work conflict (FTWC) and sleep quality and sleep quantity, such that the relationships will be attenuated under conditions of high FSSB.</p> <p><b>Overall research approach:</b> Survey, externally validated data collection.</p> <p><b>Data collection method:</b> Baseline data comes from a Work, Family, and Health Network study. Trained field interviewers administered 60 minute face-to-face computer-assisted personal interviews with employees. Immediately after the interviews, researchers offered the actigraphy data collection process, and consenting participants were instructed to wear the sleep monitor (Spectrum, Respironics/Philips, Murrysville PA) on their non-dominant wrist at all times for the next week except in situations where the watch could be damaged (eg, excessive impact, extreme temperatures). <u>WTFC and FTWC:</u> 5-item subscale (Netemeyer et al 1996) from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater conflict. WTF <math>\alpha = .92</math>, FTW <math>\alpha = .83</math>. WTF example: "The demands of your</p>	<p><b>Sample population:</b> 823 out of 1182 employees at a large Fortune 500 firm (all completed the CAPI interview). 61% of the employees were male and 39% were female; 71% per cent were white; average employee age was 46 years (SD = 8.38); 79% were married or cohabitating; and 56% had children living in the home.</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Out of all eligible employees, 655 employees completed the actigraphy data collection, while a total of 637 employees had valid actigraphy</p>	<p><b>Description of analysis method:</b> Intra-class correlations (ICC) were calculated to determine the degree of dependency within work groups, using manager as the nesting variable. ICCs for all sleep outcomes ranged from .01 to .03, however authors attempted multilevel modelling and experiences convergence issues in a majority of the models due to very little or no variance between managers with respect to employee sleep outcomes. Insomnia, sleep duration and total sleep models did not converge. For converging models, the random intercept was not significant for sleep insufficiency (B = .003, p = .87) or quality (B = .43, p = .93). So, all analyses used standard ordinary least squares regression, ignoring the very small levels of inter-group dependency. Due to inter-predictor variable correlation (likely to lead to non-significant unique effects within a block of added predictors), the authors used hierarchical multiple regression with a particular interest on <math>\Delta R^2</math> and <math>\Delta F</math> values for each block rather than the significance of individual parameters. Therefore they assessed and focused on the incremental predictive utility of all variables in successive blocks. Variables were entered into the regression equations in three blocks/steps: 1) controls, 2) WTFC, FTWC and FSSB and 3) WTFC, and FTWC, by FSSB interaction term. All analyses were conducted in SPSS, Version 19.</p> <p><b>Key findings relevant to the review:</b> M minutes per night of waking time after sleep</p>	<p><b>Limitations identified by author:</b> Self-report and objective sleep measures were not taken from the same timeframe and could have contributed to differential effects. WTFC (previous 6 months) and FSSB (previous 4 weeks) referent time frames do not share the same level of specificity. Actigraphy data collection lasted one week, so reliability could be improved. Cross sectional nature make causality difficult to ascertain. Additional direct or moderating effects may have been found if the four aspects of FSSB had been measured separately (emotional support, instrumental support, role modelling behaviour, creative work-family management)</p> <p><b>Limitations identified by review team:</b> More detail needs to be provided about recruitment to the study and the interviews.</p>

<p>Journal of Occupational Health Psychology.</p> <p><b>Quality rating:</b> -</p>	<p>work interfere with your family or personal time”. FTW example: “The demands of your family or personal relationships interfere with work-related activities”.</p> <p><u>FSSB-short form:</u> A shortened, validated, parsimonious measure of the superordinate FSSB construct (Hammer et al 2013). Scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater FSSB. <math>\alpha = .88</math>. Example: “Your supervisor makes you feel comfortable talking to him/her about your conflicts between work and non-work”.</p> <p><u>Self-reported (SR) sleep insufficiency:</u> One item: “How often during the past four weeks did you get enough sleep to feel rested upon waking up?” from 1 (never) to 5 (very often). Post-reverse scoring, higher scores indicate greater sleep insufficiency.</p> <p><u>SR sleep duration:</u> Two items from the PSQI (Buysse et al 1989). “Over the past four weeks, what time did you usually turn the lights off to go to sleep?” and “Over the past four weeks, what time did you usually get out of bed?” used to calculate sleep duration.</p> <p><u>SR insomnia symptoms:</u> Two items from the PSQI: “During the past four weeks, how often could you not get to sleep within 30 minutes?” and “During the past four weeks, how often did you wake up in the middle of the night or early morning?” rated from 1 (never) to 4 (<math>\geq 3</math> times/week) and the two averaged. Higher scores indicate more frequent insomnia symptoms.</p> <p><u>Direct actigraphy measured sleep duration and quality:</u> Sleep monitor actigraphs are wristwatch-size devices containing an accelerometer: continuous movement at a research-set threshold is a proxy for being awake (Ancoli- Israel et al 2003, Barnes 2012).</p> <p><u>Control variables:</u> Ethnicity (white/non-white), gender (male/female), children living at home <math>\geq 4</math> days per week and work schedule.</p> <p><b>Dates:</b> Sep 2009 - Sep 2010</p>	<p>data for three or more days out of seven possible days, the criterion considered reliable and valid for participant data (Marino et al., 2013). After listwise deletion, N = 623.</p> <p><b>Number and characteristics of participants:</b></p> <p>623 information technology workers</p> <p>Table missing which summarises demographic data.</p> <p><b>Response rate / Representativeness of sample (if survey)</b></p> <p>For CAPI interview: 69.9% Consenting to actigraphy: 55.4% Final: 52.7%</p>	<p>onset = 44m (SD = 16.83), moderate correlation (<math>r = .41</math>) between self-report sleep time (<math>M = 7.26h</math>, <math>SD = .95</math>) and actigraphically-reported sleep time (<math>M = 7.23</math>, <math>SD = .93</math>).</p> <p>Ethnicity, gender, children at home and work schedule were all significantly related to sleep variables. WTFC, FTWC and FSSB were all significantly correlated with each other in the expected directions. FSSB was significantly associated with sleep insufficiency, insomnia, and sleep duration in expected directions.</p> <p>FSSB was not significantly related to sleep insufficiency (<math>B = -.05</math>, <math>t(623) = -1.16</math>, <math>p = .25</math>), insomnia symptoms (<math>B = -.05</math>, <math>t(621) = -1.12</math>, <math>p = .26</math>), or waking after sleep onset (<math>B = -.10</math>, <math>t(622) = -.12</math>, <math>p = .90</math>), despite the significant negative bivariate correlation between FSSB and sleep insufficiency and insomnia symptoms. FSSB was not significantly related to sleep duration (<math>B = .07</math>, <math>t(623) = 1.36</math>, <math>p = .18</math>) or actigraphic total sleep time (<math>B = -2.83</math>, <math>t(623) = -1.01</math>, <math>p = .31</math>), despite the significant negative bivariate correlation between FSSB and sleep duration. The results partially support hypothesis 2 that family supportive supervisor behaviour is positively related to sleep quality and quantity</p> <p>The authors modelled results relating to the moderating effect of family supportive supervisor behaviour on work family conflict and the results did not support the hypothesis that family supportive supervisor behaviour moderates the negative relationship between work-to family and family to work conflict and sleep quality and sleep quantity.</p>	<p>As it focuses on one profession within one company, external validity is limited.</p> <p>Unclear about the true value of the methodological addition of a theoretical framework.</p> <p>Tables are missing from this version of the study so crucial data is lacking.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Future research should further examine the work-family interface to sleep link and make use of interventions targeting the work-family interface as a means for improving sleep health. Also it should attempt to examine these relationships in a longitudinal design whereby the direction of relationships among WTFC, FTWC, FSSB, and the different sleep measures of quality and quantity can be determined.</p> <p><b>Source of funding:</b></p> <p>Funded by a cooperative agreement through the National Institutes of Health and the Centres for Disease Control and Prevention.</p>
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De Raeve et al.(2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> De Raeve L, Jansen N W, van den Brandt P A, Vasse R and Kant I J</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Interpersonal conflicts at work as a predictor of self-reported health outcomes and occupational mobility, Occup Environ Med 2009;66:16-22.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To examine the effects of interpersonal conflicts at work between baseline and 1-year follow-up on three self-reported health outcomes (self-reported general health, need for recovery, and prolonged fatigue) and on organisational outcomes (occupational mobility ie, changing job function, and external mobility ie, changing employers.) between 1-year and 2-year follow-up.</p> <p><b>Research approach:</b> Longitudinal study</p> <p><b>Data collection:</b> Based on data from the Maastricht Cohort Study on fatigue at work (n=5582 for co-worker conflict; n=5530 for supervisor conflict). Interpersonal conflict with either co-workers or supervisors was assessed between baseline and 1-year follow-up. Outcomes were studied every 4 months between 1-year and 2-year follow-up.</p> <p><b>Method(s):</b> The Maastricht Cohort Study followed employees from 45 different companies through 10 consecutive self-administered questionnaires, which they received at 4-month intervals. Once a year, in May, the employees received an extensive questionnaire with items on work and non-work-related factors, demographics and health factors. Twice a year (in September and January) the employees received a short questionnaire, capturing mainly outcome measures.</p> <p>Conflicts with co-workers and supervisors were measured with two items from the</p>	<p><b>Sample population:</b></p> <p>The baseline questionnaire was sent to 26, 978 employees.</p> <p>The baseline cohort consisted of 12, 140 employees, both blue-collar and white-collar workers.</p> <p>1-year follow-up questionnaire: n=9,655.</p> <p>Extensive questionnaire: n=8,070.</p> <p>Employees on whom at least baseline and 1-year follow-up data were available were considered for this study (n=9,655).</p> <p><b>Sampling approach:</b> Not applicable</p> <p><b>Inclusion/exclusion criteria:</b></p> <p>Women were excluded (n=2606) from the study due to the limited number available for longitudinal analysis and the effects of interpersonal conflict are different for men and women.</p> <p>Employees with multiple jobs at baseline or at the 1 year follow-up were excluded (n=427) because information on the other job was lacking.</p> <p>Employees absent from work because of illness or reported working under modified conditions related to former sickness absence at the time of the baseline or the 1 year follow-up questionnaire were excluded from the analyses (n=943)</p>	<p><b>Brief description of method and process of analysis:</b> Logistic regression analyses using generalised estimating equations were conducted for each of the dichotomous outcomes(self-reported general health, prolonged fatigue, need for recovery, internal occupational mobility (changing job function), and external occupational mobility(changing employer)), while controlling for demographic factors, (age, education, living situation), the presence of a long-term illness, psychological job demands, decision latitude, social support from co-workers or supervisors and coping behaviour, and outcome at baseline.</p> <p>The onset of interpersonal conflicts was assessed between baseline and 1-year follow-up. Employees reporting conflicts at work (both co-worker and supervisor conflict) were divided into four groups because the duration, the settlement and/or the recurrence of a conflict might influence the strength of the effects.</p> <p>All analyses were performed using SPSS 13.0 and STATA 9.2 statistical packages.</p> <p><b>Key findings relevant to the review:</b> Findings indicated a possible causal relationship between interpersonal conflicts at work and self-reported</p>	<p><b>Limitations identified by author:</b> -Interpersonal conflicts were only measured in the questionnaires that were sent out annually. This time interval does not enable identification of the exact onset and duration of the conflict. The strength of the effects found in the study might have been influenced depending on when the conflict started, whether or not it recurred, and how long it lasted.</p> <p>-A range of possible confounders were considered in the study, but the possible existence of unidentified confounding factors could not be ruled out. For example, negative affectivity was not included as a confounder in this study.</p> <p>-Baseline prevalence data may be somewhat biased because of the initial response rate of 45%.</p> <p>-The use of a single item measure to measure both co-worker and supervisor conflict might raise concern with respect to the validity of the study.</p> <p>- The results of the study apply</p>

	<p>Dutch Questionnaire on the Experience and Evaluation of Work (Dutch abbreviation VBBA). Conflicts with co-workers were assessed with the question 'Do you have conflicts with your co-workers? (no/yes)'. Supervisor conflict was assessed with the question 'Do you have conflicts with your daily supervisor? (no/yes)'. Information on interpersonal conflicts was gathered once a year in the extensive questionnaires. Self-reported general health was measured using one item adapted from the SF-36,27 giving an overall rating of health on a five-point scale (1=excellent, 2=very good, 3=good, 4=moderate, 5=bad). The need for recovery from work was assessed every 4 months using an 11-item scale from the VBBA. The items represent short-term effects of a day of work. (Cronbach's alpha 0.78). Prolonged fatigue was measured every 4 months with the 20-item self-reported Checklist Individual Strength (CIS) A composite CIS total score, ranging from 20 to 140 (Cronbach's alpha 0.93), was constructed by adding the item scores. A cut-off point of CIS total .76 was used for case classification.</p> <p><b>Setting(s):</b> Holland.</p> <p><b>Dates:</b> Baseline questionnaire : May 1998. 1-year follow-up questionnaire: May 1999. Extensive questionnaire: May 2000</p> <p>Consecutive short questionnaires were conducted at 4 month intervals between Baseline, 1 year follow up and Extensive questionnaires.</p>	<p>as they might have a distorted view of their work situation because of sickness absence. Employees with missing data on the exposure of interest (97 missing on co-worker conflict and 149 missing on supervisor conflict) were also excluded.</p> <p><b>Number and characteristics of participants:</b></p> <p>Co-worker conflict was studied in 5,582 employees, and supervisor conflict studied in 5,530 employees. Co-worker conflict participants mean age ranged between baseline and 1 year follow up from 40.89 yrs to 42.6 yrs. Supervisor conflict participants mean age ranged between baseline and 1 year follow up from 42.09 to 43.12 yrs.</p> <p><b>Response rate:</b> Baseline questionnaire: 45%. One year follow up questionnaire: 79.5% Extensive questionnaire: 66.5%</p>	<p>health and occupational mobility. At baseline, conflicts with co-workers occurred in 7.2% of the study population, while conflicts with supervisors occurred in 9.5% of the study population. Findings showed that co-worker conflict was a statistically significant risk factor for the onset of an elevated need for recovery, prolonged fatigue, poor general health and external occupational mobility. Supervisor conflict was also a significant risk factor for the onset of an elevated need for recovery, prolonged fatigue, external occupational mobility, and internal occupational mobility. The groups reporting conflicts reported higher levels of psychological job demands, lower levels of decision latitude, less social support from co-workers or supervisors, and higher levels of emotion-focused coping. The results showed that employees experiencing a conflict were more likely to change employers (external mobility) than to change job function (internal mobility). Especially when they experienced a conflict with the supervisor.</p>	<p>to men only. It is possible that results for women are different.</p> <p>- Results might also be influenced by the chosen cut-off points in the dichotomisation of the health variables. There are no existing cut-off points for classifying employees with a marked need for recovery that would put them at risk for future health problems. Therefore this study used the upper tertile to define employees with a considerable need for recovery from work.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Use shorter time intervals to measure the onset of interpersonal conflicts at work. Examine in more detail the interrelations between co-worker and supervisor conflict, and the way in which they might reinforce each other. Use a multi-item scale for measuring interpersonal conflicts at work.</p> <p><b>Source of funding:</b> Not stated.</p>
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## Deery et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis Results	Notes by review team
<p><b>Authors:</b> Deery S J, Iverson R D, Walsh J T</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Coping Strategies in Call Centres: Work Intensity and the Role of Co-workers and Supervisors, <i>British Journal of Industrial Relations</i>, 48:1 March 2010 0007-1080 pp. 181-200</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To examine how different forms of socially supportive coping behaviour at the workplace might help alleviate the effects of a high work-load on the level of emotional exhaustion experienced by call centre workers.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> All data, with the exception of demographic variables, were collected using a five-point Likert-type scale format (1 = strongly disagree; 5 = strongly agree) was used to measure employees' perception of each item.</p> <p><b>Emotional exhaustion</b> (range: 1.00-5.00; M = 3.64; s.d. = 0.95) (Wharton 1993):</p> <ol style="list-style-type: none"> <li>1. I feel emotionally drained from my work.</li> <li>2. I feel used up at the end of the work day.</li> <li>3. I feel burned out from my work.</li> <li>4. I feel frustrated by my job.</li> <li>5. I feel I'm working too hard on my job.</li> </ol> <p><b>Work-load</b> (range: 1.00-5.00; M = 4.05; s.d. = 0.76) (Caplan <i>et al.</i> 1975):</p> <ol style="list-style-type: none"> <li>1. My job requires me to work very fast.</li> <li>2. My job leaves me with very little time to get everything done.</li> <li>3. My job requires me to work very hard (physically or mentally).</li> </ol> <p><b>Co-worker support</b> (range: 1.00-5.00; M = 3.86; s.d. = 0.82) (adapted from House 1981):</p> <ol style="list-style-type: none"> <li>1. My team members can be relied upon when</li> </ol>	<p><b>Sample population:</b> 562 customer service representatives in five locations that had regional responsibilities for enquiries, about accounts, charges and service difficulties.</p> <p><b>Sampling approach:</b> Not stated.</p> <p><b>Inclusion/exclusion criteria:</b> Team leaders were excluded from the survey.</p> <p><b>Number and characteristics of participants:</b> 480 questionnaires were returned. The majority of the respondents were female (69 per cent) and worked full time (85 per cent). The average tenure with the organisation was 7.4 years.</p> <p><b>Response rate:</b> 85 per cent</p>	<p><b>Brief description of method and process of analysis:</b> Hierarchical step-wise regression. Variables (emotional exhaustion, work-load, co-worker support, absence culture, absence permissiveness) were standardized as z-scores in order to test for interaction terms prior to the analysis. Also used one-way analysis of variance, to examine whether there were significant differences between the five locations in the study.</p> <p><b>Key findings relevant to the review:</b> The presence of both an absence culture among an employee's co-workers and permissive attitudes towards absence-taken by team leaders lessened the impact of a high work-load on emotional exhaustion</p>	<p><b>Limitations identified by author:</b> The authors were not able to collect objective absence data in the period following the survey due to the restrictions imposed on their access to organisational records. This prevented them from testing the relationship between absence culture and subsequent absence taking. Research design was cross-sectional and the data were collected at one point in time. This prevented the authors inferring causal relationships between the variables.</p> <p><b>Evidence gaps/recommendations for future research:</b> Further research is needed on the way in which co-worker relations are formed and are mobilized to help alleviate high job demands. Also greater analysis of the accommodative arrangements that emerge between supervisors and</p>

	<p>things get difficult on my job.</p> <ol style="list-style-type: none"> <li>2. My team members are willing to listen to my job-related problems.</li> <li>3. My team members are helpful to me in getting the job done.</li> </ol> <p><b>Absence culture</b> (range: 1.00-5.00; M = 3.01; s.d. = 0.77) (formulated by researchers):</p> <ol style="list-style-type: none"> <li>1. My co-workers agree that you should use your sick leave for reasons other than personal illness.</li> <li>2. My co-workers generally agree that you should use up your sick leave entitlement.</li> <li>3. My co-workers do not care if others are absent from work.</li> </ol> <p><b>Absence permissiveness</b> (range: 1.00-5.00; M = 2.36; s.d. = 0.70) (formulated by researchers):</p> <ol style="list-style-type: none"> <li>1. My team leader doesn't mind if you ring up to take an unscheduled day off.</li> <li>2. My team leader is very strict about unscheduled days off (recoded).</li> <li>3. When you're scheduled to work, my team leader really expects you to be there (recoded).</li> </ol> <p><b>Method(s):</b> The questionnaire was developed after a number of site visits and discussions with focus groups of employees and team leaders. The survey was conducted during working hours. Employees were provided with up to 40 minutes off the job to complete the questionnaire.</p> <p><b>Setting(s):</b> Large unionized telecommunications company in Australia</p> <p><b>Dates:</b> Not stated.</p>		<p>(B = -0.099; p &lt; 0.01). A permissive attitude to absence-taking by team leaders in situations of perceived high job demands reduced job strain. A higher work-load had a less positive effect on emotional exhaustion for those employees who reported higher team leader absence permissiveness. The study also identified a direct (positive) relationship between absence culture and emotional exhaustion at the same time as it found a moderating (negative) effect when workers were faced with high work-loads. [There was not a significant difference in variation within and between the locations.]</p>	<p>their employees to keep the process of production working, through a combination of survey work to examine the attitudes of both employees and their supervisors and ethnographic workplace research to identify the informal and often covert nature of the supportive relationships and practices.</p> <p><b>Source of funding:</b> Not stated.</p>
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Duffield et al. (2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Duffield, Christine, Michael Roche, Linda O'Brien-Pallas, Christine Catling-Paull, Madeleine King</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Duffield, Christine, Michael Roche, Linda O'Brien-Pallas, Christine Catling-Paull, Madeleine King 2009 <i>Staff satisfaction and retention and the role of the Nursing Unit Manager</i> Collegian 16, pp.11-17</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> 80 medical and surgical units in public sector hospitals in New South Wales (NSW), Australia</p> <p><b>Research aims/questions:</b> What are the factors impacting on nurses' job satisfaction, satisfaction with nursing and intention to leave in public sector hospitals in New South Wales (NSW), Australia?</p> <p><b>Overall research approach:</b> Survey</p> <p><b>Data collection methods:</b> A cross-sectional questionnaire - Staffing and patient data were collected on 80 medical and surgical units during 2004/5 and nurses were asked to complete a survey.</p> <p>Data collected for this study included a wide range of individual nurse data from the larger Nurse Survey (NS) including the Nursing Work Index-Revised (Aiken &amp; Patrician, 2000); shift by shift data regarding the complexity of the working environment (Environmental Complexity Scale [ECS]) (O'Brien-Pallas et al., 2004); detailed and comprehensive staffing data including skill mix variables; patient characteristics; workload data using the PRN-80 (Chagnon, Audette, Lebrun, &amp; Tilquin, 1978; O'Brien-Pallas et al., 2004); a profile of the ward's characteristics; and adverse event patient data.</p> <p>The NWI-R was analysed with a five factor structure. These factors include autonomy (freedom to make patient care decisions and not being forced to do things that are against their</p>	<p><b>Sample population:</b> Nurses in 80 medical and surgical units who were in one of the following four roles:</p> <ul style="list-style-type: none"> <li>• Clinical nurse specialists (CNS)—a personal grade awarded to individual nurses on the basis of expertise in a specialty demonstrated by qualifications and/or experience (NSW Health, 2005);</li> <li>• Registered nurses (RN)—responsibility for preparing RNs resides in the university sector, leading to registration at bachelor degree level;</li> <li>• Trainee enrolled nurses (TEN) and enrolled nurses (EN) requires 1 year paid vocational training incorporating 15 weeks at a technical college for theoretical training and the balance in clinical units, and is equivalent to LVN/LPN;</li> <li>• Assistants in nursing (AIN)—equivalent to</li> </ul>	<p><b>Description of analysis method:</b> For descriptive purposes, variables were aggregated to both the ward and total sample levels. Regression analyses were undertaken using hierarchical linear modelling (HLM), a form of analysis designed to deal with multilevel data (Goldstein, 2003). This technique was applied where some variables were measured at the individual nurse level while others were measured at the ward level. HLM may be applied to continuous or dichotomous outcome variables, in the case of the latter, via logistic regression (Goldstein, 2003). In order to compare the relative contributions of the independent variables to the models, beta (̂) weights were calculated where significant at the 0.05 level, using the method recommended for multilevel models by Snijders and Boskers (1999). Nursing response variables were dichotomised in order to deal with non-normal distributions and to improve interpretability. For example, in relation to job satisfaction, 'satisfied' and 'very satisfied' were classed together as were 'dissatisfied' and 'very dissatisfied'; in regard to intent to leave 'yes, within 6 months' and 'yes, within 12 months' were grouped. The remainder were classified as not intending to leave.</p> <p><b>Key findings relevant to the review:</b> The majority of nurses (67 per cent) were moderately or very satisfied with their</p>	<p><b>Limitations identified by author:</b> None reported</p> <p><b>Limitations identified by review team:</b> Demographics of sample not reported. Baseline N of sample not reported. Recruitment of eligible population is not explained. Administration of survey is not explained. Data obtained solely through self-report. Validity of survey measures not reported.</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> Not reported</p>

	<p>judgement); control over practice (having adequate support services that allow time with patients, having enough time and opportunity to discuss patient care problems with other nurses, and having patient care assignments that foster continuity of care); nurse–doctor relationships (fostering collaboration and good working relationships between nurses and medical staff); <u>leadership (having a nurse manager/supervisor who is a good manager and leader</u>, and having a good nursing philosophy that pervades the patient care environment); and resource adequacy (having enough RNs to provide quality patient care and to get the work done)</p> <p>Job satisfaction questions and possible responses were: On the whole, how satisfied are you with your present job? (Very dissatisfied, A little dissatisfied, moderately satisfied, very satisfied) Independent of your present job, how satisfied are you with being a nurse? (Very dissatisfied, A little dissatisfied, moderately satisfied, very satisfied) Do you plan to leave your present nursing position? (Yes within the next sixth months, Yes within the next 12 months, No plans within the year)</p> <p><b>Dates:</b> 2004-5</p>	<p>patient care assistants.</p> <p><b>Sampling approach:</b> Not reported - authors merely state that ‘ Staffing and patient data were collected on 80 medical and surgical units during 2004/5 and nurses were asked to complete a survey.’</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Number and demographics of nurses surveyed is not reported.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> 80.9%</p>	<p>present job. An even higher percentage was moderately or very satisfied with being a nurse (71.7 per cent). Positive predictors of job satisfaction were control over their nursing practice, nurse autonomy and the presence of strong nursing leadership on the ward. (beta weight = 0.107, B = 0.033, S.E. = 0.015, 95 per cent CI = 0.013 to 0.054).</p> <p>Nurses who were less likely to leave were more likely to be satisfied with their job, older, have dependents and experiencing good leadership on the ward (beta weight = 0.167, B = 0.052, S.E. = 0.010, 95 per cent CI = -0.065 to -0.038).</p> <p>Nurses made some distinctions between satisfaction with nursing and satisfaction with the job. As with job satisfaction, they were more likely to be satisfied with nursing if they experienced autonomy in their practice. Similar predictors of less satisfaction with nursing included experiencing emotional abuse in the last five shifts and a perception that the quality of care had deteriorated in the last year. Again, staff other than RNs – enrolled nurses, trainee enrolled nurses and assistants in nursing – were more likely to be satisfied with nursing.</p>	
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## Duffield et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis Results	Notes by review team
<p><b>Authors:</b> Duffield C M, Roche M A, Blay N, Stasa H</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Nursing unit managers, staff retention and the work environment, <i>Journal of Clinical Nursing</i>, 20, 23-33</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> Examine the impact of leadership characteristics of nursing unit managers, as perceived by staff nurses, on staff satisfaction and retention</p> <p><b>Research approach:</b> Survey (secondary analysis of data)</p> <p><b>Data collection:</b> Nurse, environment and patient data were collected for seven consecutive days on 94 randomly selected medical, surgical and combined medical/surgical wards in 21 public hospitals across two Australian states.</p> <p><b>Method(s):</b> All nurses on the selected wards were asked to complete a survey that included a 49-item Nursing Work Index-Revised [NWI-R] together with measures of job satisfaction, satisfaction with nursing and intention to leave.</p> <p><b>Setting(s):</b> Public hospitals in Australia</p> <p><b>Dates:</b> 2004 to 2006</p>	<p><b>Sample population:</b> 3,099 potential consenting respondents across 94 wards.</p> <p><b>Sampling approach:</b> Not stated</p> <p><b>Inclusion/exclusion criteria:</b> Emergency departments, ICUs, paediatric, obstetric and psychiatric units were excluded.</p> <p>In the case of more than 10% missing data, this was not used in analyses.</p> <p><b>Number and characteristics of participants:</b> 2,488 nurses responded. Data from three wards were incomplete and therefore excluded from analyses, leaving a final sample of 2,141 nurses in 91 wards. Most respondents (n = 1,559) were registered nurses (72.8%), including a small number (n = 29) of clinical nurse educators and clinical nurse consultants. Additionally, 531 enrolled nurses or trainee enrolled nurses (24.8%) and 51 assistants in nursing (2.4%) returned completed surveys. More than half of</p>	<p><b>Brief description of method and process of analysis:</b> Subscales of the NWI-R were calculated. Leadership, the domain of interest, consisted of 12 items. Wards were divided into those reporting either positive or negative leadership. The variables job satisfaction, satisfaction with nursing and intention to leave were dichotomous. Data were analysed at the nurse level for description and regression analyses using SPSS version 16.</p> <p><b>Key findings relevant to the review:</b> The item 'Praise and recognition for a job well done' had the strongest influence on job satisfaction and satisfaction with nursing, with an increase of one point linking to a 47% increase in the odds of being satisfied with the job and a 40% increase in the odds of being satisfied with nursing. This item was also associated with a 17% decrease in nurses' intent to leave.</p> <p>In addition, an increase of one on the item 'A nurse manager or immediate supervisor who is a good manager and leader' decreased intent to leave by 20% and increased job satisfaction by 17%. This factor scored highly in positive wards and also in the positive range for wards with an overall negative leadership score.</p> <p>The presence of 'A clear philosophy of</p>	<p><b>Limitations identified by author:</b> None stated.</p> <p><b>Limitations identified by review team:</b> Any potential sources of bias/confounders not addressed.</p> <p><b>Evidence gaps/recommendations for future research:</b> None identified.</p> <p><b>Source of funding:</b> NSW Health and another Australian state health authority.</p> <p>The authors also acknowledge support from Grant-in-aid for Scientific Research (B: principal investigator Yoshifumi Nakata) by The Japan Society of Promotion of Science and Grant for International Collaborative Research (principal investigator Yoshifumi Nakata) by Pfizer Health Research Foundation</p>

		<p>respondents were employed full time (n = 1107, 51.7%), with the remainder working part time (&lt;38 hours/week, n = 696, 32.5%) or casually (n = 338, 15.8%).</p> <p><b>Response rate (if relevant):</b> 80.3%</p>	<p>nursing that pervades the patient care environment' increased satisfaction with nursing and job satisfaction by 29% and 26%, respectively.</p> <p>There were five items that distinguished between wards with positive leadership scores and those with negative scores:</p> <ul style="list-style-type: none"> <li>• A nurse manager or immediate supervisor who is a good manager or leader</li> <li>• Nurse managers consult with staff on daily problems and procedures</li> <li>• Flexible or modified work schedules are available</li> <li>• A senior nursing administrator who is highly visible and accessible to staff</li> <li>• Praise and recognition for a job well done.</li> </ul> <p>An immediate nurse manager who is perceived to be a good leader and manager by the staff is also related to job satisfaction and retention.</p>	
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Frenkel et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Frenkel , Stephen, Karin Sanders and Tim Bednall</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Frenkel , Stephen, Karin Sanders and Tim Bednall 2013 <i>Employee perceptions of management relations as influences on job satisfaction and quit intentions</i> Asia Pacific Journal of Management 30(7) pp.7-29</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Ten firms with strong reputations as ‘good employers’ based on advanced HR policies in their respective industries in Australia. These include financial services (three organisations), hospitality (three organisations), communications (two organisations), and beverages (two organisations).</p> <p><b>Research aims/questions:</b> How employee perceptions of the effects of relationships between different types of management—senior, line, and human resource managers—are related to employees’ job satisfaction and intention to quit.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> The authors examined documentary evidence and conducted semi-structured interviews averaging 1.3 hours with HR managers, senior managers, and line managers who are in immediate contact with employees. The interviews included a network questionnaire that summarily described relationships between HR and line managers. The main data-gathering instrument was an employee survey administered at each firm to assist in exploring employee perceptions of management influence and worker</p>	<p><b>Sample population:</b> 3,787 employees across the ten firms</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Of the total 1,553 participants, 51.2% were male, the mean age being 32.91 years (SD = 9.89). The average organisational tenure of respondents was 4.88 years (SD = 5.61) and average working hours was estimated to be 42.41 hours per week (SD = 10.36).</p> <p>Financial service: <u>Investment bank:</u> N = 39, % women = 32, mean age (years) = 40.41, mean firm tenure (months) = 82.55, HR participants N = 3, line manager participants N = 7. <u>Accounting:</u> N = 204, % women = 52, mean age (years) = 31.52, mean firm tenure (months) = 37.7, HR participants N = 7, line manager participants N = 7. <u>Insurance:</u> N = 121, % women = 55, mean age (years) = 38.25, mean firm tenure (months) = 96.02, HR participants N = 5, line manager participants N = 8.</p> <p>Hospitality <u>5-Star Hotel, Sydney 1:</u> N = 53, % women = 60, mean age (years) = 30.81, mean</p>	<p><b>Description of analysis method:</b> Hierarchical linear modelling (HLM) was used to simultaneously model effects within and between organisations. Given the small number of organisations the authors used restricted maximum likelihood (REML) estimation in the different HLM analyses. They used a random intercept and clustered on organisation. Since the effects of individual level variables, employee characteristics, and employee perceptions did not differ across the organisations, all variables were treated as fixed effects.</p> <p>The factor structure of the data was assessed by conducting a confirmatory factor analysis (CFA).</p> <p><b>Key findings relevant to the review:</b> The results indicate that employees who hold a consistent view of the level of support offered by line and senior management experience greater work satisfaction, and are less inclined to quit their jobs. These relationships are strengthened when communication between senior managers and HR is frequent.</p> <p>The study found that employees’ perceptions of the relations between senior and line management were positively related to job satisfaction and intention to quit. The mean level of job satisfaction was 3.9 (SD = .74 (α = .83)) and the mean level of intention to quit was 2.44 (SD = 1.08 (α = .90)). The mean level of HR-support to line managers was 3.39, (SD = .83 (α = .93)). The correlation coefficient between job satisfaction and HR-line manager support was .42, significant at p &lt; .01.</p>	<p><b>Limitations identified by author:</b> Based mainly on cross-sectional survey data, it is impossible to confidently distinguish cause from effect.</p> <p>Common method variance arising from reliance on a single source was acknowledged as a potentially significant problem, authors showed that this was not the case and used complementary research methods to provide supporting evidence.</p> <p>Small number of organisations (ten organisations were included in our sample) which limits generalisability of their findings</p> <p><b>Limitations identified by review team:</b></p>

	<p>attitudes to aspects of their job and organisation.</p> <p>Survey participation was voluntary and confidential. Surveys were administered either on-line or in paper-and-pencil format. Based on comparisons of theoretically relevant variables and demographic data, no significant differences were found between employees responding via the different formats. Respondents had two weeks to complete the survey with one reminder. Employee perceptions of HR-line support was measured using ten items on a 5-point Likert scale (1 = not at all, 5 = very effective). Note that all ten firms employed HR advisers or internal consultants within business units. These managers were visible and usually well-known to employees. Job satisfaction and intention to quit were both measured with three-item scales.</p> <p>Several demographic variables were included to control for the effects of individual differences (Eisenberger, Cummings, Armeli, &amp; Lynch, 1997; Tsui et al., 1997). Age was measured in years. Gender was a categorical variable with ' 0' representing male and ' 1' female. Tenure in current position, in the organisation, and in the industry, was measured by number of months. Working hours was measured as hours a week and like number of months, was treated as a continuous variable.</p> <p><b>Dates:</b> Not reported</p>	<p>firm tenure (months) = 48.85, HR participants N = 2, line manager participants N = 8.</p> <p><u>5-Star Hotel, Melbourne:</u> N = 128, % women = 55, mean age (years) = 28.86, mean firm tenure (months) = 31.95, HR participants N = 5, line manager participants N = 9.</p> <p><u>5-Star Hotel, Sydney 2:</u> N = 130, % women = 48, mean age (years) = 29.72, mean firm tenure (months) = 44.42, HR participants N = 4, line manager participants N = 8.</p> <p><b>Communications:</b>  <u>Telecoms:</u> N = 160, % women = 49, mean age (years) = 32.27, mean firm tenure (months) = 48.69, HR participants N = 4, line manager participants N = 6.  <u>Call centre outsourcer:</u> N = 185, % women = 54, mean age (years) = 26.53, mean firm tenure (months) = 24.06, HR participants N = 4, line manager participants N = 11.</p> <p><b>Beverage:</b>  <u>Beverage, regional:</u> N = 97, % women = 28, mean age (years) = 39.87, mean firm tenure (months) = 115.94, HR participants N = 9, line manager participants N = 8.  <u>Beverage, global:</u> N = 236, % women = 45, mean age (years) = 38.35, mean firm tenure (months) = 89, HR participants N = 5, line manager participants N = 20.</p> <p><b>Response rate:</b>  35.7%. A total of 3,787 surveys were distributed, and 1,553 were completed.</p>	<p>The employee outcomes were then regressed on the variable representing the extent of agreement between senior and line management and the results indicate that this variable influenced job satisfaction (positively .05, significant at <math>p \leq .05</math>) and intention to quit (negatively: -.09, significant at <math>p \leq .01</math>).</p> <p>The interaction between HR-line management support and extent of agreement between senior and line management. The results indicate significant effects for HR-line support on the two employee outcomes. The main effect of HR-line management support is significant for both job satisfaction (.32, significant at <math>p \leq .01</math>) and intention to quit (.45, significant at <math>p \leq .01</math>), however the interaction between extent of agreement between senior and line management as perceived by employees and HR-line management support is not significant for either dependent variable. Therefore the authors conclude that HR-line management support does not strengthen the relationship between the extent of agreement between senior and line management and the two employee outcomes.</p> <p>Finally to examine whether HR-line management relations is a moderator in the relationship between agreement between senior and line management and the two employee outcomes, a further model was constructed. Although no significant main effect was for HR-LM relations, the interaction between the extent of agreement between senior and line management relations and HR-line manager relations was significant for job satisfaction (.05, significant at <math>p \leq .01</math>), and intention to quit (-.05, significant at <math>p \leq .01</math>).</p>	<p>Recruitment of participants and administration of survey unclear.</p> <p>Theoretical grounding of survey unclear</p> <p><b>Evidence gaps/recommendations for future research:</b>  Not reported</p> <p><b>Source of funding:</b>  Not reported</p>
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## Furtado et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Furtado, Luís Carlos Do Rego, Maria Da Graça Câmara Batista and Francisco José Ferreira Silva</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Furtado, Luís Carlos Do Rego, Maria Da Graça Câmara Batista and Francisco José Ferreira Silva 2011 <i>Leadership and job satisfaction among Azorean hospital nurses: an application of the situational leadership model</i> Journal of Nursing Management pp. 1047-1957</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Two public Portuguese Azorean hospitals</p> <p><b>Research aims/questions:</b> To describe nurse managers' leadership behaviours, comparing them with staff nurses' perceptions of their leader's leadership, as well as to determine if leadership components affect job satisfaction among staff nurses.</p> <p><b>Overall research approach:</b> This quantitative study used descriptive, inferential (Wilcoxon, Student t, and one-way ANOVA tests) and correlational statistics to establish relations with a statistical value between perceptions of leadership and the different levels of job satisfaction.</p> <p><b>Data collection method:</b> The instrument developed to collect data for this study was organized in three distinct sections: (1) demographic and work-related questions, (2) leadership effectiveness and adaptability description (LEAD), and (3) job satisfaction. Before the final implementation of the questionnaire, the instrument was tested on a sample of 30 individuals with similar characteristics to those in the final sample. This procedure allowed the researchers to reformulate some questions and structure the questionnaire as efficiently as possible.</p> <p><b>Demographic and work-related questionnaire</b> This section of the questionnaire included the collection of information regarding gender, age group, qualifications and professional category, weekly hours of workload, and work arrangements (rotating schedule and/or extra shifts) as well as information on the type of employment contract.</p> <p><b>Leadership effectiveness and adaptability</b></p>	<p><b>Sample population:</b> The study was conducted in two public hospitals in the Azores (Portugal). These two health-care facilities employ a total of 720 registered nurses. The study population did not include nurses who worked in operating theatres and outpatient services; therefore, the target population was 451 registered nurses.</p> <p><b>Sampling approach:</b> The researchers distributed 451 questionnaires in the two hospitals, collecting a total of 289 instruments.</p> <p><b>Inclusion/exclusion criteria:</b> Of these 289, 23 questionnaires were excluded as they were incomplete.</p> <p><b>Number and characteristics of participants:</b> The final sample included 266 nurses: 22 nurse managers and 244 staff nurses. The average head nurse was female, nearly 47 years of age, with 26 years of professional experience, including 12 years of experience in management and 8 years as the head of the current ward. The average staff nurse was also a female, 31 years old, with 7.5</p>	<p><b>Description of analysis method:</b> Authors used the Statistical Package for the Social Sciences 15.0 software (Azores University, Ponta Delgada City, São Miguel Island, Azores - Portugal) for Windows. After checking for outliers and missing data, the descriptive analysis was initiated using absolute and relative frequencies, central tendency and dispersion measures. The hypotheses were then tested according to their statistical properties. To compare medians of the two populations under study, the Wilcoxon nonparametric test was used. The Student t-test and one-way ANOVA were used as parametric tests. For the application of parametric tests, the 'job satisfaction' variable was verified for normality and homogeneity using Kolmogorov-Smirnov's and Levene's tests.</p> <p><b>Key findings relevant to the review:</b> The job satisfaction of staff nurses averaged 66.0 per cent and was significantly lower than the satisfaction levels of nurse managers (71.7 per cent) (<math>p \leq .01</math>) The results concerning the relationship between situational leadership's components and staff nurses' job satisfaction, breaks down into three subsets: profile (a),</p>	<p><b>Limitations identified by author:</b> The average duration for completing the questionnaire was 40 minutes, which could have led to some index of exhaustion among the respondents.</p> <p><b>Limitations identified by review team:</b> The theoretical and applied support for Hersey and Blanchard's leadership model is not substantiated or supported in the text. Data obtained solely by self-report <math>\alpha</math>'s or other indications of reliability were not reported for the measures</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.</p>

	<p><u>description instrument.</u> This instrument was developed and validated by Hersey and Blanchard and consists of 12 questions; each one has four different scenarios of response. The respondent must fit into the scene and transpose it into his or her own reality, then choose a response that reflects his/her behaviour or, if evaluating superiors, choose a response that reflects their behaviour. The responses was used to determine leadership <u>style</u> (determining; persuading; sharing or delegating); <u>versatility</u> (the extent to which a leader can vary his or her leadership style); <u>profile</u> (ie the combination of a leader's dominant and secondary support style) and <u>adaptability</u>.</p> <p><u>Job satisfaction questionnaire.</u> The instrument for determining job satisfaction among nurses was developed and validated by the authors after being applied in a small sample with similar characteristics to the sample used in the final application. The instrument consisted of 100 closed questions with a Likert scale, where one corresponded to total lack of job satisfaction and five to the maximum job satisfaction. The values obtainable by applying the questionnaire could range between 0 and 100%. For operational purposes, the variable for job satisfaction was arranged into groups: 'no satisfaction' (&lt;50%), 'low satisfaction' (50-70%), 'moderate satisfaction' (70-85%) and 'strong satisfaction' (≥85%).</p> <p><b>Dates:</b> May 1-15, 2010</p>	<p>years of professional experience and an average length of stay in the current ward of 5 years. Most nurse managers had a degree in nursing and a specialization. Among the staff nurses, the clear predominance was a nursing degree as the base qualification. Head nurses worked, on average, 42 hours per week (2 hours more than their employees); the overwhelming majority of staff nurses work in shifts. An extensive diversity of employment contract situations exists, but most had a permanent and full-time link. Head nurses were asked about the management training they had received, and they reported an acceptable level of training in only two items ('performance Evaluation' and 'nursing care management'). The remaining items indicated levels of around 50% and, in some cases, &lt;50%. Slightly more than 9% of nurse managers had no formal qualifications for the post in which they worked.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> 58.9%</p>	<p>versatility (b) and adaptability (c). The first two subsets were analysed using a one-way ANOVA test while the third was analysed using a Student t-test. After running the one-way ANOVA test, it was determined that leadership's profile seemed to have an impact on staff nurses' job satisfaction. In particular the persuading and sharing profile was associated with higher average values of job satisfaction when compared with other profiles (ANOVA: F = 7.400, p = 0.000 &lt; .05), whereas no statistically significant relationships were found between versatility or adaptability and job satisfaction. A correlation was also found between nurses' job satisfaction and leadership profile : Spearman's coefficient = 0.169, significant at p &lt; .01</p>	
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## Giallonardo et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Giallonardo, Lisa M, Carol A Wong, Carroll L Iwasiw</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Giallonardo, Lisa M, Carol A Wong, Carroll L Iwasiw 2010 <i>Authentic leadership of preceptors: predictor of new graduate nurses' work engagement and job satisfaction</i> Journal of Nursing Management 18 pp.993-1003</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Healthcare settings in Ontario</p> <p><b>Research aims/questions:</b> To examine the relationships between new graduate nurses' perceptions of preceptor authentic leadership, work engagement and job satisfaction.</p> <p>Hypothesis: New graduate nurses perceptions of preceptor authentic leadership positively predict work engagement and job satisfaction.</p> <p><b>Overall research approach:</b> A non-experimental, predictive survey</p> <p><b>Data collection method:</b> Data were collected by mailed survey. Consistent with the strategies advocated by Dillman (1978) to maximize survey return rate, each participant was mailed a package that included the questionnaire, letter of information, a self-addressed stamped envelope and a gift certificate for a local coffee shop. Two weeks after the initial mailing, a reminder letter was sent to all non-respondents. Then, 3 weeks after the second mailing, a final package consisting of a follow-up letter, replacement questionnaire and a self-addressed stamped envelope was sent to all non-respondents.</p> <p>Three standardized self-report instruments were used to measure study variables. The Authentic Leadership Questionnaire (ALQ) (Avolio et al. 2007) was used to measure <u>new graduate nurses' perception of preceptor authentic leadership</u>. The ALQ consists of 16 items, divided into the four authentic leadership subscales: relational transparency, balanced processing, self-awareness and internalized moral perspective. Confirmatory factor analysis has supported the validity of the four dimensions of authentic leadership (Walumbwa et al. 2008a). Items are rated on a five-point Likert scale ranging from 0 = not at all to 4 = frequently, if</p>	<p><b>Sample population:</b> New nurses in Ontario</p> <p><b>Sampling approach:</b> The sample of nurses used in this study was randomly selected from the College of Nurses of Ontario (CNO) registry list.</p> <p><b>Inclusion/exclusion criteria:</b> Initially, nurses working in acute care settings, with &lt;2 years nursing experience were sought. The inclusion criteria were later modified to include new graduate nurses with less than or equal to 3 years of nursing experience because the timing of sample collection coincided with the timing of annual membership renewal, resulting in the majority of the sample having more than 2 years working experience.</p> <p><b>Number and characteristics of participants:</b> 170 survey responses. The majority of nurses in the sample were female (91.8%), attended a 4-year BScN programme (92.4%) and were employed full-time (75.3%).</p>	<p><b>Description of analysis method:</b> Descriptive statistics were computed on all study variables. Pearsons correlations, hierarchical multiple regression and mediation analysis (Baron &amp; Kenny 1986) were used to test the study hypotheses. Consistent with the assumptions outlined by Polit and Beck (2008), data were normally distributed and a linear relationship existed between the independent variable (authentic leadership) and dependent variables (work engagement and job satisfaction).</p> <p><b>Key findings relevant to the review:</b> New graduate nurses perceived their preceptors to have a <u>moderate level of authentic leadership</u> (<math>M = 3.05</math>, <math>SD = 0.62</math>). As these groups have not been studied in authentic leadership research, no direct comparisons could be made with other like</p>	<p><b>Limitations identified by author:</b> The limitations of this study are related to the methodology used to gather data and select the sample. While self-report questionnaires are cost effective and less time consuming than other methods, there is the potential for response bias (Polit &amp; Beck 2008). In addition, the CNO data are only as current as the previous year's registration; leading to the possibility that some new graduate nurses may have been missed. There is also the possibility that there are new graduates who were not listed because they indicated on their registration form that they did not want to participate in any research.</p> <p><b>Limitations identified by review team:</b></p>

	<p>not always. Each subscale was averaged to produce a total scale score between 0 and 4 with higher scores representative of higher levels of authenticity. Acceptable internal consistency has been consistently reported, as evident by Cronbach's alphas ranging from 0.70 to 0.90 (Walumbwa et al. 2008a).</p> <p>The Utrecht Work Engagement Scale (UWES) (Schaufeli &amp; Bakker 2003) is a self-report questionnaire and was used to measure the work engagement of new graduate nurses in this study.</p> <p>Job satisfaction among study participants was assessed using Part B of the Index of Work Satisfaction scale (IWS) (Stamps 1997). This instrument consists of 44 items divided into six subscales: pay, autonomy, task requirements, organisational policies, professional status and interaction. Items are rated on a seven-point Likert scale ranging from ranging from 1 = strongly agree to 7 = strongly disagree. The responses to each item were summed to obtain the Total Scale Score (TSS), which represented the participants' current level of job satisfaction. Possible scores range from 44 to 308, with higher scores indicating higher job satisfaction. Acceptable internal consistencies of 0.77-0.91 have been consistently reported (Stamps 1997, Zangaro &amp; Soeken 2005). In the present study, Cronbach's reliability coefficient for the IWS was 0.89; subscales ranged from 0.60 to 0.89, with the subscale of professional status resulting in an alpha of &lt;0.70.</p> <p>A researcher-developed demographic questionnaire was included to elicit descriptive information about participants' age, gender, year of graduation, type of nursing programme attended, academic institution attended, length of employment in the current work setting, employment status, speciality area and preceptorship experience.</p>	<p>New graduate nurses averaged 28 years of age, 22 months experience in nursing and 2.45 years since graduation. Medical-surgical was the most common area of practice (45.9%), followed by critical care (15.3%) and emergency (14.7%)</p> <p><b>Response rate / Representativeness of sample (if survey)</b> 39%</p>	<p>groups.</p> <p>The level of job satisfaction, or TSS for this sample, was in the third quartile (between the 50th and 75th percentile) (M = 192.22, SD = 27.12) of the highest possible score of 308, indicating a moderate level of job satisfaction (Stamps 1997).</p> <p>When authentic leadership was entered into the regression, work engagement and authentic leadership accounted for 20% of the variance in <u>job satisfaction</u> (<math>R^2 = 0.20</math>, <math>F = 20.24</math>, <math>P &lt; 0.01</math>).</p> <p>Furthermore, work engagement and preceptor authentic leadership were both significant independent predictors of job satisfaction (<math>\beta = 0.34</math>, <math>t = 4.80</math>, <math>P &lt; 0.01</math> and <math>\beta = 0.22</math>, <math>t = 3.02</math>, <math>P &lt; 0.01</math>)</p>	<p>Setting is unclear. Unclear how possible confounders were controlled for.</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported</p> <p><b>Source of funding:</b> Not reported</p>
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## Gilbreath and Karimi (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Gilbreath, B. and Karimi, L.</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Gilbreath, B. and Karimi, L. (2012). Supervisor behavior and employee presenteeism. <i>International Journal of Leadership Studies</i>, 7, 114-131.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> This study investigated the extent to which supervisor behaviour is associated with employee presenteeism. It also investigated the efficacy of a measure of job-stress-related presenteeism.</p> <p><b>Research approach:</b> Cross-sectional survey</p> <p><b>Data collection:</b> Paper and pencil questionnaire</p> <p><b>Method(s):</b> Packets containing an introduction to the study, an invitation to participate and a questionnaire was mailed to 400 employees. An email reminder was also sent to potential participants. Data were collected via a paper-and-pencil questionnaire and except for demographics and controls, all variables were measured using Likert-type responses. Data collected on age, type of work and hours worked per week.</p> <p><i>Supervisor Behaviour:</i> was measured with the Supervisor Practices Instrument (SPI). High scores indicate that supervisors engage more frequently in positive behaviours. The response anchors range from all the time (5) to never (1). 63 items covering a wide</p>	<p><b>Sample population:</b> Data collected from Australian employees in two hospitals. Questionnaire was mailed to 400 employees.</p> <p><b>Sampling approach:</b> Convenience sample</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> A total of 180 questionnaires were received, yielding a response rate of 45%. A review of the data revealed that 31 questionnaires were unusable because of incompleteness, resulting in a final data set of 149 respondents. The resulting sample was 59% male with a median age of 31. 11% of respondents were in managerial/supervisory positions, 18% were in manual positions and 71% were in non-manual (eg administrative, technical, sales) positions. Among these, 46% were working part-time and 54% were full-time employees.</p> <p><b>Response rate (if relevant):</b> 45% (before the 31 incomplete questionnaires were removed)</p>	<p><b>Brief description of method and process of analysis:</b> Confirmatory Factor Analysis was performed to test the discriminant validity of the positive and negative dimensions of supervisor behaviour. Model fit was evaluated using the chi-square statistic.</p> <p><b>Key findings relevant to the review:</b> Employees' presenteeism was significantly correlated with age, job stress and negative and positive supervisor behaviour (<math>p &lt; .01</math>). Negative supervisor behaviour made a statistically significant contribution to the prediction of presenteeism scores (<math>\beta = .50</math>) beyond age, part-or-fulltime employment and hours worked per week.</p> <p>The absolute value of the correlation between positive supervisor behaviour and presenteeism (<math>-.36</math>) is much smaller than that for negative supervisor behaviour (<math>.57</math>). Hierarchical regression analysis was used to conduct an additional test of the difference in degree of association. Control variables were added in step 1, positive supervisor behaviour in step 2 and negative supervisor behaviour in step 3.</p>	<p><b>Limitations identified by author:</b> Exclusive use of questionnaire-based measures creates the potential mono-method bias. Exclusive reliance on data provided by employees rather than data from co-workers or outsiders. These are undoubtedly subject to potential distortion. Presenteeism, is for the most part, an unobservable mental state that is difficult to verify. Study was cross sectional. Could reverse causality explain the findings?</p> <p><b>Limitations identified by review team:</b> Generalisability to the UK healthcare setting may not work. No details given about how non-respondents differ to the sample. Differences between the types of work not reported.</p> <p><b>Evidence gaps/recommendations for future research:</b> Extensions of this study, should, when possible utilise multiple data sources.</p>

	<p>variety of supervisory behaviours (both positive (<math>\alpha=.98</math>) and negative(<math>\alpha=.92</math>), a mean score of positive and negative behaviour is then calculated).</p> <p><i>Job-stress</i>: measured with two items created by Motowidlo et al. (1986) to assess the stress employees experience because of their job. High scores on this scale suggest higher levels of job stress (<math>\alpha=.80</math>).</p> <p><i>Job-stress-related presenteeism</i>: a self-report scale created by Gilbreath and Frew (2008) was used - this study being the first applied used of the scale. Scale anchors were all the time (5), never (1), and had 6 items to respond to (<math>\alpha=.91</math>).</p> <p><b>Setting(s):</b> Australian employees in two hospitals.</p> <p><b>Dates:</b> Not reported</p>		<p>Although positive supervisor behaviour was significant at step 2 of the analysis (<math>\beta=-.36</math>, <math>p&lt;.01</math>) it did not make a statistically significant contribution to the prediction of presenteeism beyond negative supervisor behaviour (<math>\beta=-.08</math>, <math>p&lt;.01</math>). Negative supervisor behaviour will have stronger associations on job-stress-related presenteeism than positive supervisor behaviour. Supervisor behaviours that had the highest correlation with employee presenteeism were: failing to properly monitor and manage group dynamics, making decisions that affect employees without seeking their input, showing disinterest in employees' ideas and projects, easily threatened by competent employees, remains aloof from employees, ignores employees' suggestions, tends to be guarded in communications. The supervisor behaviour with the highest negative correlation with employee presenteeism was helps employees keep work in perspective.</p>	<p>Research is needed to establish convergent and divergent validity for the presenteeism subtype focused on in this study.</p> <p>Research on individual-difference variables that make people more or less prone to presenteeism would be valuable, as would research on work-environment factors that moderate the relationship between job stress and presenteeism.</p> <p><b>Source of funding:</b> Not reported</p>
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Gillet et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Gillet N. , Colombat P. , Michinov E. , Pronost A. - M. &amp; Fouquereau, E</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Gillet N. , Colombat P. , Michinov E. , Pronost A. - M. &amp; Fouquereau, E (2013) Procedural justice, supervisor autonomy support, work satisfaction, organisational identification and job performance: the</p>	<p><b>Setting(s):</b> Nurses representing 47 haematology, oncology or haematology/oncology units from cancer centre units in one province in the northwest of France.</p> <p><b>Research aims/questions:</b> To test a model linking procedural justice, supervisor autonomy support, need satisfaction, organisational support, work satisfaction, organisational identification and job performance.</p> <p><b>Overall research approach:</b> A correlational, cross-sectional design was used to investigate the research model.</p> <p><b>Data collection method:</b> Measures used in the study to assess independent variables were as follows:</p> <ul style="list-style-type: none"> <li>● <b>Procedural justice</b> - Six items (eg ‘My supervisor clarifies decisions and provides additional information when requested’) from Niehoff and Moorman scale (1993) was used to assess nurses’ perceptions of procedural justice on a 7-point Likert-type scale)</li> <li>● <b>Supervisor autonomy support</b> - Nurses’ perceptions of supervisor autonomy support were assessed with the French version of the scale used by Moreau and Mageau (2012). A nine-item self-report measure (eg ‘My supervisor consults with me to find out what modifications I would like to make to my work’) was used with a 7-point Likert-type scale</li> <li>● <b>Need satisfaction</b> - Nurses’ need satisfaction was assessed with the Basic Psychological Needs in Sport Scale (Gillet et al. 2008). The scale was modified to assess need satisfaction in the work domain (see also Gillet et al. 2012) by replacing ‘in my sport activity’ by ‘in my work’. The questionnaire has three subscales for autonomy, competence and relatedness with a total of 15 items assessed through 7-point Likert type scale. An overall index of need satisfaction which aggregates across the three needs was created (see Smith et al. 2011).</li> </ul>	<p><b>Sample population:</b> 323 nurses working in haematology, oncology or haematology/oncology units from cancer centre units in one province in the northwest of France.</p> <p><b>Sampling approach:</b> Convenience sample. All supervisors were sent questionnaires to distribute to their teams. Questionnaire was distributed to 500 nurses and 323 responded.</p> <p><b>Inclusion/exclusion criteria:</b> None described</p> <p><b>Number and characteristics of participants:</b> Participants were 323 nurses (306 women and 17 men) working in a haematology unit (n = 41), an oncology unit (n = 203) or a haematology/oncology unit (n = 79). The</p>	<p><b>Description of analysis method:</b> The reliability of the scales was measured by Cronbach’s alpha. In addition, descriptive statistics and Pearson correlations were computed for all study variables. The hypothesized structural model was tested using structural equation modelling. Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables. This analysis was conducted on the covariance matrix and the solutions were generated on the basis of maximum likelihood estimation. We used well-established indices to assess model fit of the hypothesized model: the chi-square (<math>\chi^2</math>) and significance (P), the chi-square/degrees of freedom ratio (<math>\chi^2/d.f.</math>) and incremental fit indices such as the Comparative Fit Index (CFI), the Incremental Fit Index (IFI), the Goodness of Fit Index (GFI) and the Root Mean Square Error of Approximation (RMSEA).</p> <p><b>Key findings relevant to the review:</b> Procedural justice and supervisor autonomy support significantly and positively influenced need satisfaction and perceived</p>	<p><b>Limitations identified by author:</b> The design was correlational so causality cannot be inferred. Second, all the outcomes used self-reported measures. Such measures can be impacted by social desirability. We only considered one form of organisational justice (ie procedural justice). We obtained the data in only one country (France) and the possibilities of generalizing to other countries need to be demonstrated.</p> <p><b>Limitations identified by review team:</b> Questionnaires were distributed via supervisors and had to be returned to supervisors. Given that the study was about supervisor support, using the supervisor as the distribution mechanism may have an impact on those who returned the study. Adaptation of a scale to study needs of people in sport for a survey about work-related needs may not be appropriate and a more suitable instrument for the context of the study should have been used. Work satisfaction was assessed</p>

<p>mediating role of need satisfaction and perceived organisational support. Journal of Advanced Nursing, 69 (11), 2560-2571.</p> <p>Quality rating: +</p>	<ul style="list-style-type: none"> <li>● <b>Perceived organisational support</b> - Perceived organisational support was measured with an eight-item version of the Perceived Organisational Support Scale developed by Eisenberger et al. (1986). The scale includes two items that are reverse scored (eg 'The organisation shows very little concern for me') and used a 7 point Likert scale</li> <li>● Outcomes were assessed as follows:</li> <li>● <b>Work satisfaction</b> (ie 'Globally, I am satisfied with my work') and <b>job performance</b> (ie 'How do you evaluate your team's quality of work?') were each measured using single items with 5-point Likert-type scale for work satisfaction and a 10-point Likert-type scale for job performance.</li> <li>● <b>Organisational identification</b> was measured with an aided visual diagram reflecting the relation between the nurses and their unit (see Bergami &amp; Bergozzi 2000 which asked participants to circle one of the four pictures (ie 1-4) best describing the link between them and their unit. Higher scores represented higher organisational identification.</li> </ul> <p>The reliability of the scales was measured by Cronbach's alpha for which all alphas were in acceptable ranges (between 0.83-0.91). In addition, descriptive statistics and Pearson correlations were computed for all study variables. The hypothesized structural model was tested using structural equation modelling. Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables. This analysis was conducted on the covariance matrix and the solutions were generated on the basis of maximum likelihood estimation.</p> <p><b>Dates:</b> Data collection was in 2011</p>	<p>mean age of the participants was 36_28 years (SD 10_31) and the average length of service in the unit was 6_70 years (SD 7_30).</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Questionnaire was distributed to 500 nurses (via supervisors) and 323 responded (64.6% response rate). No data is given on non-respondents so it is not possible to say whether the sample is representative.</p>	<p>organisational support, which in turn positively predicted work satisfaction, organisational identification and job performance.</p> <p>Procedural justice has a positive and statistically significant relationship with need satisfaction (0.28) and perceived organisational support (0.48).Autonomy support has a positive and statistically significant relationship with need satisfaction (0.24) and perceived organisational support (0.24).Need satisfaction has a positive and statistically significant relationship with organisational identification (0.29), performance (0.26) and work satisfaction (0.30).Perceived organisational support has positive and statistically significant relationship with organisational identification (0.16), performance (0.28) and work satisfaction (0.12). All significant (p = &lt;0.5)</p> <p>The size of the effect between procedural justice and perceived organisational support (b = 0_48, P &lt; 0_05) highlighted the importance of procedural justice in creating work conditions that facilitate nurses' perceptions of organisational support, that in turn are positively associated with work satisfaction, organisational identification and job performance.</p>	<p>through a single item measure although this is a multi-faceted concept which usually requires multiple item assessment.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research using longitudinal and experimental designs should be conducted to improve understanding about the effects of procedural justice, supervisor autonomy support, need satisfaction and perceived organisational support on work satisfaction, organisational identification and job performance. Further research using objective assessment of outcomes is encouraged. Future research should assess work satisfaction and organisational identification with multi-item scales. It would be interesting to examine the role of other dimensions of organisational justice (ie distributive justice, informational justice and interpersonal justice) on nurses' well-being and job performance.</p> <p><b>Source of funding:</b> This project was funded by the French Ministry of Health and Social Affairs (Clinical Research Project).</p>
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Gilstrap & Collins (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> J. Bruce Gilstrap and Brian J. Collins</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> J. Bruce Gilstrap and Brian J. Collins (2012), The Importance of Being Trustworthy: Trust as a Mediator of the Relationship Between Leader Behaviors and Employee Job Satisfaction, Journal of Leadership &amp; Organisational Studies, vol 19 (2), pp152-163</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> A large industrial corporation in the Midwestern United States</p> <p><b>Research aims/questions:</b> The authors examined the relationship between leader behaviours and subordinate job satisfaction by adopting the theoretical perspective of the integrative model of trust. The authors hypothesized that one's trust in their supervisor mediates the relationships of procedural and informational justice and transformational leadership behaviour with subordinate job satisfaction.</p> <p>Transformational leaders are defined as individuals who inspire followers to transcend their own self-interests for the good of the organisation (Bass, 1990). Transformational leadership involves changing subordinates' values, beliefs, and attitudes so that they are aligned with those of the leader and, ostensibly, the organisation (Podsakoff et al., 1990). Two dimensions of TL focussed on in the study because they relate strongly to communication between managers and employees are fostering the acceptance of group goals and articulating a vision.</p> <p><b>Overall research approach:</b> Cross-sectional survey.</p> <p><b>Data collection method:</b> Online survey.</p> <p><b>Measures:</b> <b>Procedural justice.</b> Colquitt's (2001) seven-item (<math>\alpha = .92</math>) procedural justice measure gauged whether subordinates perceived decision-making protocol to be fair. Items were modified slightly to fit the sampling context. Sample items include 'I can express my views during my performance evaluation'</p>	<p><b>Sample population:</b> 246 professional employees in the division, representing all facets of the organisation, including executive management, engineering, sales, finance, operations, marketing, quality, and purchasing were emailed.</p> <p><b>Sampling approach:</b> NR</p> <p><b>Inclusion/exclusion criteria:</b> NR</p> <p><b>Number and characteristics of participants:</b> The sample was 75% male and 87% Caucasian. Average age was 45 years and average job tenure was 10.6 years.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Data tables show N=206 so reviewer calculated response rate: 83.7%. There are no data on the non-respondents.</p>	<p><b>Description of analysis method:</b> Means, standard deviations, intercorrelations, and alpha reliabilities carried out on variables included in this study. We used confirmatory factor analysis to evaluate the factor structure, as well as the convergent and discriminant validity, of all constructs. We estimated the five-factor measurement model and performed nested model comparisons using LISREL 8.54, incorporating a covariance matrix derived from the self-report data from employees.</p> <p><b>Key findings relevant to the review:</b> <b>Findings:</b> Trust fully mediates the effects of procedural and informational fairness and transformational leadership on employee job satisfaction. The correlations between job satisfaction and procedural justice (<math>r = .22, p &lt; .01</math>), interactional justice (<math>r = .28, p &lt; .01</math>), and core transformational leadership procedural justice (<math>r = .36, p &lt; .01</math>) are significant. Analyses show support for all 3 hypotheses.</p>	<p><b>Limitations identified by author:</b> Our model does not include other factors that might affect the relationship between trust and job satisfaction. For example, individual differences (eg, propensity to trust) may intervene and alter the link between perceived trustworthiness and assigned trust. Second, the data in the study are single-sourced and cross-sectional so we cannot state that self-report biases had no impact on the results.</p> <p><b>Limitations identified by review team:</b> No information given about non-respondents and representativeness of sample.</p> <p><b>Evidence gaps/recommendations for future research:</b> A larger model could be tested. For example, the integrative model suggests that individual differences, which indicate varying propensities to trust, may moderate the trust-outcome relationships. Furthermore, analysing the role of an emerging dispositional profile, core self-evaluations (Judge, Locke, &amp; Durham, 1997) may be a particularly fertile ground of future research. Additionally, factors that indicate the degree of the subordinates' pre-existing attachment to the</p>

	<p>and ‘I can appeal my performance evaluation rating.’</p> <p><b>Informational justice.</b> The five-item informational dimension (<math>\alpha = .93</math>) of Colquitt’s (2001) organisation fairness measure assessed whether subordinates perceived the content of supervisory communication to be adequate. Examples include ‘My supervisor is candid when communicating with me’ and ‘My supervisor communicates details to me in a timely manner.’</p> <p><b>Core transformational leadership.</b> Used Podsakoff et al.’s (1990) transformational leadership scale. We used nine items (<math>\alpha = .91</math>), which Podsakoff et al. (1990) identified as ‘core transformational behaviors.’ Examples included ‘Paints an interesting picture of the future for our group’ and ‘Encourages employees to be ‘team players’.</p> <p><b>Trust.</b> Six-items (<math>\alpha = .93</math>) from Podsakoff et al. (1990) were used to measure trust. Examples included ‘My manager would never try to gain an advantage by deceiving workers’ and ‘I have complete faith in the integrity of my manager.’</p> <p><b>Job satisfaction.</b> We used Cammann, Fichman, Jenkins, and Klesh’s (1983) three-item (<math>\alpha = .88</math>) job satisfaction scale. Examples include ‘All in all, I am satisfied with my job’ and ‘Overall, I like working here.’</p> <p><b>Dates:</b> Publication date 2013. No date given for research.</p>		<p>H1: Trust in one’s supervisor mediates the relationship between procedural justice perceptions and job satisfaction.</p> <p>H2: Trust in one’s supervisor mediates the relationship between informational justice perceptions and job satisfaction.</p> <p>H3: Trust in one’s supervisor mediates the relationship between core transformational leadership and job satisfaction.</p>	<p>organisation may add predictive power to a future study. Additional work that evaluates situational factors may contribute to our understanding of the dynamics that promote or inhibit individual trust in the workplace. For example, the mediational model of trust may hold under certain circumstances and not others. The trust development process may be fundamentally different for those who are structurally encouraged to interact (and therefore have more opportunities to develop trust or distrust) than those who work independently or autonomously. Also, the level of virtuality may influence how trust develops. Lean communication channels prevent multifaceted feedback (eg, no facial expressions, voice inflections, body language, etc.), which may alter perceptions of perceived trustworthiness as well as the propensity to trust. Those with extensive history with their supervisors may have a greater sample of behaviors to assess trust. Therefore, length of the dyadic relationship may play a role.</p> <p><b>Source of funding:</b> The authors received no financial support for the research, authorship, and/or publication of this article.</p>
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## Grynderup et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Grynderup, Matias Brødsgaard, Ole Mors, Åse Marie Hansen, Johan Hviid Andersen, Jens Peter Bonde, Anette Kærgaard, Linda Kærlev, Sigurd Mikkelsen, Reiner Rugulies, Jane Frølund Thomsen, Henrik Albert Kolstad</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Grynderup, Matias Brødsgaard, Ole Mors, Åse Marie Hansen, Johan Hviid Andersen, Jens Peter Bonde, Anette Kærgaard,</p>	<p><b>Setting(s):</b> Work units in Aarhus, Denmark</p> <p><b>Research aims/questions:</b> To analyse if low justice at work, analysed as aggregated workplace means, increases the risk of depression.</p> <p><b>Overall research approach:</b> Cohort survey</p> <p><b>Data collection method:</b> Postal questionnaire measured relational and procedural justice in 2007 and analysed if lower levels predicted new-onset depression present at follow-up in 2009. Cases of depression were identified in 2007 and 2009 by a two-step procedure: First, participants were identified reporting mental symptoms (symptoms of depression, stress or burn-out) in a questionnaire. Second, these participants were invited to take part in a standardised psychiatric interview to clinically diagnose cases with depression.</p> <p><b>Psychosocial working conditions:</b> Danish version of Moorman's organisational justice questionnaire, modified by Kivimäki et al. It contained four items about procedural justice and relational justice respectively. All items were rated on a 5-point scale from 1 ('strongly disagree') to 5</p>	<p><b>Sample population:</b> The Danish PRISME (Psychological risk factors in the work environment and biological mechanism for the development of stress, burnout and depression) cohort of 10,036 public employees from 502 work units in Aarhus, Denmark, was recruited for the baseline study, and 4489 employees (44.7%) from 474 work units participated. Non respondents: mean age = 45, female = 79%, ≥3 years education = 74%. Procedural justice M = 2.82, relational justice M = 2.23</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Excluded: participants with depression at baseline (n=100: ICD-10-DCR diagnostic criteria for mild, moderate and severe depressive episodes were fulfilled for 40, 43 and 17 participants, respectively). Also excluded - 5 participants with unidentifiable unit leaders and from units with &lt;3 respondents not depressed at baseline or follow-up (N = 147) to avoid unstable work unit measures of exposure. Depressed participants who were excluded at baseline had a mean level of procedural justice of 2.88, a mean level of relational justice of 2.30, a mean age of 44.5 years, 83% were women and 78% had 3 or more years of education. Included for psychiatric interview: a) point score = ≥3 on at least half of the six depressive symptom items, b) M = ≥2.5 on</p>	<p><b>Description of analysis method:</b> Depression ORs calculated by logistic regression analyses with robust clusters based on the work unit of the participants. Analyses were performed with continuous-scale exposure information (linear, quadratic and cubic transformations) and tertile categorisation. Associations were explored with restricted cubic spline regression analysis (four knots on percentiles 5, 35, 65 and 95). Linearity of the relation between exposure variables and depression was tested with likelihood-ratio testing. Baseline adjusted individual confounders: age, previous depression, family depression history, income, education past primary/high school, alcohol consumption, living alone, neuroticism, depressive symptoms, BMI, smoking. Follow-up: traumatic life event in last 6 months (serious illness, injury, assault, death of a relative/friend, marital problems, serious illness/assault of a close relative) - based on review of literature. All continuous covariates examined for linearity by likelihood-ratio tests. Not accepted for neuroticism/baseline depressive symptoms - included instead as linear/quadratic. After testing for interaction between gender and procedural/relational justice, subanalyses performed for female participants only. Likelihood-ratio testing used to identify the strongest potential confounders of new-onset depression, and similar analyses were performed on a model only including these</p>	<p><b>Limitations identified by author:</b> Baseline participation rate was low (45%), which could have biased results, if participation was associated with level of justice as well as depression. Authors did not adjust for other psychosocial work factors, and it is possible that the association between justice and depression was, at least partly, mediated by other work factors.</p> <p><b>Limitations identified by review team:</b> Authors do not explain how selection bias was minimised. Authors do not state that participation was assured to be voluntary and confidential. More detail needed about questionnaire administration and recruitment. Study may have benefitted from an</p>

<p>Linda Kærlev, Sigurd Mikkelsen, Reiner Rugulies, Jane Frølund Thomsen, Henrik Albert Kolstad 2013 <i>Work-unit measures of organisational justice and risk of depression—a 2-year cohort study</i> Occupational and Environmental Medicine 70 pp. 380-385 <b>Quality rating: +</b></p>	<p>(‘strongly agree’). The mean values of each work unit were assigned to all employees working in the particular work unit.                  Eg procedures are designed to hear the concerns of all those affected by the decision, your supervisor treats you with kindness and consideration.  <u>Mental symptoms:</u> depression: Common Mental Disorder Questionnaire subscale (six items), stress: Perceived Stress Scale (four items), burn-out: Copenhagen Burn-Out Inventory (six items). All questions concerned the last 4 weeks, and responses were given on 5-point scales.  <u>Diagnosis of depression:</u> Diagnoses were obtained by the Schedules for Clinical Assessment in Neuropsychiatry interview (V.2.1 part I, sections 6, 7, 8 and 10)<sup>27</sup> according to the International Classification of Disease, 10th revision, Diagnostic Criteria for Research (ICD-10-DCR). All questions referred to the previous 3 months. Interviews were conducted by 10 medical/psychology students, trained at a 1 week course by a WHO certified trainer (OM). Inter-rater reliability on item level was satisfactory (<math>\kappa=0.71</math>).  <b>Dates:</b></p>	<p>perceived stress scale or c) <math>M \geq 4</math> on Copenhagen Burn-Out Inventory. It was expected that participants with depression would have high perceived stress and burn-out levels and therefore participants included based on these mental symptom scales. 2009 follow-up - selection criteria redesigned to identify the largest number of depression cases with the lowest number of interviews. Participants selected with high scores on <math>\geq 2</math> mental health scales (depressive scores of 3 or higher on two or more of the six questions, average stress and burn-out scores of 2.5 or higher). In 2009, a total of 58 of 3047 participants were diagnosed with a new onset of depression. The ICD-10-DCR diagnostic criteria for a mild, moderate and severe depressive episode were fulfilled for 15, 32 and 11 participants, respectively.  <b>Number and characteristics of participants:</b> 4237 participants from 378 work units were eligible for follow-up. In 2009, all participants from 2007 were approached again, and 3047 (72%) participated. Nurses (30%), social workers (18%), teachers (11%), managers (7%) and medical doctors (6%). Mean age = 43, female = 80%, <math>\geq 3</math> years education = 83%, income &gt; 300,000 Dkr = 51.2%, alcohol consumption &gt; 14g/week = 24.2%, traumatic life event in last 6 month = 31.7%, living alone = 18.8%, never smoked = 52.7%, 0-19 years smoking = 23.1%, <math>\geq 20</math> years smoking = 24.2%, BMI &lt;18.5 = 1.7%, 18.5-25 = 64%, &gt;25, 34.3%.  <b>Response rate</b>                  T1: 44.7% (included and excluded participants)                  T2: 72% (selected eligible participants)</p>	<p>variables. Homogeneity of self-reported procedural and relational justice within work units was assessed by intraclass correlation and within-group inter-rater agreement indices.  <b>Key findings relevant to the review:</b>                  Procedural justice <math>M = 2.82</math>, relational justice <math>M = 2.20</math>.                  Risk of depression increased monotonously by lower levels of procedural/relational justice. Adjusted ORs for 1 point decrease on justice scale:                  Procedural: 2.96 (1.19-7.34)                  Relational: 4.84 (2.15-10.90)                  Neither quadratic, cubic, or spline models fitted the data significantly better than the linear models of exposure.                  Adjusted ORs for lowest tertile compared to highest tertile:                  Procedural: 2.50 (1.06-5.88)                  Relational: 3.14 (1.37-7.19)                  Model inc. only strongest potential confounders (gender, previous depression, traumatic life events, living alone, depressive symptoms at baseline and neuroticism) showed similar results to fully adjusted model. Intraclass correlation was medium to large (procedural: 0.16, relational: 0.15). Average inter-rater agreement (procedural: 0.75, relational: 0.77). No interaction between gender and procedural (<math>p=0.84</math>) and relational (<math>p=0.85</math>) justice. Similar results when only examining female participants.                  The researchers conclude that their results indicate that a work environment characterised by low levels of justice is a risk factor for depression.</p>	<p>additional explanatory variable.                  Reliability of psychosocial working conditions and mental symptoms scales not given.  <b>Evidence gaps/recommendations for future research:</b>                  Further studies are needed for investigating the exact factors that contribute to an unjust workplace.  <b>Source of funding:</b>                  This study was supported through grants from the Danish Work Environment Research Fund (5-2005-09), The Lundbeck foundation and H Lundbeck A/S. The funding bodies had no role in the design or conduct of the study; collection, management, analysis, or interpretation of the data; or preparation, review, or approval of the manuscript.</p>
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## Halbesleben et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Halbesleben, J.R.B., Leroy, H., Dierynck, B., Simons, T., Savage, G.T., McCaughey, D. and Leon, M.R.</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Halbesleben, J.R.B., Leroy, H., Dierynck, B., Simons, T., Savage, G.T., McCaughey, D. and Leon, M.R. (2013). Living up to safety values in health care: The effect of leader behavioural integrity on occupational safety. <i>Journal of Occupational Health Psychology, 18</i>, 395-405.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The research looks at the extent to which the employee feels psychologically safe to voice concerns and mistakes towards their supervisors. They look at voicing to higher-ups as distinct from voicing within the team or among other coworkers.</p> <p><b>Research approach:</b> Cross sectional survey</p> <p><b>Data collection:</b> The data were collected via an online survey.</p> <p><b>Method(s):</b> Survey link was sent by the director of nursing at the hospital with a request to participate in the survey, a reminder was sent 3 days later. This process was repeated 2 additional times with 6 months between each survey administration. At the end of each survey participants included a code to maintain anonymity of data and allow for tracking. All items were scored on a 5-point Likert type scale from strongly disagree (1) to strongly agree (5). <i>Behavioural integrity for safety:</i> adapted version of the 6-item behavioural integrity scale (Simons et al, 2007). <i>Psychological safety toward one's supervisor:</i> 4-item version of</p>	<p><b>Sample population:</b> Registered nurses from 4 acute care hospitals.</p> <p><b>Sampling approach:</b> Targeted the registered nurses in these areas.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> The participants included 658 registered nurses. The sample included 82 males and 572 females (4 participants did not respond to this question) with a mean age of 41.39 (SD = 11.88) years. The participants has been working in their current organisation for a mean of 10.14 (SD = 9.22) years. They reported a working mean of 36.18 hours per week.</p> <p><b>Response rate (if relevant):</b></p>	<p><b>Brief description of method and process of analysis:</b> Structural equation modelling.</p> <p><b>Key findings relevant to the review:</b> The model suggested that while safety behavioural integrity was associated with safety outcomes, there may be more direct factors that can improve the prediction of injuries.</p> <p>The coefficients of determination for injury frequency were much higher with the addition of psychological safety toward one's supervisor and workarounds as mediators.</p> <p>Safety behavioural integrity is associated with both psychological safety toward one's supervisor (0.32) and safety compliance (0.45) during the subsequent measurement period; psychological safety toward one's supervisor and safety compliance are then associated with each safety outcome (-.22 and -.68 respectively) during the</p>	<p><b>Limitations identified by author:</b> Acknowledge that the study is subject to bias associated with self-report measurement.</p> <p>While researchers were able to account for the dependence associated with the four locations in the analyses, they were unable to account for possible nesting effects from the units and shared head nurses for whom the individuals worked. This was due to the confidentiality concerns of the facilities within which they collected data.</p> <p><b>Limitations identified by review team:</b> Different hospitals could have had different climates and it is was not able to match individual back to their hospital Predominantly female sample - they may have different responses to safety climate and supervisor behaviours, and level of voice at work. Generalisability to the UK health care system. Other factors in the hospital that may have contributed to employee voice issues not discussed.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research can address the effects of nesting in units as this would be valuable, particularly given recent work</p>

	<p>Edmondson's (1999) psychological safety measure. Adapted the measure to refer to the supervisor.</p> <p><i>Safety compliance:</i> Used the 4 item safety workarounds scale of Halbelseben (2010).</p> <p><i>Occupational safety (injuries and reporting):</i> occupational injuries were reported with a self-report checklist of injuries that had occurred during the previous 6 months. Based on the Bureau of Labour Statistics (BLS) and an existing survey from the CDC, with some modifications to address nature of the study organisation. Also reported days of absence as a result of injury. Asked if the injury had been reported to hospital administrators In addition they collected data regarding the number of injuries reported and the number of days as sick leaves. Could not match organisational data to the individual.</p> <p><i>Control variables:</i> Controlled for general behavioural integrity by using the 6-item behavioural integrity scale (Simons et., 2007) to control for nonspecific effects of behavioural integrity.</p> <p><b>Setting(s):</b> 4 acute-care hospitals in the Midwest United States.</p> <p><b>Dates:</b> Not Reported</p>	<p>The four facilities employ 1,087 registered nurses working in non-management positions. At time 1, 865 nurses completed the survey for an initial response rate of 80%. The time 2 survey was completed by 724 nurses, and 673 completed the time 3 survey. Overall they were able to match three rounds of data from 658 nurses. Final response rate = 61%. Final response rates for the 4 facilities did not differ significantly (57%, 63%, 60% and 65%).</p>	<p>subsequent measurement period, all significant at 0.5 level).</p> <p>The authors conclude that leaders play a role not only in the reduction of industrial injuries but also in promoting the reporting of those injuries.</p>	<p>on within-group variation of safety climate issues. Will also extend the recent literature on psychosocial safety climate to safety outcomes.</p> <p>Further examination of the antecedents of the enactment/espousal gap is needed.</p> <p>It may be important to consider the behavioural integrity of both management and union leadership.</p> <p><b>Source of funding:</b> The publication was funded, in part, by Grant 3K01OH008965 from the National Institute of Occupational Safety and Health.</p>
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## Havig et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Anders K Havig Anders Skogstad Marijke Veenstra Tor I Romøren</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> The effects of leadership and ward factors on job satisfaction in nursing homes: a multilevel approach. <i>Journal of Clinical Nursing</i>, 20, 3532-3542 doi: 10.1111/j.1365-2702.2011.03697.x</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> 22 nursing homes with total of 40 wards</p> <p><b>Research aims/questions:</b> To examine (1) the relationships between job satisfaction and task- and relationship-oriented leadership and (2) the direct and moderating effects on job satisfaction of three ward-level factors: workload, use of teams and staff stability.</p> <p><b>Overall research approach:</b> A questionnaire study followed by structured interviews and field observations</p> <p><b>Data collection method:</b> The first author distributed the questionnaires to the staff personally. All staff who were working in their ward during the three to four days of field observations were offered a questionnaire.</p> <p><b>Dates:</b>Not reported</p>	<p><b>Sample population:</b> Staff of 22 nursing homes across Norway.</p> <p><b>Sampling approach:</b> Purposive sampling in terms of selection of nursing homes (by counties across Norway)</p> <p><b>Inclusion/exclusion criteria:</b> Special care units for dementia were excluded because of their different structure. Staff who had worked less than 8 weeks on their ward were excluded for lack of experience.</p> <p><b>Number and characteristics of participants:</b> 444 registered nurses, auxiliary nurses and unskilled nursing assistants. Structured interviews were administered to 40 ward managers and 13 directors. No detailed characteristics given.</p> <p><b>Response rate:</b> varied from 71%-100% with a total response rate of 87%.</p>	<p><b>Description of analysis method:</b> A multilevel analysis approach was used to recognise a hierarchal structure of determined factors and to capture variation in job satisfaction at the individual and ward level.</p> <p><b>Key findings relevant to the review:</b> Average job satisfaction both for individual respondents and for wards was 5.89. At the individual level ranked from 1-7; at the ward level, the mean varied from 4.00-6.83. In the best fit model (<math>X^2</math> dif = 44.21; <math>df = 4</math>; <math>p &lt; 0.001</math>.) significant relationship between job satisfaction and task-oriented and relationship-oriented leadership styles was found, with a stronger effect for task orientation of 0.38 (0.08) <math>p &lt; 0.05</math> compared to relationship-oriented leadership style of 0.16 (0.06) <math>p &lt; 0.05</math>. The effect of the two leadership styles varied significantly across wards. Furthermore, staff stability had both a significant positive direct effect and a moderating effect on job satisfaction, whereas the two other ward-level predictors yielded no significant contributions.</p>	<p><b>Limitations identified by author:</b> Sample necessarily not representative of all nursing homes; Confidentiality issues prohibited data collection of gender, profession and full-time equivalency; ward level variables were collected solely by the first author which could have caused bias.</p> <p><b>Limitations identified by review team:</b> Because data could not be collected by gender etc. Data collection was random and no sampling criteria could have been applied. Characteristics such as age can affect perceived job satisfaction and may have caused biased findings Sociodemographic factors were unknown. Unclear how observational data were used in the study. No data collected on job performance. Single item response was used to assess job satisfaction and is very dated. Wording may lead to focus on work content rather than broader satisfaction with whole job and the elements of work more likely to be associated with variables assessed through questionnaire items of the leadership scales.</p> <p><b>Evidence gaps/recommendations for future research:</b> More research is needed on ward level factors on effects of leadership style.</p> <p><b>Source of funding:</b> Research Council of Norway</p>

## Hepburn et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Hepburn, C.G., Kelloway, E.K., and Franche, R-L.</p> <p><b>Year of publication:</b> (2010)</p> <p><b>Citation:</b> Hepburn, C.G., Kelloway, E.K., and Franche, R-L. (2010). Early employer response to workplace injury: What injured workers perceive as fair and why these perceptions matter. <i>Journal of Occupational Health Psychology</i>, 15, 409-420.1</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> The authors examined whether early employer response to workplace injury affects injured workers' subsequent attitudes and mental health.</p> <p><b>Research approach:</b> Longitudinal survey study</p> <p><b>Data collection:</b> Telephone surveys were conducted</p> <p><b>Method(s):</b> Telephone surveys were conducted with 344 workers in Ontario, Canada working for organisations eligible for workers' compensation coverage. The surveys were conducted as part of a larger study. Participants completed two questionnaires over the telephone, the first within approximately 1 month of the date of their injury and the second 6 months post injury.</p> <p><b>Covariates:</b> Several variables were used as covariates in the analyses. 1 month post injury, respondents reported their gender and age. Also asked to rate the physical demands of the job they would be returning to on a 5 point scale (1 not demanding at all, 5 very demanding). Participants also asked to rate their level of pain (1 no pain, 10 pain as bad as can be).</p> <p><b>Workplace-based return to work strategies:</b> Selected the strategies that were at the discretion of the workplace: early contact with injured workers, offers of work accommodation, ergonomic assessments and the presence of designated return to work co-ordinator. Participants were to report if they had received the strategy or not.</p> <p><b>Supervisor negative reaction:</b> 3 items selected from</p>	<p><b>Sample population:</b> 344 workers in the province of Ontario, Canada,</p> <p><b>Sampling approach:</b> Participants working for organisations eligible for workers' compensation coverage in the province. Injured workers files in Ontario's Workplace Safety and Insurance Board's (WSIB) database were reviewed to identify those meeting eligibility requirements.</p> <p><b>Inclusion/exclusion criteria:</b> Eligibility for the study required that participants had filed a lost-time claim for work-related MSDs of the back, upper limbs, or neck. As well, participants were required to self-report being absent from work for at least 5 of the first 14 days following their injury.</p> <p><b>Number and characteristics of participants:</b> There were 2,173 eligible workers in the WSIB, 1,870 agreed to be contacted, the researchers could not contact 585 of these, and 247 were deemed ineligible by virtue of not meeting the requirements. Of the remaining 1,038 workers,</p>	<p><b>Brief description of method and process of analysis:</b> Regression analyses and descriptive statistics were used to test the hypotheses.</p> <p>Structural equation modelling used to fully examine the relationships studied.</p> <p><b>Key findings relevant to the review:</b> There was an indication that early contact from the workplace to the worker approached significance as an independent predictor of depressive symptoms (<math>p &lt; .10</math>). Fewer depressive symptoms were associated with an early contact.</p> <p>Supervisor reaction and receiving an ergonomic assessment were significant and independent predictors of affective commitment. An ergonomic assessment enhance commitment and</p>	<p><b>Limitations identified by author:</b> Do not know how the sample compared with the population of workers who were more injured and maintained employment relations with the employer where the injury occurred.</p> <p>Relied solely on self-report data</p> <p>Did not address the quality or tone of the interaction between workers' experiences and whether a strategy was engaged.</p> <p><b>Limitations identified by review team:</b> Small final sample from those who were originally deemed eligible</p> <p>Only studied one province , guidelines may differ in other areas of Canada</p> <p><b>Evidence gaps/recommendations for future research:</b> Researchers may be able to conceive new early return-to-work strategies that could promote fairness perceptions or study of mechanisms by which these strategies promote fairness.</p> <p>Research can also consider including distributive justice judgments related to equality or fairness relative to non-injured co-</p>

	<p>negative employer response scale (Pransky et al., 2000) and an additional one created for the purpose of this study, Cronbach alpha of .77. This was measured at 1 month post injury. Participants asked to rate level of agreement on a 5 point scale</p> <p><i>Mental health:</i> measured with depressive symptoms at the 6-month interview. Well validated self-report scale form the Center for Epidemiological Studies (Radloff, 1977). High scores indicate greater depressive symptoms.</p> <p><i>Organisational commitment:</i> At the 6 month interview, affective commitment, employees' emotional attachment to and identification with their organisation was measured. Items adapted from Meyer et al. (1993) scale. Participants indicated their level of agreement with each item on a 5 point scale. Good strong internal consistency (median <math>\alpha = .85</math>)</p> <p><i>Fairness perceptions:</i> was measured at the 6-month interview. Distributive justice was measured with 4 items, and procedural justice of the decision making process to determine return to work plan with 6 items. These were adapted from the Colquitt (2001) and Moorman (1991) scales. Participants indicated their level of agreement with each item on a 5 point scale.</p> <p><b>Setting(s):</b> Ontario, Canada - in organisations eligible for workers' compensation coverage.</p> <p><b>Dates:</b> Not reported.</p>	<p>357 refused to participate, 32 consented but researchers unable to recontact for interview, 17 workers provided incomplete interviews. 632 completed baseline, a participation rate of 61%, of these 446 completed the 6 month interview - 71% retention rate. Given workplace focus, targeted only 344 injured workers who had maintained an employment relationship.</p> <p>48% of participants were women, 72% indicated that they are married or living with a partner. Average age of 44 years, ranging from 16-68 years. 14% had completed some high school, with 37% indicating that they had completed high school. Remaining participants had some postsecondary education. Participants indicated that they had been with their employers for an average of 10.37 years (SD - 8.79)</p> <p><b>Response rate (if relevant):</b> See above.</p>	<p>a negative supervisor reaction decreased commitment.</p> <p>Supervisor reactions and early contact emerged as significant and independent predictors of both forms of justice. Early contact enhanced perceptions of justice and supervisor negative reactions reduced perceptions of justice.</p> <p>A result of structural equation modelling found that fairness was significantly predicted by supervisor negative reaction (<math>\beta = -.47, p &lt; .01</math>) and early contact (<math>\beta = .15, p &lt; 0.1</math>), but not by receiving an ergonomic assessment (<math>\beta = .07, ns</math>), the presence of a return-to-work coordinator (<math>\beta = -.02, ns</math>). In turn, fairness predicted both affective commitment (<math>\beta = .56, p &lt; .01</math>) and depressive symptoms (<math>\beta = -.34, p &lt; 0.1</math>). Greater fairness was associated with greater commitment and fewer depressive symptoms.</p>	<p>workers. Also research the impact that injured workers' fairness perceptions have on presenteeism in addition to more traditional withdrawal variables such as turnover intentions or taking personal days.</p> <p>Worthwhile to consider measures of workers' motivation to work and their OCB. If fairness perceptions are linked to such variables, then the importance of early supervisor reactions and workplace-based strategies, the events contributing to worker justice perceptions could not be overemphasized.</p> <p>Future research could explore ways to include objective measures of physiological stress reactions or the physical hazards of the participants' jobs.</p> <p>Future work may address injured workers' experience with strategies in greater detail.</p> <p><b>Source of funding:</b> Research was funded in part by a grant from Ontario's Workplace Safety and Insurance Board's Research Advisory Council</p>
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## Hobman et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Hobman , Elizabeth V., Chris J. Jackson, Nerina L. Jimmieson, Robin Martin</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Hobman , Elizabeth V., Chris J. Jackson, Nerina L. Jimmieson, Robin Martin 2011 <i>The effects of transformational leadership behaviours on follower outcomes: An identity-based analysis</i> European Journal of Work and Organisational Psychology 20(4) pp. 553-580</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Australian community-based healthcare organisation that provides human service activities.</p> <p><b>Research aims/questions:</b> Explore the mechanisms by which transformational leaders have a positive influence on followers and examine the mediating role of follower's leader and group identification on the associations among different transformational leader behaviours and follower outcomes. Follower outcomes = job satisfaction and supervisor-rated job performance.</p> <p>H1: Supportive leadership is positively associated with leader identification. H2: Intellectual stimulation is positively associated with leader identification. H3: Personal recognition is positively associated with leader identification. H6: Supportive leadership is positively associated with follower outcomes (ie job satisfaction and supervisor-rated performance) and these associations are mediated through leader identification.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> The measurement of variables was separated within a nine-page self-report questionnaire. This questionnaire was administered to all employees. Supervisors received a shorter two-page questionnaire which asked them to provide ratings of all of his/her employees under his/her direct supervision. These surveys</p>	<p><b>Sample population:</b> All employees at an Australian community-based healthcare organisation that provides aged care, domiciliary nursing, respite, accommodation, support, and information services for people of all ages. The services are delivered through a domiciliary nursing service, nursing homes, hostels, independent and supported living units, employment placement for all jobseekers including people with disabilities, day respite care centres, and special programmes.</p> <p><b>Sampling approach:</b> All employees were invited to participate in the study. The study was advertised at group meetings. A research assistant administered surveys at group meetings in the central office and posted out surveys to all employees based at other locations with reply-paid, university-addressed envelopes.</p> <p><b>Inclusion/exclusion criteria:</b> Excluded: Employees without supervisor's job performance rating. N=55</p> <p><b>Number and characteristics of participants:</b> N= 179 employees, 44 supervisors. One hundred and forty-nine of the employees were female and 24</p>	<p><b>Description of analysis method:</b> The authors' final model: the five leadership measures mediated by leader identification (with a path to group identification) job satisfaction and supervisor-rated job performance. A two-step procedure combining multilevel analysis and structural equation modelling was used (1), they conducted one-factor, congeneric measurement models to obtain maximally reliable composite scores. Each of these congeneric measurement models provided factor score regression weights which were used to proportionally weight the raw score ratings on each item in the computation of a composite score. The maximally reliable composite scores were then recomputed as Normal scores in PRELIS in preparation for fitting a multivariate multilevel model to the data. The individual-level variance covariance matrix data was used to assess the fit of the hypothesized and alternative models. Also, for each composite score they computed the 'maximized' reliability coefficient (coefficient H). Although Cronbach's <math>\alpha</math> is the more traditional internal consistency statistic, it is a lower-bound estimate of reliability for congeneric measures</p> <p><b>Key findings:</b> <u>Supportive leadership:</u> M = 3.83, SD =</p>	<p><b>Limitations identified by author:</b> The findings may be only generalisable to the healthcare industry. Although the portion of the model with respect to supervisor-rated job performance was less susceptible to common method variance biases, the mediating model including job satisfaction was vulnerable to these biases.</p> <p><b>Limitations identified by review team:</b> Although identification processes provided an explanation for the effects of leadership on follower outcomes in the current study, it does not preclude the role of other variables, such as the self-concept variables of self-efficacy, self-esteem, and self-consistency</p> <p><b>Limitations identified by review team:</b> Data drawn from nine-page questionnaire, quite long. Unclear whether selected population is representative of eligible population.</p>

	<p>were then linked (by ID code) to employee responses on the self-report survey. Unless otherwise specified, measures used a 5-point scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5).</p> <p><b>Leadership.</b> Rafferty and Griffin’s (2004) transformational leadership scale was used: <b>Supportive leadership, intellectual stimulation, personal recognition, vision leadership and inspirational communication.</b> ‘Has no idea where the organisation is going’ was removed - was not internally consistent with the vision leadership scales’ other two items; reduced the internal consistency reliability from .84 to .67 and received a low standardized regression weight (.31). The five leader behaviours were moderately to strongly positively correlated with each other: correlations ranged from .52 to .71.</p> <p><b>Leader identification.</b> Identification with the supervisor was measured using: ‘I am a person who identifies with my supervisor’, ‘I am a person who feels strong ties with my supervisor’, and ‘When I talk about my supervisor, I usually say ‘we’ rather than ‘they’’. Brown, Condor, Matthews, Wade, and Williams’ (1986) group identification scale and Mael and Ashforth’s (1992) organisational identification scale.</p> <p><b>Job satisfaction.</b> - measured with three items (Warr 1991): ‘How satisfied are you with your job?’ ‘How much do you enjoy your job?’ and ‘How happy are you with your job?’</p> <p><b>Dates:</b> Not reported</p>	<p>were male. The age range was 15-79 years, with a mean age of 45.77 years (SD = 13.05 years). Most employees were employed on a permanent full-time basis (37%) or a permanent part-time basis (36%), some were employed on a casual basis (13%) and a few were on probation (2%) or under contract (2%)–10% did not disclose their employment status. The amount of time the participants had worked in the organisation ranged from 1 month to 30 years, with an average of 5.92 years (SD)46.33 years). The amount of time the employees had worked with their current supervisor ranged from 1 month to 20 years, with an average of 2.36 years (SD = 3.26 years). Seven of the supervisors were male and 37 were female. The age ranged from 24 years to 69 years with an average of 44.25 years (SD = 10.78 years). Eighty-three per cent of these supervisors worked on a permanent basis; the remaining 17% were employed on a permanent part-time basis. The supervisors rated between 1 and 13 employees.</p> <p><b>Response rate</b> 35.8% (179/500)</p>	<p>.91, coefficient H = .94. <b>Intellectual stimulation:</b> M = 3.56, SD = .81, coefficient H = .81. <b>Personal recognition:</b> M = 3.91, SD = .93, coefficient H = .99. <b>Vision leadership:</b> M = 3.93, SD = .82, coefficient H = .87. <b>Inspirational communication:</b> M = 3.90, SD = .87, coefficient H = .95. <b>Leader identification:</b> M = 3.53, SD = .89, coefficient H = .90. <b>Job satisfaction:</b> M = 3.64, SD = .94, coefficient H = .98</p> <p>The hypothesis that supportive leadership is positively associated with leader identification (H1) was supported, as <b>supportive leadership had a positive relationship with leader identification</b>, <math>\beta = .38, p &lt; .001</math>. <b>Intellectual stimulation was positively associated with leader identification</b>, <math>\beta = .23, p &lt; .05</math>. <b>Personal recognition was positively associated with leader identification</b>, <math>\beta = .22, p &lt; .05</math>. There was a significant mediating effect via leader identification for the associations between supportive leadership and job satisfaction (SI effect = 0.21, <math>p &lt; .01</math>, 95% CI = .12-.32).</p>	<p>Confounding factors not adjusted for.</p> <p><b>Evidence gaps/recommendations for future research:</b> The authors encourage researchers to broaden the types of outcomes measured, beyond those typically studied. It also is suggested that research continue to explore the underlying dynamics of destructive leader behaviours, which has received comparatively less research attention than transformational leadership. Another possibility for future research is to examine whether the group-focused leadership behaviours of vision and inspirational communication are associated with greater consensus (agreement) in ratings of leadership among group members, compared to the individual-focused leadership behaviours.</p> <p><b>Source of funding:</b>Not reported</p>
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## Jenkins and Stewart (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Jenkins, Marjorie, Alice C. Stewart</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Jenkins, Marjorie, Alice C. Stewart 2010 <i>The importance of a servant leader orientation</i> Health Care Management Review 35(1) pp. 46-54</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> A large, multidivisional health care system in the U.S.A.</p> <p><b>Research aims/questions:</b> This study empirically tested the impact of nurse managers' servant leadership orientation on nurse job satisfaction. H1: There will be a positive relationship between a manager's commitment to serve, as described by servant leadership, and nurse job satisfaction.   H2: There will be a significant positive relationship between a manager's use of role inversion behaviours and nurse job satisfaction.   Hypothesis 3: When the manager's commitment to serve and role inversion behaviours are both high, servant leader orientation of the manager will be high and will be associated with high employee job satisfaction.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> All inpatient nursing departments were visited and informed of the study. Participants were ensured confidentiality, and data were collected without identifiers. Participants were told that this process was intended to obtain their perceptions regarding organisational leadership. Data were collected at regularly scheduled staff meetings. All staff are required to attend 75% of their department meetings. For staff not in attendance at the meeting, surveys were included in a packet with directions for contacting the researcher. Participation was voluntary, and confidentiality was guaranteed to the participants. Data were collected via a series of questionnaires (available from the first author). The participants were asked to complete two questionnaires regarding their perceptions of their</p>	<p><b>Sample population:</b> 33 departments responsible for providing direct bedside patient care within inpatient departments. Department types included medical, surgical, telemetry, step-down, and intensive care. Each department was led by a department head that was the focal point of the study. All department heads reported under a single vice president of nursing and chief nurse officer.</p> <p><b>Sampling approach:</b> Convenience sample of 17 departments out of the 33 - 346</p>	<p><b>Description of analysis method:</b> Multivariate regression. A series of tests for multicollinearity was performed to ensure that each independent and control variable contributed independently to the variance explained in the regression models. Potential multicollinearity problems were investigated by examining variance inflation factors and tolerance. The results of these tests were substantially below the suggested cutoffs for multiple regression models (Neter, Wasserman, &amp; Kutner, 1985).</p> <p><b>Key findings relevant to the review:</b> Nurse job satisfaction (<math>M = 2.87</math>, <math>SD = 1.04</math>), Commitment to serve (<math>M = 3.98</math>, <math>SD = .26</math>), Role inversion behaviour (<math>M = 4.39</math>, <math>SD = 0.57</math>), Servant leader orientation (<math>M = 2.81</math>, <math>SD = 5.70</math>)</p> <p>Many of these nurses are not satisfied with their job. There is a strong positive correlation between commitment to serve and job satisfaction, and role inversion behaviours and nurse job satisfaction. This relationship, between commitment to serve and job satisfaction as well as between role inversion behaviours and job satisfaction, suggests support for Hypotheses 1 and 2.</p> <p>Model 1 (servant leadership on nurse satisfaction) included the control variables used in the study. Gender and diversity results suggest that generally, without accounting for managerial impact, male nurses were more likely to report greater job satisfaction. Performance evaluation was used as a proxy to control for competence. There was no statistically significant relationship between performance evaluation rating and job satisfaction. (<math>\beta = .090</math>). When the <u>commitment to serve</u> was introduced into the model, it was positively associated with nurse job satisfaction at a statistically significant level (<math>\beta = .547</math>, <math>p &lt; .001</math>). The</p>	<p><b>Limitations identified by author:</b> The dependent variable, job satisfaction, does not reflect the multidimensional nature of this concept. The measure used here was a more general indicator of attitude toward the overall environment or climate rather than reflecting satisfaction with particular elements of the job.</p> <p>This study was done within one health care system. Although this did control for macro-organisational influences, there could be some systemic bias that</p>

	<p>immediate department head and one questionnaire, which collected information on demographic characteristics. After these questionnaires were complete, participants were asked to complete one additional questionnaire regarding their individual job satisfaction.</p> <p><u>Commitment to serve:</u> uses the 23 items in Barbuto and Wheeler's 2006 questionnaire. 5-point Likert-type scale (strongly agree - strongly disagree). Scores were converted to z-scores to compensate for restriction of range on the Likert scale. Higher scores = a greater commitment to serve. Cronbach's <math>\alpha = .80</math></p> <p><u>Role Inversion Behaviour:</u> Uses 3 items on Sherman's scale. 5-point Likert-type scale (strongly agree - strongly disagree). Scores were converted to z-scores. Higher scores = greater degree of role inversion behavior. Cronbach's <math>\alpha = .72</math></p> <p><u>Servant Leader Orientation:</u> Generated by the multiplying commitment to serve z-score and the role inversion behaviors z-score ie the interaction effect.</p> <p><u>Job Satisfaction of Nurses:</u> From the Work Climate Survey of the JacksonGroup Inc. (2007) - nonpublished instrument in use in health care for 18 years. Measured by averaging two items where respondents are asked their level of agreement to the question, 'Knowing what I know now, I would still make the same decision to work here' and 'Overall, I am satisfied with my job here.' 5-point Likert-type scale (strongly agree - strongly disagree). Scores were converted to z- Higher scores = a greater role inversion behaviour.</p> <p><u>Control Variables:</u> Gender, ethnicity, self-reported performance. Included to explain variance in job. Performance evaluation was included as a proxy for competence.</p>	<p>nurses. The health care system was chosen on the basis of researcher association and access to data, like performance outcome indicators, that otherwise would have been unavailable. 251 agreed to participate</p> <p><b>Inclusion/exclusion criteria:</b> Included: the 210 providing complete information on all questionnaires.</p> <p><b>Number and characteristics of participants:</b> N = 210. 91.30% female, 75.60% white, 59% under 40. Self-reported performance evaluation: M = 3.92, SD = 1.18.</p> <p><b>Response rate:</b> 73%</p>	<p>commitment to serve variable increased adjusted <math>r^2</math> of the model substantially (from <math>B = .037, p &lt; .05</math> to <math>B = .294, p &lt; .001</math>). This provides support for Hypothesis 1 and also indicates the value that commitment to serve brings to the managerial role. When nurse managers are perceived by individual nurses as having a commitment to serve, the nurse is likely to have greater job satisfaction.</p> <p>Model 3 examined the additional impact that role inversion behaviour has on job satisfaction. The Role inversion behaviour was statistically significant in the model (<math>B = .146, p &lt; .05</math>) and the statistically significant change in adjusted <math>r^2</math> justifies its additional inclusion in the model (from <math>B = .294, p &lt; .001</math> to <math>B = .305, p &lt; .001</math>). Role inversion behaviour suggests that when nurse managers engage in behaviours that respect the professionalism of the nurse caregivers and provide them with empowerment, the nurse caregivers will experience more job satisfaction.</p> <p>Model 4 examined the idea that the interaction of commitment to serve and role inversion behaviour represents the servant leader orientation of the manager toward the individual. In this research, at the individual level of analysis, the result was statistically significant but negatively impacting job satisfaction (<math>B = -.24, p &lt; .05</math>). The additional incremental increase in adjusted <math>r^2</math> was 1.3%, a statistically significant increase (from <math>B = .305, p &lt; .001</math> to <math>B = .318, p &lt; .05</math>). Interpretation of the sign of the standardized beta coefficient is complex because of the use of z-scores. Ad hoc analysis (not reported) by servant leader orientation category showed that high servant leader orientation was associated with higher nurse job satisfaction scores; low servant leader orientation was associated with lower nurse job satisfaction scores. Although this result was statistically significant, the small increase in adjusted <math>r^2</math> suggests that this result be interpreted with caution.</p>	<p>remains within the data.</p> <p><b>Limitations identified by review team:</b> Demographic variables are limited. Data solely collected via self-report. More detail could be given about the measures - such as exemplar items.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research should investigate the provision of emotional labour and the opportunities for greater operational and financial outcomes.</p> <p><b>Source of funding:</b></p>
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## Kara et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis Results	Notes by review team
<p><b>Authors:</b> Derya Kara, Muzaffer Uysalb, M. Joseph Sirgyc, Gyumin Leed</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> The effects of leadership style on employee well-being in hospitality. International Journal of Hospitality Management. 34 (2013) 9-18 dx.doi.org/10.1016/j.ijhm.2013.02.001</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> 5 star hotel staff in Turkey</p> <p><b>Research questions:</b> The study looked at effects of leadership styles on employee burnout and organisational commitment</p> <p><b>Research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> Based on the size of the hotel, an appropriate number of questionnaires were sent to each hotel managers who had been contacted beforehand for cooperation. These hotel managers distributed questionnaires to employees and collected them. Employees were asked to return the completed questionnaire in a box located in a place accessible to all employees. A questionnaire was administered by hotel managers and returned by employees to a public collection box in each hotel. It compared the effects of transactional versus transformational leadership styles. Transformational leadership is conceptualised as: 1) Contingent reward: contracts exchange of rewards for effort, promises rewards for good performance, and recognizes accomplishments; (2) Management by exception (active): watches and searches for deviations from rules and standards, and takes corrective action; (3) Management by exception (passive): intervenes only if standards are not met; and (4) Laissez-faire: abdicates responsibilities and avoids making decisions. Transformational leadership is conceptualised as: (1) Charisma: provides vision and sense of mission, instils pride, gains respect and trust;</p>	<p><b>Sample population:</b> According to data obtained from the Turkish Ministry of Culture and Tourism (2009), the total number of beds in the certified tourism business is 209.471 in Turkey. Based on this information, the total survey population is estimated by multiplying the number of beds by the number of staff per bed, which resulted in 123.587. This figure (123.587) was treated as the limit of the universe and following the sample size calculation suggested the appropriate sample size being 384.</p> <p><b>Sampling approach:</b> The study used a proportional stratified random sampling based on the number of 5-star hotels and their total number of employees.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Total of 443 employees at 5 star hotels. Total of 73% of the respondents (N = 323) were male and 61% were single. Overall the subjects ranged in</p>	<p><b>Analysis method:</b> The two-step procedure of structural equation modelling (SEM) measurement model analysis and structural model analysis (Anderson and Gerbing, 1988), was employed. The measurement model was assessed first. Based on the measurement model, the reliability and discriminant/ convergent validity of model constructs were examined. Then the structural model was assessed. That is, the hypothesized theoretical model was assessed and parameters were estimated. LISREL (Version 8.30) was used to perform the structural analysis and maximum likelihood was employed to estimate the parameters based on the assumption of multivariate normality of data.</p> <p><b>Key findings relevant to the review:</b> The results provide support for the positive effect of transformational leadership in the</p>	<p><b>Limitations identified by author:</b> The study sample may not be generalizable to the employee population to other type of hotels and different countries. The study is a cross-sectional survey therefore causal effects could not have shown.</p> <p><b>Limitations identified by review team:</b> No selection/exclusion criteria reported. Relatively low response rate (35%) may have cause biased findings.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research should employ a better probability sample to ensure generalisability and should employ a longitudinal design that is better equipped to test for causation. Study does not address the specific mechanism</p>

	<p>(2) Inspirational motivation: communicates high expectations, uses symbols to focus efforts, expresses important purposes in simple ways;</p> <p>(3) Intellectual stimulation: promotes intelligence, rationality, and careful problem solving; and</p> <p>(4) Individualized consideration: gives personal attention, treats each employee individually, coaches, and advises.</p> <p>Transactional leadership was assessed through a 5 point Likert scale used for 16 items (eg 'My supervisor provides others with assistance in exchange for their efforts') with a Cronbach's alpha of 0.9. Transformational leadership was assessed via a 5 point Likert scale used for 20 items (eg 'My supervisor talks optimistically about the future') with a Cronbach's alpha of 0.95.</p> <p><b>Quality of working life</b> was measured via 16 item index covering 7 dimensions: satisfaction of health and safety needs, satisfaction of economic and family needs, satisfaction of social needs, satisfaction of esteem needs, satisfaction of actualization needs, satisfaction of knowledge needs, satisfaction of aesthetic needs.</p> <p><b>Employee burnout</b> was measured via a 22 item measure covering emotional exhaustion, personal accomplishment, and depersonalization. Three composite values reflecting the three conceptual dimensions were used for statistical analysis.</p> <p><b>Organisational commitment</b> was measured using a 15 item measure based on Mowday et al. (1979).</p> <p><b>Life satisfaction</b> was measured using a 15-item instrument developed by Sirgy et al. (2001).</p> <p><b>Dates:</b> Jun 2010-Oct 2010</p>	<p>age from 20 to 54 with a mean age of 32 years.</p> <p>Respondents had been working for an average of 4.6 years in their current organisation, with 6.2% having been with their current organisation for more than 10 years. Their primary functional areas were: food and beverage departments (51.9%), rooms side (34.5%), and a variety of other areas such as sales and marketing (13.6%). On average, sample respondents had 6.6 years of hotel experience.</p> <p><b>Response rate (if relevant):</b> 1200 questionnaires were distributed, 443 returned which shows 37% response rate.</p>	<p>hospitality industry, which implies that hospitality managers should be trained to use a transformational leadership style to enhance employee well-being. The pattern and direction of the correlations among latent constructs in the research model were as expected. The correlations between constructs as follows: transactional leadership and Quality of working life (QWL) (<math>r = .37, p &lt; .01</math>), transformational leadership and QWL (<math>r = .50, p &lt; .01</math>), QWL and employee burnout (<math>r = -.41, p &lt; .01</math>), QWL and organisational commitment (<math>r = .40, p &lt; .01</math>), QWL and life satisfaction (<math>r = .43, p &lt; .01</math>), employee burnout and life satisfaction (<math>r = -.35, p &lt; .01</math>), and organisational commitment and life satisfaction (<math>r = .34, p &lt; .01</math>).</p>	<p>by which transformational leadership style has impact on QWL. Future research should explore the mediating constructs that may help us better understand the influence of transformational leadership on QWL.</p> <p><b>Source of funding:</b> Not reported.</p>
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## Lee et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Cheryl D. Lee and Eliette del Carmen Montiel</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> The Correlation of Mentoring and Job Satisfaction: A Pilot Study of Mental Health Professionals Community Ment Health J (2011) 47:482-487 DOI 10.1007/s10597-010-9356-7</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> A large county mental health agency in the SW USA</p> <p><b>Research aims/questions:</b> Study aimed to examine the Relationship between job satisfaction and perceived mentoring among health supervisors and practitioners</p> <p><b>Overall research approach:</b> A cross-sectional survey</p> <p><b>Data collection method:</b> An email invitation The on-line survey included one standardized job satisfaction measure, the Job Descriptive Index-Revised (JDI) and Job in General Scale (JIG; Balzer et al. 1997) and one standardized mentoring measure, the Alleman Mentoring Activities Questionnaires (AMAQ; Alleman and Clarke 2002). The JDI and JIG is the most commonly used job satisfaction instrument (Balzer et al. 1997). The JDI examines five facets of job satisfaction--Work on the Present Job, Opportunities for Promotion, Pay, Supervision and People at Present Job. The facets are independently scored and not combined into a total score. Four of the five subscales of the JDI and the JIG were used in this study, and the Chronbach's Alphas for this study were: JDI (Work on Present Job, <math>\alpha = .86</math>, Opportunities for Promotion, <math>\alpha = .87</math>, Supervision, <math>\alpha = .92</math>, and People at Present Job, <math>\alpha = .88</math>) and JIG (a</p>	<p><b>Sample population:</b> Practitioners and supervisors at a mental health agency</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> N=56 (83 responded, but all could not be used) The majority of the participants were female (n = 38; 67.9%) and Caucasian/ European-American (n = 40, 71.4%). Most of the participants held masters degrees (n = 50, 89.3%), were social workers (n = 33, 58.9%), and practitioners (n = 41, 73.2%) rather than supervisors.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Overall response rate: 55%, included respondents: 36%. demographic characteristics indicate that in large part the sample in the study was demographically similar to those who did not submit complete data with the exception of graduate</p>	<p><b>Description of analysis method:</b> Fisher's exact test was used to test differences in supervisors' and practitioners' perceptions of whether their relationships involved mentoring. Multivariate analysis of variances (MANOVA) was used to analyse the job satisfaction differences between groups (mentored versus non-mentored) with job satisfaction subscales as the dependent variables.</p> <p><b>Key findings relevant to the review:</b> Practitioners who perceived they were involved in mentoring relationships with supervisors were more satisfied with their jobs than those who perceived that they were not involved in mentoring relationships. The mentoring functions of sponsoring, assigning challenging tasks, and demonstrating trust were associated with job</p>	<p><b>Limitations identified by author:</b> Cross-sectional design, In the instruments, a few subscales had to be omitted due to the request of the county mental health agency's IRB. This impacted the study. Moreover, the small self-selected sample which was predominantly females and European Americans in one geographical location limits generalizing the study's results. Even though an anonymous on-line survey was used, social desirability bias may still have been a factor due to the study's sensitivity. Further, all the mentoring relationships in this study included the practitioners' direct supervisors. The hierarchal power relationship, with the supervisor having authority to assign tasks, promote and terminate employment, may have influenced the results regarding job satisfaction. In addition, participants who were supervisors may have had difficulty distinguishing the role of mentor versus supervisor. Time constrains completing the survey</p> <p><b>Limitations identified by review team:</b> No justification why and how the organisation was selected and why those 150 were selected.</p> <p><b>Evidence gaps/recommendations for future research:</b> Larger studies with longitudinal design.</p> <p><b>Source of funding:</b></p>

	<p>= .89).</p> <p>The AMAQ is a standardized instrument comprised of nine subscales that measure the amount and quality of mentoring activities (Alleman and Clarke 2002). Eight subscales were used, and the Chronbach's Alphas in this study were: Teach the Job, a = .97, Career Counselling, a = .95, Sponsor, a = .95, Protect, a = .94, Teach Politics, a = .96, Career Help, a = .94, Assigning Challenging Tasks, a = .93, and Demonstrated Trust, a = .98.</p> <p><b>Dates:</b></p> <p>Not reported</p>	<p>degrees in psychology rather than social work. In addition, the sample is demographically similar to the county agency's professional staff.</p>	<p>satisfaction.</p>	<p>None reported</p>
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## Madsen et al. (2014)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Madsen I E, Hanson L L M, Rugulies R, Theorell T, Diderichsen F, Westerlund H</p> <p><b>Year of publication:</b> 2014</p> <p><b>Citation:</b> Does good leadership buffer effects of high emotional demands at work on risk of antidepressant treatment? A prospective study from two Nordic countries. <i>Social Psychiatry and Psychiatric Epidemiology</i>, 20 February 2014</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To examine whether the association between emotional demands and common mental disorders can be modified by good leadership.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> Study uses data from two representative Scandinavian cohort studies, the Danish Work Environment Cohort Study (DWECS) 2005, and the Swedish Longitudinal Occupational Survey of Health (SLOSH) 2006. The questionnaire data were linked with national registers on medication purchases.</p> <p><b>Method(s):</b> Antidepressant treatment was measured through national registers on prescription medication purchases. Time of follow-up was 2.6 years (960 days). Emotional demands were assessed in both studies using an item from the Copenhagen Psychosocial Questionnaire (COPSOQ). To assess leadership quality a four item scale was constructed measuring</p>	<p><b>Sample population:</b> There were 19,855 eligible participants for the DWECS and 9,154 eligible participants for SLOSH.</p> <p><b>Sampling approach:</b> Not stated.</p> <p><b>Inclusion/exclusion criteria:</b> All individuals with poor self-reported baseline mental health or antidepressant purchases within 8.7 months before baseline were excluded. Also excluded the self-employed and individuals with missing data on covariates.</p> <p><b>Number and characteristics of participants:</b> Final study sample included 6,096 DWECS participants and 3,411 SLOSH participants.</p> <p><b>Response rate:</b> DWECS: 12,413 (62.5%) SLOSH: 5,985 (65%).</p>	<p><b>Brief description of method and process of analysis:</b> Using Cox regression, examined hazard ratios (HRs) for antidepressants treatment during 2.6 years (960 days) of follow-up, in relation to the joint effects of emotional demands and leadership quality. Buffering was assessed with Rothman's synergy index. Cohort-specific risk estimates were pooled by random effects meta-analysis.</p> <p>Analyses controlled for sex, age, marital status, education, income, and employment status.</p> <p>Country-specific risk estimates and standard errors were calculated using SAS version 9.2</p> <p>To assess the robustness of the findings conducted five sets of sensitivity analyses.</p> <p><b>Key findings relevant to the review:</b> The results indicate that any buffering by good leadership is modest; high emotional demands at work were associated with antidepressant treatment whether quality of leadership was poor (HR = 1.84, 95 % CI 1.32-2.57) or good (HR = 1.70, 95 % CI 1.25-2.31). The synergy index was 0.66 (95 % CI 0.34-1.28).</p>	<p><b>Limitations identified by author:</b> The measure used for leadership quality was partly based on the availability of similar items in the two studies. Hence it was not a validated scale, and may not have properly captured the most important aspects of leadership quality.</p> <p>Measured emotional demands using a single item, rather than the full scale, due to data availability.</p> <p>The general population study sample applied may not have provided sufficient exposure contrast on leadership quality to demonstrate its full buffering potential, given the distribution of this construct in the sample, with most respondents clustered around average to-good levels.</p> <p>The outcome of antidepressants treatment as an indicator for common mental disorder should also be interpreted cautiously.</p> <p>Antidepressants are used for various disorders, and whilst antidepressants seem a valid measure of common mental disorder in general, specific disorders cannot be disentangled.</p> <p><b>Evidence gaps/recommendations for future research:</b> Examine the relevance of colleague social support in the context of emotional demands.</p>

	<p>whether the manager listens is supportive, appreciative, and informative.</p> <p>In DWECS, mental health at baseline was assessed by the five-item Mental Health Inventory (MHI-5) from the Short Form 36 questionnaire [32]. In SLOSH, mental health was assessed by six questions from the (Hopkins) Symptom Checklist 90 (SCL-90)</p> <p><b>Setting(s):</b> Scandinavian workplaces</p> <p><b>Dates:</b> Data for DWECS 2005 were collected during October 2005 -May 2006 and data for SLOSH were collected during March-May 2006.</p> <p>For the measurement of antidepressant treatment, included Danish data from January 2005 to December 2008 and Swedish data from July 2005 to April 2009.</p>		<p>For quality of leadership, the hazard ratio after adjustment for baseline mental health was 1.17 (95 % CI 0.95-1.43) with <math>p = 0.91</math> for heterogeneity.</p> <p>Results were similar after adjustment for occupational group, with hazard ratios of 1.75 (95 % CI 1.41-2.17) with <math>p = 0.54</math> for heterogeneity for emotional demands and 1.03 (95 % CI 0.85-1.25) with <math>p = 0.51</math> for quality of leadership.</p>	<p>The association between emotional demands and common mental disorder should be examined further using more specific outcome measures that might point to the exact nature of any mental health consequences.</p> <p>Further research is needed to identify possible buffers of effects of emotional demands at work on employee mental health.</p> <p><b>Source of funding:</b> Supported by grants from the Danish Working Environment Research Fund and the Swedish Council for Working Life and Social Research (FAS).</p>
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## Martinez-Córcoles et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Martinez-Córcoles, M., Gracia, F., Tomás. I. and Peiró, J.M.</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Martinez-Córcoles, M., Gracia, F., Tomás. I. and Peiró, J.M. (2011). Leadership and employees' perceived safety behaviours in a nuclear power plant: A structural equation model. <i>Safety Science</i>, 49, 1118-1129.</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> The purpose of this present study is to find out how leader behaviours influence employees' safety behaviours (perceived safety behaviours) in the nuclear field. The researchers study the role of culture in the relationship between leadership and safety climate and, thus, how leaders transmit the safety culture. How does leader behaviour impact safety climate when a strong safety culture exists? Is that impact different in a weak safety culture? Or, in other words, how is the impact if leaders' behaviour on safety climate influenced by safety culture?</p> <p><b>Research approach:</b> Voluntary cross-sectional survey</p> <p><b>Data collection:</b> Scale was administered in their workplace as part of a battery of broader questionnaires designed to evaluate safety culture - the entire battery took about 30 minutes to fill out. Took place during work time. Researchers were available in-case participants had any questions.</p> <p><b>Method(s):</b> <i>Empowerment leadership:</i> used an adaptation of the Empowerment Leadership Questionnaire (Arnold et al, 2000). Consisted of 17 items (adapted as original scale was too long). 5 point Likert scale ranging from 1 (never) to 5 (always). <i>Safety culture:</i> assessed by the safety</p>	<p><b>Sample population:</b> Sample was composed of 566 workers from one nuclear power plant.</p> <p><b>Sampling approach:</b> Purposive sampling as one nuclear power plant was used.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Sample was composed of 566 workers (size of the company was 760 employees). Age is distributed: 1.5% are younger than 30 years old, 25.6% are between 30 and 45 years of age, and 72.9% are older than 45 years of age. Regarding their levels of studies, 59.5% of the sample lacks university studies.</p> <p><b>Response rate (if relevant):</b> 74.45% responded, thought by the authors to</p>	<p><b>Brief description of method and process of analysis:</b> Confirmatory factor analysis was used to obtain validity about the scales used. To examine the fit of the models, this was examined through root mean square error approximation. Structural equation modelling was used to find support for the hypotheses.</p> <p><b>Key findings relevant to the review:</b> Safety climate was a mediator between leadership and safety behaviours, and safety culture was a moderator in the relationship between leadership and safety climate, which also had a direct influence on safety climate and on safety behaviours. Values for regression line slopes, were 0.26 (t-value=2.40, p&lt;.05) for strong safety culture and 0.40 (t-value=5.17, p&lt;.01) for weak safety</p>	<p><b>Limitations identified by author:</b> Tested leader safety behaviours at all levels and able to show which behaviours a direct leader must show to induce a safety climate for employees, but were not able to say which behaviours are more appropriate at each level of the hierarchical organisational structure. Leaders were not asked for their employees' safety behaviours Use of self-report measures, and results may have been inflated as a result of respondent's tendencies to respond in a consistent manner, as well as the cross-sectional character of the study, where the variables is reduced to snapshot instead of dynamic processes over time. Safety behaviours are being measured in a subject, self-report way. Not measuring real observed safety behaviours, but their perceptions about how they behave in relation to safety. Model only considers some organisational and social factors, an important part of safety, in part because they were testing perceived safety behaviours as outputs in the model, and perceptions of one's own behaviours depend largely on the safety culture and safety climate.</p> <p><b>Limitations identified by review team:</b> Don't know gender split, and this could affect safety perceptions. Results based on responses from one nuclear plant - generalisability to other organisational</p>

	<p>culture questionnaire, consists of a scale elaborated by their own team. 24 items where respondents were asked to indicate the degree to which nuclear safety was important in a set of organisational practices. 5 point Likert scale 1(not at all) to 5 (quite a lot).</p> <p><i>Safety climate:</i> based study on Zohar and Luria (2005) to create an adapted Spanish scale. Scale consisted of 16 items with a 5 point Likert scale ranging from 1 (completely disagree) to 5 (completely agree).</p> <p><i>Safety behaviours:</i> recorded on scale based on Mearns et al. (2001) which tested for the fulfilment level of safety norms, procedures and rules, adapted the scale to make it 10 items long (2 items from original scale not relevant). 5 point scale: 1 (never) to 5 (usually) was used, so that higher scores reflect risky behaviours.</p> <p><b>Setting(s):</b> Nuclear power plant</p> <p><b>Dates:</b> 2008</p>	<p>be a satisfactory response rate.</p>	<p>culture. The relationship between leadership and safety climate is positive when a strong safety culture exists, or when there is a weak safety culture. The effect of this relationship is different depending on the strength of the safety culture. A safety empowered leader can make up for a weak safety culture, however better results were registered when empowering leaders and strong safety cultures were combined in the same organisation.</p>	<p>settings/other countries.</p> <p>Is knowledge of safety climate and behaviour associated with tenure at the organisation - tenure is not reported in this study.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Future studies should provide a sample-size large enough to be able to include group or organisational scores and carry out multi-level research achieving valid results.</p> <p>Studies should also consider that leadership performance is different across hierarchical levels of management, and that differences between levels are considerable.</p> <p>Longitudinal studies would be able to capture the dynamic quality of these constructs and other methods should be used in addition to self-report measurements such as observation or interview to control for tendencies of consistent and socially desirable responses.</p> <p>Researcher to look at safety using approaches that take several specialties into account in order to examine all the aspects involved in safety.</p> <p><b>Source of funding:</b></p> <p>This investigation was supported by research grant CONSOLIDER-C (SEJ2006-14086/PSIC) and FEDER from the Spanish Ministry of Education and Science.</p>
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## Minnotte et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Minnotte K L, Gravelle M, Minnotte M C</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Workplace characteristics, work-to-life conflict, and psychological distress among medical workers, <i>The Social Science Journal</i> 50 (2013) 408-417</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To examine the relationships between workplace characteristics, work-to-life conflict, and psychological distress among workers in the medical industry.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> Used data from the 2002 National Study of the Changing Workforce (NSCW). The NSCW is a telephone survey for working adults aged 18 or over in the United States and was initiated by the Families and Work Institute.</p> <p><b>Method(s):</b>            Psychological distress was measured with five items. All items were averaged with higher scores indicating greater levels of psychological distress (<math>\alpha = .74</math>). Work-to-life conflict was also measured with five items. Responses were summed and divided by five for ease of interpretation. Higher scores indicated a higher level of work-to-life conflict, and the scale had an alpha reliability coefficient of .87. Co-worker support was measured with a four-item scale. Items were reverse-coded, summed, and averaged, such that higher scores indicated higher levels of co-worker support (<math>\alpha = .75</math>). Supervisor support was measured with a nine-item scale used by previous researchers (Minnotte,</p>	<p><b>Sample population:</b> Working adults aged 18 or over in the United States.</p> <p><b>Sampling approach:</b> A random digit dialling method was used to obtain the sample.</p> <p><b>Inclusion/exclusion criteria:</b> All participants who did not identify as medical workers were excluded. Cases with missing values were also excluded.</p> <p><b>Number and characteristics of participants:</b> 246 respondents. The average age of medical workers in the sample was 43 years (S.D. = 13.39), with 75% of the sample consisting of women and 25% consisting of men. Some 48% of respondents had at least one child under the age of 18 living in the home, and the majority of respondents (79%) were white. On average respondents report household incomes between \$28,000 and \$79,999. The average</p>	<p><b>Brief description of method and process of analysis:</b> Bivariate correlations for the variables and stepwise ordinary least squares (OLS) regression to test hypotheses. The regression analysis tested the direct relationships between job pressure, work hours, non-standard work hours, job autonomy, co-worker support, supervisor support, the control variables, and psychological distress. Also used the Sobel test to further test the significance of any mediating relationships.</p> <p><b>Key findings relevant to the review):</b>            The results showed direct relationships between job pressure, supervisor support, and psychological distress among medical workers and indirect relationships suggesting work-to-life conflict mediates the relationships between job pressure and supervisor support and psychological distress. Supervisor support was significantly associated with</p>	<p><b>Limitations identified by author:</b>            As the design of the study is cross-sectional, direction and causality cannot be established. Without longitudinal data, it is not possible to determine that the relationships proposed do not work in the reverse, with the dependent variable, psychological distress, leading to changes in the independent variables. Because psychological distress is a global measure, it is unclear what specific types of distress were experienced by workers, which may add complication to improving situations for these workers.</p> <p>The study examined the overall medical industry rather than specific occupations, however, there is no way of knowing whether the occupations of the respondents were representative of the distribution of occupations in the overall medical industry.</p> <p><b>Evidence gaps/recommendations for future research:</b>            Qualitative research, such as conducting interviews and engaging in observation of workplace practices, would offer further insights into the unique work stressors experienced by medical workers. Future research should explore antecedents and consequences of life-to-work conflict, in which demands from the personal life domain conflict with demands from the work domain. Future research should include other organisational factors (eg, availability of other “family-friendly” policies) and individual level factors(eg personality characteristics)that influence psychological distress among medical</p>

	<p>2012; Beutell, 2010). The items were reverse-coded, summed, and averaged such that a high score indicated a high level of supervisor support (<math>\alpha = .90</math>).</p> <p>Job autonomy was measured using three items. The scores were summed and averaged with higher scores indicating higher levels of job autonomy (<math>\alpha=.71</math>).</p> <p>Job pressure was measured using a five-item scale that has been used in past research (Schieman &amp; Glavin, 2011). The items were reverse-coded, summed, and averaged with higher scores indicating more pressure. The scale had an alpha reliability coefficient of .69 for those in the medical industry.</p> <p>Non-standard work hours were measured with one item that assessed whether participants worked a standard Monday through Friday day shift or another type of shift that is not a regular day shift.</p> <p>The study also accounted for demographic variables that may impact psychological distress, including: the presence of children under age 18 in the home, age, gender, race, household income, and education.</p> <p><b>Setting(s):</b> Medical industry in the United States.</p> <p><b>Dates:</b> 2002</p>	<p>educational level was some college.</p> <p><b>Response rate:</b> 52%</p>	<p>psychological distress among medical workers.</p> <p>There was a positive association between job pressure and work-to-life conflict (<math>\beta = .34, p &lt; .001</math>), and a negative relationship between supervisor support and work-to-life conflict (<math>\beta = -.18, p &lt; .01</math>). The relationships between job pressure and supervisor support and psychological distress were mediated by work-to-life conflict.</p> <p>The Sobel tests suggest that work-to-life conflict is a significant mediator of the relationships between job pressure and psychological distress (Sobel = 4.47, <math>p &lt; .001</math>) and supervisor support and psychological distress (Sobel = 2.60, <math>p &lt; .01</math>).</p>	<p>workers which may provide a more holistic picture of the psychological distress experienced in the medical industry.</p> <p><b>Source of funding:</b> Not stated</p>
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Munir et al.(2012)

Study Details	Research parameters	Population and sample	Outcomes and methods of analysis and	Notes by review team
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		selection	results	
<p><b>Authors:</b> Munir, Fehmidah, Karina Nielsen, Anne H Garde, Karen Albertsen, Isabella Carneiro</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Munir, Fehmidah, Karina Nielsen, Anne H Garde, Karen Albertsen, Isabella Carneiro 2012 <i>Mediating the effects of work-life conflict between transformational leadership and health-care workers' job satisfaction and psychological well-being</i> Journal of Nursing Management 20 pp. 512-521</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Elderly care in a large Danish local government.</p> <p><b>Research aims/questions:</b> Explore the mediating effects of work-life conflict between transformational leadership and job satisfaction and psychological well-being.</p> <p><b>Overall research approach:</b> Longitudinal survey</p> <p><b>Data collection method:</b> In order to minimise common method biases in our data collection (see Podsakoff et al. 2003), questions on transformational leadership and work-life conflict were collected at baseline and data on job satisfaction and psychological well-being were collected at follow-up.</p> <p><b>Transformational leadership:</b> (seven items) Measured using the Global Transformational Leadership Scale developed by Carless et al. (2000). Good convergent validity with established lengthier scales such as the Multifactor Leadership Questionnaire (MLQ) and the Leadership Practices Inventory (LPI) (Carless et al. 2000). An example of items is: 'My leader encourages thinking about problems in new ways and questions assumptions'. Response categories were: 1 = To a very large extent -&gt; 5 = To a very small extent. Cronbach's <math>\alpha</math> at baseline = 0.90</p> <p><b>Job satisfaction:</b> (five items) Eg 'how satisfied are you with your job as a</p>	<p><b>Sample population:</b> Staff in elderly care in a large Danish local government. Staff included health-care assistants, nurses, physiotherapists, cleaning personnel, canteen personnel and maintenance staff. Each group had a formal leader with managerial responsibilities; Participants were asked to rate on transformational leadership behaviours of their formal leader. A total of 30 leaders were rated by their followers. Time 1 N = 447, time 2 N = 274</p> <p><b>Sampling approach:</b> Self-selection. All participants received information about the study before completing the questionnaire and it was made clear that participation was voluntary. Completed questionnaires were returned directly to the research group and anonymity was maintained by using numbers to identify participants.</p> <p><b>Inclusion/exclusion criteria:</b> Included: the 188 participants who provided data at both baseline and follow-up.</p> <p><b>Number and characteristics of participants:</b> N = 188. The majority were female (93%). The mean age was 45 years (SD = 9.90 years)</p>	<p><b>Description of analysis method:</b> Correlation analyses were run for all variables. Regression analyses were conducted to examine the relationships between baseline transformational leadership behaviours and work-life conflict, and follow-up job satisfaction and psychological well-being (n = 188). Baron and Kenny's (1986) well-known procedure for testing mediating variables was used to determine support for the hypotheses. Mediating effects are those that account for the relationship between a predictor (transformational leadership) and a dependent variable (job satisfaction and psychological well-being). Mediation is dependent on the interrelationships among the independent variable (transformational leadership) and the mediating variable (work-life conflict) and the outcome variables (job satisfaction and psychological well-being) (Baron &amp; Kenny 1986). As covariates, age, gender, length of employment (tenure), partner and children living at home were included, because they have been found to be associated with job satisfaction and psychological well-being. Statistical significance was set at <math>P &lt; 0.05</math>.</p> <p><b>Key findings relevant to the review:</b> Transformational leadership (M = 59.10, SD = 20.64), Well-being (M = 67.63, SD = 15.76), Job satisfaction (M = 64.91, SD = 15.68) Transformational leadership accounted for 10% of the variance in job satisfaction. As the relationship between transformational leadership and job satisfaction was significant, the mediator, work-life conflict, was entered into the third step.</p> <p><b>Regression of transformational leadership (TL) onto job satisfaction:</b> Without mediation of work-life conflict: <math>B = .30</math> (<math>p &lt; .01</math>), <math>F = 2.26</math> (<math>df = 6, 119</math>, <math>p &lt; .01</math>), <math>R^2 = .10</math>. With mediation of work life conflict: <math>B = .27</math> (<math>p &lt; .01</math>), <math>F = 2.19</math> (<math>df =</math></p>	<p><b>Limitations identified by author:</b> The findings are based on self-reported data. While it could be argued that it is unclear what aspects of work-life conflict our findings relate to, recent discussions on the issue have suggested that work-family conflict only reflects the concerns of workers with dependent children, infirm parents or others requiring care. Measure of work-life conflict consisted of only two items measuring the effect of work on time and energy and its impact on private life. This study employed one single scale of transformational leadership subcomponents. The sample worked within elderly care and is predominantly female and, therefore, the findings from this study cannot be generalized to other settings.</p> <p><b>Limitations identified by review team:</b> Although the sample is representative of the whole T1 and T2 samples, unclear if this is representative of the source population.</p>

	<p>whole, everything taken into consideration?' The response categories were 1 = Very satisfied -&gt; 4 = Highly dissatisfied. The scale was reversed such that a high value reflected a high level of job satisfaction. Cronbach's <math>\alpha = 0.82</math>.</p> <p><u>Psychological well-being:</u> (five items) This scale measured the degree to which employees had been in a positive state of mind over the past 2 weeks, eg happy and vivacious (Bech et al. 2003). Eg 'Have you over the past 2 weeks felt active and energetic?' Response categories were: 1 = All the time, 2 = Most of the time, 3 = A bit more than half of the time, 4 = A bit less than half of the time, 5 = Only a little of the time, 6 = Not at all. For the analyses the scale was reversed such that a high value represents a high level of well-being. Cronbach's <math>\alpha = 0.85</math>.</p> <p><b>Dates:</b> Not reported</p>	<p>and they had been working in their current workplace for 9 years (SD = 7.70 years) on average (at time 1). The majority of staff were health-care assistants (61%), 12% were nurses, 21% had other health-related educations and the remaining 8% had no health-care related education. This longitudinal sample is representative of the T1 and T2 samples in terms of age, gender and education.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Selected participants = 53% Baseline (T1) = 81% (447/551) Follow-up (+18 months) (T2) = 53% (274/521)</p>	<p>7,118, <math>p &lt; .01</math>), total <math>R^2 = 0.12</math> (<math>p &lt; .01</math>), <math>R^2 \Delta = 0.02</math></p> <p>After controlling for age, gender, tenure, partner, children living at home, transformational leadership accounted for 8% of the variance in psychological well-being. When work-life conflict was entered into the equation, the beta was reduced and no longer significant. It appears that the relationship between transformational leadership and psychological well-being (PW) was mediated through work-life conflict.</p> <p><u>Regression of TL onto PW:</u> Without mediation of work-life conflict: <math>\beta = .20</math> (<math>p &lt; .05</math>), <math>F = 1.74</math> (<math>df = 6, 117</math>, <math>p</math> not significant), <math>R^2 = .08</math>. With mediation of work life conflict: <math>\beta = .12</math> (<math>p</math> not significant), <math>F = 2.81</math> (<math>df = 7, 116</math>, <math>p &lt; .05</math>), total <math>R^2 = 0.15</math> (<math>p &lt; .01</math>), <math>R^2 \Delta = 0.07</math></p> <p>It would appear that the relationship between transformational leadership and psychological well-being was mediated through work-life conflict.</p> <p>Work-life conflict mediated between transformational leadership and well-being, but not job satisfaction.</p>	<p>Follow up time appears to long, shown in the decrease of 28 percentage points in response rate</p> <p><b>Evidence gaps/recommendations for future research:</b> It is likely that there are a number of other explanatory variables, including work demands, shift work patterns, working hours, work time preferences and working conditions, which are not included in this study. Additional studies should include these variables in their analyses.</p> <p><b>Source of funding:</b> This project was funded by the National Working Environment Research Fund.</p>
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## Netemeyer et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Netemeyer, R.G., Maxham III, J.G, and Lichtenstein, D.R.</p> <p><b>Year of publication:</b> 2010</p> <p><b>Citation:</b> Netemeyer, R.G., Maxham III, J.G, and Lichtenstein, D.R. (2010). Store manager performance and satisfaction: Effects on store employee performance and satisfaction, store customer satisfaction, and store customer</p>	<p><b>Research questions:</b> Research looks at how managers in the small store, small number of employees retail context may affect store employees, customers and potentially store performance. Study looks at store manager performance and job satisfaction as being directly related to customer satisfaction and potentially store financial performance. Study examines the relationships among manager job satisfaction and job performance, customer-contact employee job satisfaction and job performance, customer satisfaction and a customer spending based store performance metric.</p> <p><b>Research approach:</b> Cross sectional survey</p> <p><b>Data collection:</b> On-line survey to managers, on-line surveys to employees. On-line survey to customers randomly chosen to visit the website</p> <p><b>Method(s):</b> Online surveys were sent to managers, and after a week an email was sent emphasising the importance of returns. Managers self-rated their level of job satisfaction on an 3 item scale, but</p>	<p><b>Sample population:</b> Data came from 306 retail store managers, 1,615 retail store floor employees and 57,656 customers from 306 stores if a 610 store multichannel (ie online, catalogue and storefront) firms that sells women's clothing and accessories.</p> <p><b>Sampling approach:</b> Stratified random sampling based in geographic region</p> <p><b>Inclusion/exclusion criteria:</b> NR</p> <p><b>Number and characteristics of participants:</b> All 306 manager surveys were returned. All managers were full-time with an average tenure of 57 months (SD=29) in their current position and an average income of \$49,092 (SD=\$7,157); 73% were female and 58% held college degrees. Managed an average of 5.7 employees (range 2-8)</p> <p>Online surveys were sent to 1,956 employees of the 306</p>	<p><b>Brief description of method and process of analysis:</b> Path analysis was used to estimate model fit. CFA conducted for multi-item measures, with models fitting the data well.</p> <p><b>Key findings relevant to the review:</b> The model fitted the data well, <math>\chi^2(4, N = 306) = 4.14, p = .39</math>, comparative fit index = 1.00, non-normed fit index = 1.00, root mean-square error of approximation = .01 (Hu &amp; Bentler, 1999).</p> <p>The manager job performance-manager job satisfaction interaction → employee job performance path was significant (<math>p &lt; 0.05</math>), but the manager job performance-manager job satisfaction interaction → employee job satisfaction path was not. Manager job performance and satisfaction were related to customer satisfaction (<math>p &lt; 0.01</math>). Managers with the highest joint levels of performance and satisfaction showed the highest mean score on employee performance. The effect of manager job satisfaction on employee job performance was more pronounced for high as opposed to medium or low manager performance.</p> <p>When manager job performance and manager job satisfaction are jointly at their highest levels, the average percentage change in customer spend from year to year is higher (52.66 per cent) than any other level of manager job performance and manager job satisfaction.</p> <p>The manager job performance and satisfaction paths to customer satisfaction were significant (<math>p &lt; 0.01</math>), but the manager performance-</p>	<p><b>Limitations identified by author:</b> Results may not generalise to other retail settings. Small settings were used, and so findings may not be replicated in larger retail settings with multiple managers and a large number of subordinate employees.</p> <p>Manager → customer paths must be viewed with caution. Although store managers are likely to have frequent contact with customers, they had no direct measure of this for customers in the study. Only have indirect evidence that study managers interacted with study customers. Direct manager satisfaction and manager performance paths must be tempered with the limitation that face to face manager-customer interaction was not assured.</p> <p>Not able to obtain ICC estimates for manager job performance measure. Have no way of knowing how much variability in manager performance is due to the rater.</p> <p>Some data collection issues - customers being offered a 20% discount as incentive to respond to the survey could lead to an upward bias in customer satisfaction.</p> <p>Numerous intervening variables that could have been included that mediate the effects shown in the</p>

<p>spending growth.</p> <p><b>Quality rating: +</b></p>	<p>manager job performance was rated by each store manager's district manager via the retailer's formal 7 item scale (<math>\alpha = .93</math>) (variables are free of one type same-source, common-methods bias that could otherwise influence estimates among these constructs). Employees rated themselves on the same 3-item measure of job satisfaction on which the managers rated themselves (<math>\alpha = .92</math>).</p> <p>Customers responded to a 2-item measure of satisfaction with the retailer (<math>\alpha = .98</math>), and customer survey were matched to the employee, manager and store database using the store number as a linking variable.</p> <p>From each of the participating stores researchers accessed the percentage change in average transaction value of customers per visit (between 2004-05).</p> <p><b>Setting(s):</b> 306 retail store managers, 1,615 retail store floor employees and customers of multi-channel firms that sell women's clothing and accessories.</p> <p><b>Dates:</b> 2004-2005.</p>	<p>stores. 1,615 submitted surveys. Employees had been with the firm an average of 20 months (<math>SD=10</math>) and had an average income of \$18,718 (<math>SD=\\$5,303</math>); 56% were full time, 99% were female and 38% held a 2 or 4 year college degree.</p> <p>Overall 186,744 survey invitations were sent out to customers and 57,656 completed customer responses were received. Customers were on average 48 years old (<math>SD=15.66</math>); 78% were female and 69% held college degrees.</p> <p><b>Response rate (if relevant):</b> 100% store manager response rate 83% response rate for store employees. Response rates for customers ranged from 21%-36% across stores, resulting in a 31% overall customer response rate.</p>	<p>manager job satisfaction path were not. Manager performance and manager satisfaction on employee performance were significant (<math>p&lt;0.01</math>). The employee performance <math>\rightarrow</math> customer satisfaction and the employee satisfaction <math>\rightarrow</math> customer satisfaction paths were both significant (<math>p&lt;0.01</math>). Employee performance partially mediated the effect of manager performance on customer satisfaction and for employee performance partially mediating the effect of manager satisfaction on customer satisfaction.</p> <p>The authors conclude that the manager performance <math>\rightarrow</math> employee performance path (.30, <math>t = 4.83</math>, <math>p = .01</math>) suggests that a one-point increase in manager performance on its five-point scale is associated with a .30 increase in employee performance on its seven-point scale, after holding the effects of all other predictors of employee performance constant. This main effect on employees was the strongest found and suggests that when managers perform well, employees may strongly mimic this behaviour. The effect of manager satisfaction on employee performance was less pronounced, but is associated with a .14 increase in employee performance (holding the effects of other predictors constant), and forms an interaction term contributing to employee performance above and beyond its simple main effect. That is, employee performance may be even stronger when manager performance and satisfaction are jointly at their highest levels.</p>	<p>model - manager leadership style, manager mood, employee perceptions of organisational constructs could have affected path estimates in the study.</p> <p><b>Limitations identified by review team:</b> Female based employee sample. Don't know if there is a difference between ages and satisfaction/ethnicity and satisfaction.</p> <p><b>Evidence gaps/recommendations for future research:</b> The potential intervening variables may want to be examined as mediators of some of the relationships tested.</p> <p><b>Source of funding:</b> Research presented in this study was supported by the Bernie Morin and MacGill Research funds in the McIntire School of Commerce at the University of Virginia.</p>
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## Nyberg et al. (2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Nyberg A, L Alfredsson, T Theorell, H Westerlund, J Vahtera, M Kivimäki</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Nyberg A, L Alfredsson, T Theorell, H Westerlund, J Vahtera, M Kivimäki 2009 <i>Managerial leadership and ischaemic</i></p>	<p><b>Setting(s):</b> Companies in the Stockholm area</p> <p><b>Research aims/questions:</b> To investigate the association between managerial leadership and ischaemic heart disease (IHD) among employees.</p> <p><b>Overall research approach:</b> Secondary analysis of cohort survey.</p> <p><b>Data collection method:</b> Data were drawn from the WOLF (Work, Lipids, and Fibrinogen) Stockholm study, which is a prospective cohort study of employees aged 19-70 working in companies in the Stockholm area. Records of hospital admissions and deaths to the end of 2003 were obtained from national registers and were linked to the data. Twenty occupational health units carried out the baseline screening between November 1992 and June 1995.</p> <p>Education (low, intermediate, high) and smoking status (current smoker vs non-smoker) were self-reported, while income from work (in Swedish kronor) was obtained through registers. Systolic and diastolic blood pressure (mm Hg) was twice measured on the right arm in the supine position after 5 min rest with a 1 min interval. Height, weight and waist were measured to determine body mass index (BMI, kg/m<sup>2</sup>) and waist circumference (cm). Blood samples were taken after an overnight fast and analysed in the same laboratory (CALAB Medical Laboratories, Stockholm, Sweden) accredited by the Swedish Board for Accreditation and Conforming Assessment. Total cholesterol (mmol/l) and high density lipoprotein (HDL) cholesterol (mmol/l) were measured enzymatically after precipitation with phosphotungstic acid and magnesium chloride. Low density lipoprotein (LDL) cholesterol concentration was calculated by the Friedewald formula. Fibrinogen in plasma (mmol/l)</p>	<p><b>Sample population:</b> All participants in the WOLF Stockholm study.</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> The authors restricted the analyses to men only since there were too few cases of ischaemic disease among women (n=12). Cases of prevalent ischaemic disease at baseline in 1992-1995 identified by hospital admission for ischaemic disease between 1963 and baseline screening were excluded from the analysis (21 men). An additional 46 men were excluded because they were above 65 years of age (official retirement age) at the start of the study, and finally 50 men were excluded because of missing data in the managerial leadership scale.</p> <p><b>Number and characteristics of participants:</b> The participants were on average 41.6 years old (SD = 11.1) and most of them were relatively highly</p>	<p><b>Description of analysis method:</b> For each IHD outcome, the time to the event was defined as the number of days between baseline screening and the first diagnosis after baseline but before 31 December 2003. For employees with no events, the end of follow-up was 31 December 2003 or the date of death if earlier. Outcome of the primary analysis was a composite measure of acute myocardial infarction, unstable angina and cardiac death. Subsidiary analysis excluded unstable angina from the outcome to examine whether the association was seen with myocardial infarction and cardiac death only. Age-adjusted hazard ratios were calculated with 95% confidence intervals from Cox proportional-hazards analyses for incident IHD per 1 standard deviation (SD) increase in standardised leadership score (mean 0, SD 1). Additional adjustments included socioeconomic characteristics and conventional risk factors. An interaction term between leadership and time worked in the current workplace was entered in a subsidiary analysis.</p> <p><b>Key findings relevant to the review:</b> A total of 74 incident IHD events occurred during the mean follow-up time of 9.7 years (range: 3 days to 10.5 years). In age-adjusted analysis, a higher leadership score was associated with a lower IHD risk. This inverse association was dependent on the time worked in the current workplace (p=0.049 for the interaction between leadership score and time worked in current workplace on incident IHD including unstable angina and p=0.03 on acute myocardial infarction and cardiac death excluding unstable angina). The association was stronger the longer the participant had worked in the same workplace. This suggests a dose-response association</p>	<p><b>Limitations identified by author:</b> Not reported</p> <p><b>Limitations identified by review team:</b> Sampling approach unclear. Confidence intervals are not quite narrow enough. Unclear whether just below ten years is an appropriate follow up time.</p> <p><b>Evidence gaps/recommendations for future research:</b> Not reported.</p> <p><b>Source of funding:</b> AN, TT and HW are financed by a research</p>

<p><i>heart disease among employees: the Swedish WOLF study</i> Occupational and Environmental Medicine 66 pp.51-55 <b>Quality rating:</b> +</p>	<p>was determined by spectrometric test. The participants stated in the questionnaire whether they previously had had a heart attack, angina pectoris, chest pain at physical exertion or mental strain, heart failure, stroke, vascular spasms in calves ('window watcher syndrome') or diabetes. The participants rated their managers' behaviours using an assessment instrument which included 10 items with structured response scales. These items constitute one dimension, leadership climate, of the psychosocial work environment measured in the Stress Profile. The Stress Profile is a validated instrument based upon consultation at work sites and established theories and research on work stress. The internal consistency for this scale was high (Cronbach <math>\alpha</math> of 0.86) suggesting that a supervisor tends to either express all these behaviours or none of them. The response scores were summed and expressed as a percentage of the theoretical maximum (100 = respondents with the highest score for every item of the scale; 0 = respondents with the lowest score). Hard endpoint outcomes for IHD were defined as hospital admission with a main diagnosis registered as acute myocardial infarction (the International Classification of Diseases, version 9 (ICD-9) code 410; ICD-10 code I21) or unstable angina (ICD-9: 411; ICD-10: I20.0); or death with a registered underlying cause of IHD (ICD-9: 410-414; ICD-10: I20-I25) or cardiac arrest (ICD-9: 427; ICD-10: I46). Records of hospital admissions and deaths from 14 March 1963 until 31 December 2003 were obtained. Incident caseness was defined as the first event occurring after baseline screening, excluding prevalent cases at baseline. <b>Dates:</b> Baseline screening 1992-1995. Records of employee hospital admissions with a diagnosis of acute myocardial infarction or unstable angina and deaths from IHD or cardiac arrest to the end of 2003 were used to ascertain IHD.</p>	<p>educated (53.8%) and non-smokers (Never smoker = 46.4%, ex-smoker = 29.3%). The comparatively favourable risk factor levels were due to the fact that all participants were employed, and that the sample was composed of employees with higher education than the average employee in Sweden and slightly better health care support than the average inhabitant in Stockholm. Social class: professional and higher manager (23.3%), technical, lower management (26.8%), non-manual (8.8%), skilled manual (18.3%), unskilled manual (22.9%). Supervisory status: yes (22.7%), no (77.3%) Mean income per year, 1000 Swedish kronor: (M = 253.11, SD = 137.98). Physical exercise: Never or very little (24.9%), now and then (36.5%) and regularly (38.7%). N = 3122 <b>Response rate :</b> 76%</p>	<p>between leadership and incident IHD. The authors presented the effects of multiple adjustments (education, supervisory status, social class, income, physical workload, BMI, blood pressure, diabetes etc) on the inverse association between leadership score and incident IHD among participants with complete data on all baseline characteristics and a minimum of 4 years in the current workplace. The association was robust to adjustments for socioeconomic factors and conventional risk factors for ischaemic disease. To assess possible reverse causality, the authors excluded those with self-reported angina, chest pain, vascular spasms in their calves, heart attack, heart failure or stroke at baseline (n=172). In age-adjusted models of men with a minimum of 4 years in the current workplace, the hazard ratio for incident IHD was 0.63 (95% CI 0.46 to 0.86, p=0.005). The <u>association of leadership scale items with incident IHD</u>. The items which were significantly associated with incident IHD were: 'My boss gives me the information I need' (Hazard Ratio (HR) 0.65, confidence interval CI 0.50-0.83), 'my boss is good at pushing things through and carrying out changes' (HR 0.61, CI 0.45-0.81), 'my boss explains goals and subgoals for our work so that I understand what they mean for my particular part of the task' (HR 0.61, CI 0.46-0.79), 'my boss shows that he/she cares how things are for me and how I feel' (HR 0.71, CI 0.54-0.93), 'I have sufficient power in relation to my responsibilities' (HR 0.64, CI 0.48-0.84), 'my boss takes the time to become involved in his/her employees' professional development' (HR 0.69, CI 0.51-0.92).</p>	<p>program grant from the Swedish Council for Working Life and Social Research (FAS, grant no. 2004-2021). MK is supported by the Academy of Finland (projects 117614, 124322 and 124271) and the Finnish Environment Fund. The WOLF study was originally established by the Swedish Council for Working Life and Social Research (FAS grant no. 2001-0163).</p>
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Nyberg et al. (2011)

Study Details	Research parameters	Population and sample	Outcomes and methods of analysis and	Notes by review
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		selection	results	team
<p><b>Authors:</b> Nyberg, A., Holmberg, I., Bernin, P., Alderling, M., Åkerblom, S., Widerszal-Bazyl, M., Magrin, M.E., Hasselhorn, H-M., Milczarek, M., D'Angelo, G., Denk, M., Westerland, H. and Theorell. T.</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Nyberg, A., Holmberg, I., Bernin, P., Alderling, M., Åkerblom, S., Widerszal-Bazyl, M., Magrin, M.E., Hasselhorn, H-M., Milczarek, M., D'Angelo, G., Denk, M., Westerland, H. and Theorell. T. (2011). Destructive managerial leadership and psychological well-being among employees in Swedish, Polish and Italian hotels. <i>Work</i>, 39, 267-281.</p>	<p><b>Research questions:</b> This study aimed to investigate the relationship between perceived destructive leadership practices and perceived psychological well-being among hotel industry employees. Another aim of the study was to test for the possible mediation of iso-strain between leadership and psychological well-being.</p> <p><b>Research approach:</b> Cross-sectional exploratory study.</p> <p><b>Data collection:</b> Researchers in each respective country was responsible for data collection. Hotel management was contacted by telephone and questionnaires were delivered in person or by mail to the hotel manager or another contact person at the hotels. Questionnaires were collected by a contact at the hotels and were sent back to the research institutes. Two reminders were sent out.</p> <p><b>Method(s):</b> Three leadership subscales (autocratic, malevolent and self-centred) in combination with iso-strain, and three indicators of psychological well-being (mental health, vitality and behavioural stress) were measured. Leadership: Phase 2 version of the GLOBE scale were used to measure the independent variable of perceived managerial leadership. 12 of the original items included in the factors autocratic, malevolent and self-centred leadership were used in the study. Questions were also posed in a different way, with respondents to rate the actual behaviour of their manager. Items were scored on a 7 point scale, summed and averages per index. Cronbach alpha's for all leadership indices were very good.</p>	<p><b>Sample population:</b> 554 questionnaires were collected from the hotels, but it is unknown how many were originally delivered.</p> <p><b>Sampling approach:</b> Purposive sampling of hotel sector, unknown how respondents were chosen.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> 554 questionnaires (Sweden N=214, Poland N=229, Italy N=111). Personnel from both local hotels, national chains and international chains were included in this study. In Poland not national chains were included and in Italy there were no international chains. There was a small difference between countries regarding the representation of white and blue collar workers, with a slightly higher proportion of white collar workers in Sweden and blue collar workers in</p>	<p><b>Brief description of method and process of analysis:</b> Correlations between leadership dimensions, iso-strain and psychological well-being were estimated with Spearman's correlation coefficient. ANOVA;s were used to find differences between countries. Logistic regressions were used to estimate the relationship between hotel means of autocratic, malevolent and self-centred leadership on the one hand, and employee mental health, vitality and behavioural stress on the other.</p> <p><b>Key findings relevant to the review:</b> Correlation between perceived autocratic leadership and malevolent leadership was quite high (0.72, p&lt;0.01). Self-centred leadership showed weaker-correlations with the other two leadership dimensions. Iso-strain was more strongly related to employee psychological well-being (0.31-0.37, p&lt;0.01) than were leadership dimensions (0.14-0.27, p&lt;0.01). Vitality was a little less strongly related to the leadership dimensions than the other two-indicators of psychological well-being. Autocratic leadership on the hotel level was significantly related to individual employees reporting lower levels of vitality, and a similar pattern was seen regarding malevolent leadership. When employees reported a higher general frequency of self-centred leadership they also reported poorer mental health, lower levels of vitality and more behavioural stress. All these relationships were significant at the p&lt;0.05 level. Iso-strain (composite measure of high</p>	<p><b>Limitations identified by author:</b> The study had an exploratory purpose. The leadership subscales developed with the GLOBE project were used in a modified format and for a different purpose. The validity and reliability of these new constructs will have to be tested in future research.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future studies of health consequences of destructive components of managerial leadership should preferably use longitudinal research designs in order to establish causality, as well as specifically explore mediating and moderating factors in this relationship.</p> <p><b>Source of funding:</b> SALISA - Joint programme for working life research in Europe provided financial contribution.</p>

<p><b>Quality rating: -</b></p>	<p>Psychological well-being: defined in terms of mental health (5 questions), vitality (4 questions) and behavioural stress (8 questions) measured using three subscales of the Copenhagen Psychosocial Questionnaire (COPSOQ), and the medium-length version (which has been validated) was used in the present study. Scores were averaged per index.</p> <p>Perceived working conditions: based on 4 subscales of the COPSOQ measuring work demands, for scales measuring degree of control and one subscale measuring social support. Items were once again averaged. Cronbach alpha's for individual scores ranged between 0.506 and 0.778.</p> <p>A single composite scale to measure iso-strain was calculated by multiplying high demands by low control and low poor social support. Hotel means of iso-strain were calculated and adjusted for in regression analyses.</p> <p><b>Setting(s):</b> Hotel sector in Sweden, Poland and Italy.</p> <p><b>Dates:</b> Not reported</p>	<p>Italy. The gender distribution was more equal in Italy than in the other two countries:</p> <p>Number of hotels: Sw=12, Pl=14, It=7</p> <p>Gender: Sw: 72.9%F, 27.1%M; Pl: 70.3%F, 29.7%M; It: 49.5% F, 50.5%M</p> <p>All countries had the greatest proportion of participants born between 1960-69 and 1970-79.</p> <p><b>Response rate (if relevant):</b></p> <p>The overall response rate was 45% (48% in Sweden, 52% in Poland and 36% in Italy).</p>	<p>demands, low control and poor social support) had some impact on the relationship between all measures of perceived managerial leadership and employees psychological well-being. The relationship between autocratic leadership and poor mental health, and the relationships between malevolent leadership and poor mental health and high behavioural stress changed to become non-significant.</p> <p>The reported level of autocratic leadership did vary significantly between all countries, with Swedish hotel employees reporting the lowest frequency and Italy the highest, and a similar story was replicated for malevolence. Iso-strain was reported the highest among Polish employees, and the mean value differed significantly to the of the Swedish mean. Behavioural stress showed strong variation between countries. Less was reported among Swedish employees than among the employees in the other two countries, a difference that was only significant in relation to Italian employees. Vitality was highest in Poland, and the mean differed significantly from Sweden, who reported the lowest level of vitality.</p>	
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## O'Donnell et al. (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> O'Donnell E M, Berkman L F and Subramanian S V</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Manager support for work/family issues and its impact on employee-reported pain in the extended care setting. <i>J Occup Environ Med.</i> 2012 September ; 54(9): 1142-1149</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> To understand the contribution of supervisory support related to work/family balance and the outcome of employee-reported pain in the context of the extended care setting.</p> <p><b>Research approach:</b> Survey interviews</p> <p><b>Data collection:</b> Census of employees at four selected extended-care facilities in the Boston metropolitan region. Managers of employees included in the study were asked about their supervisory practices in qualitative interviews. Research assistants trained in interview techniques and biomarker collection administered the survey in English, Spanish, and Haitian Creole. All interviews were conducted during employees' work shifts. Interviews required approximately 40 minutes, and debit cards in the amount of \$15 were distributed to all respondents as an incentive to participate.</p> <p><b>Method(s):</b> Outcome measures included: employee-rated pain (whether, in the past four weeks, they experienced any bodily pain and if so, how often. The survey also assessed employee back, neck and shoulder pain <i>at work</i>)</p> <p>The independent variable was supervisory support. Two researchers participated in/coded interviews</p>	<p><b>Sample population:</b> Employees at extended care facilities within the Boston (USA) metropolitan region.</p> <p><b>Sampling approach:</b> After referral from the Massachusetts Extended Care Federation, researchers contacted administrators at extended care facilities within a 50-mile radius of Boston to gauge interest in the study. Identified four extended care facilities with varied characteristics.</p> <p><b>Inclusion/exclusion criteria:</b> All employees at the facilities were invited to participate.</p> <p><b>Number and characteristics of participants:</b> Complete data for all covariates of interest yielded a total sample of 368 for the analysis (310 women and 58 men). Subjects averaged an age of 41 years and an hourly wage just under \$16.</p> <p><b>Response rate:</b> Overall response rate of 76.6% (N = 452).</p>	<p><b>Brief description of method and process of analysis:</b></p> <p>Examined the bivariate relation between pain (any self-reported pain and self-reported pain at work, in the past four weeks), supervisory support score and relevant covariates through frequency tables and analyses of variance and corresponding F-statistics. Then employed multilevel logistic regression models to account for the nested nature of the data (employees within managers) and assessed relevant odds ratios and corresponding 95% confidence intervals for statistical significance. Included supervisory support score (manager's tertile score to support work/family balance - low/mid/high) and sociodemographic characteristics such as age, sex and race for both pain outcomes.</p> <p><b>Key findings relevant to the review:</b></p> <p>Over 70% of the employees in the sample had managers who reported low or mid supervisory support. In analyses of variance, both pain measures were significantly associated with supervisory support, before controlling for</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>- Selection of nursing homes was not systematic and depended on the approval of facility administration. Therefore, the worksite sample is not likely to be representative of all extended care facilities in the region.</li> <li>- Study is cross-sectional and therefore the authors are unable to draw causal inferences about work/family oriented manager practices and self-reported pain.</li> <li>- The use of self-reported measures, including job strain and depressive symptoms, instead of objective measures may have biased the results.</li> <li>- Limited ability to differentiate between the physical and psychosocial mechanisms driving the supervisory behaviour and employee pain relation due to the temporal sequencing and variables included in the data.</li> </ul> <p><b>Evidence gaps/recommendations for future research:</b></p> <ul style="list-style-type: none"> <li>- This study suggests that supervisory support for work and family balance may reduce the risk of employee-reported pain in the extended care setting. To further promote employee well-being in healthcare and other sectors, the authors recommend that subsequent research examine the temporal nature of this association as well as the pathways that relate</li> </ul>

	<p>with managers to assess flexibility as part of two domains of supervisory support:</p> <ul style="list-style-type: none"> <li>-openness (willingness to help employees with their jobs, schedules and work/family needs)</li> <li>-creativity for work/family balance (applying workplace policies with creativity to accommodate employees).</li> </ul> <p>Other variables included were work/family conflict and the provision of direct patient care (direct patient care employees were considered health care practitioners).</p> <p>Other covariates conceptualized to be associated with supervisory support for work/family balance and employee-rated pain were also included: job strain, depressive symptoms, age, hourly wage, obesity, male gender, and Non-Hispanic race.</p> <p><b>Setting(s):</b> Extended care settings</p> <p><b>Dates:</b> Survey administered between September 2006 and July 2007.</p>		<p>other covariates (<math>p &lt; 0.01</math>).</p> <p>Employees supervised by managers who report low and mid-levels of supervisory support for work/family balance experience more overall pain than employees with managers who report high levels of support.</p> <p>Controlling for age, sex, and race, supervisory support score was associated with increased likelihood of employee-reported pain in the past four weeks (mid supervisory support score: OR=2.56, CI= (1.45-4.53); low supervisory support score: OR=1.85, CI=(1.08, 3.16)).</p> <p>Similarly, employees with low and mid supervisory support scores experience more pain <i>at work</i> than employees with managers who report high levels of supervisory support. Controlling for sociodemographic characteristics of the employee only, the lowest supervisory support scores are associated with roughly twice the risk of pain at work (mid supervisory support score: OR=2.78; CI=(1.41, 5.49); low supervisory support score: OR=2.31; CI=(1.19, 4.49)).</p> <p>Work/family conflict was found not to diminish the effects of supervisory support (or other variables) on employee pain.</p>	<p>supervisory support to employee health</p> <ul style="list-style-type: none"> <li>-Next phase of the research includes an ongoing randomized control trial to further elucidate the role, if any, of work/family conflict on supervisory behaviours and pain.</li> </ul> <p><b>Source of funding:</b> Study acknowledge the support of the Work, Family and Health Network and the National Institute of Aging and National Institute of Child Health and Human Development under Grant U01 5186989-01.</p>
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## Prattas D J (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Prattas D J</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Relationships Among Employee Perception of Their Manager's Behavioral Integrity, Moral Distress, and Employee Attitudes and Well-Being, <i>J Bus Ethics</i> (2013) 113:51-60</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To test hypothesized relationships among employee reports of moral distress, their perceptions of their manager's behavioural integrity (BI<sup>43</sup>), and employee reports of job satisfaction, stress, job engagement, turnover likelihood, absenteeism, work-to-family conflict, health, and life satisfaction.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> Study used data from the 2008 National Study of the Changing Workforce (2008 NSCW) held by the Families and Work Institute (FWI). A total of 3,502 telephone interviews were completed with a nationwide cross-section of employed adults.</p> <p><b>Method(s):</b> The following measures were assessed: The following measures were assessed:</p>	<p><b>Sample population:</b> Participants of the 2008 National Study of the Changing Workforce (2008 NSCW) (Families and Work Institute, 2008).</p> <p><b>Sampling approach:</b> Not stated.</p> <p><b>Inclusion/exclusion criteria:</b> Used only wage and salary workers data (ie, excluding self-employed).</p> <p><b>Number and characteristics of participants:</b> 2,679 participants: 54.7 per cent were female; 44.5 per cent had an associate or a 4 year college degree. Average age was 45.9 years.</p>	<p><b>Brief description of method and process of analysis:</b> The author performed a series of hierarchical regressions. Regressed each of the dependent variables on BI and moral distress, after controlling for age, gender, and education level. Then conducted a three-step regression of each of the dependent variables with step 1 entering the demographic variables, step 2 entering BI, and step 3 entering moral distress. To test for mediation the author first regressed the proposed mediator (moral distress) on BI after controlling for age, gender, and education. Then regressed each of the dependent variables on BI and the proposed mediator (moral distress). Also calculated Sobel test statistics using an on-line interactive calculator.</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-The cross-sectional nature of the research design cannot provide support for the causality of the relations.</li> <li>-All of the data came from the same source with the potential for the biases that could either attenuate or accentuate the relationships.</li> <li>-A single item was used to assess moral distress. Single item measures are likely to be less reliable than a scale consisting of multiple items and low reliability of measures attenuates the relationships among variables.</li> <li>-There may have been incongruence between an actor's espoused values and their actual behaviours.</li> <li>-The conceptualization of BI is essentially a difference score and</li> </ul>

<sup>43</sup> BI is conceptualized throughout this study as the "perceived pattern of alignment between an actor's words and deeds. It entails both the perceived fit between espoused and enacted values, and perceived promise-keeping. ... BI is the extent to which employees believe that a manager 'walks her talk', and, conversely, it reflects the extent to which they see her as 'talking her walk'" (Simons 2002, p. 19).

	<ul style="list-style-type: none"> <li>● Behavioural integrity - assessed by two items: ‘I can trust what managers say in my organisation’ and ‘managers in my organisation behave honestly and ethically when dealing with employees and clients or customers’ with four Likert-type response options from strongly agree to strongly disagree. <math>\alpha = .83</math>.</li> <li>● moral distress - single item</li> <li>● job satisfaction; three items (<math>\alpha = .78</math>).</li> <li>● job engagement - seven items (<math>\alpha = .69</math>).</li> <li>● turnover likelihood - single item</li> <li>● stress and strain - 10 items (<math>\alpha = .83</math>).</li> <li>● health - single item</li> <li>● work to family conflict - five items (<math>\alpha = .86</math>). and</li> <li>● absenteeism - single item.</li> </ul> <p>Demographic information (gender, age and education level) was also analysed.</p> <p><b>Setting(s):</b> Household survey of employed adults in the United States.</p> <p><b>Dates:</b> Interviews were completed between November 2007 to April 2008.</p>	<p><b>Response rate:</b> FWI estimated a response rate of 55 per cent of potentially eligible households.</p>	<p><b>Key findings relevant to the review:</b></p> <p>Behavioural integrity was positively related to job satisfaction (.52), job engagement (.47), and life satisfaction (.23) {all at <math>p &lt; .001</math>} and negatively related to stress(-.23), turnover likelihood(-.22), and work-to-family conflict (-.30), <math>p &lt; .001</math> and absenteeism (-.06, <math>p &lt; .01</math>). Moral distress was inversely related to those outcomes.</p> <p>Moral distress was inversely related to those outcomes.</p> <p>The magnitude of relationships with job satisfaction, job engagement, and life satisfaction were greater with BI than with moral distress.</p> <p>Moral distress mediated the relationships between BI and the employee outcomes, supporting the view that employee’s perceptions of their manager’s BI might influence employee’s behaviours as well as their attitudes.</p>	<p>these have been criticised on conceptual and methodological grounds.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Future research should use a reliable and construct validated measure of moral distress, appropriate for the sample population, rather than a single item.</p> <p>Future research should also collect and analyse longitudinal data to test models in which both trust and moral distress mediate BI’s relationships on employee attitudes and performance (in-role and OCB) and in which these behaviours are related to organisational performance and outcomes.</p> <p>Future research might also develop measures which address some of the limitations related to difference scores.</p> <p><b>Source of funding:</b> Not stated.</p>
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## Rodwell J and Martin A (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Rodwell J, Martin A</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> <i>Rodwell J and Martin A</i> The importance of the supervisor for the mental health and work attitudes of Australian aged care nurses, <i>International Psychogeriatrics</i> (2013), 25:3, 382-389</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To test the relative impact of a range of psychosocial work environment variables derived from the demand-control-support (DCS) model and organisational justice</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> The survey included a number of data measurements: Well-being was measured with the General Health Questionnaire-12 (GHQ-12). Depression was measured using a shortened version of the Centre for Epidemiological Studies Depression Scale, the CES-D. Job satisfaction was measured using a six item job satisfaction scale. The Affective Commitment Scale (Allen and Meyer, 1990) was used to measure respondents' commitment to their organisation. Job demands were measured using an 11-item scale developed by Caplan et al. (1980). Job control was measured using a nine-item scale from Karasek (1985). Social support from within the organisation and from non-work sources was measured using a four-item scale developed by Caplan et</p>	<p><b>Sample population:</b> 490 nurses in aged care facilities in a medium to large Australian healthcare organisation</p> <p><b>Sampling approach:</b> Nurses were invited to take part in the study via a letter from the Chief Executive Officer</p> <p><b>Inclusion/exclusion criteria:</b> Not applicable.</p> <p><b>Number and characteristics of participants:</b> Completed surveys were received from 267 aged care nurses. Some 94.9% were female; 73.7% were part time and 81.2% were over 40 years old. Some 62.1% had been working with the organisation for 1-9 years and 35.2% reported obtaining a tertiary or postgraduate qualification.</p> <p><b>Response rate:</b> 45.3 per cent</p>	<p><b>Brief description of method and process of analysis:</b> Multiple regression analyses were used to ascertain which variables significantly predicted the outcome variables and the amount of variance in these outcomes explained by the predictor variables.</p> <p><b>Key findings relevant to the review:</b> Job demand was negatively related to well-being and job satisfaction and positively related to depression. The negative curvilinear effects of job demands on well-being or job satisfaction indicate that when demands are either too low or too high, well-being and satisfaction are negatively impacted.</p> <p>Job control was related to depression, whereas supervisor support and interpersonal fairness was positively related to well-being.</p> <p>Job control was related to both commitment and satisfaction, suggesting that having decision-making autonomy is important to how the employee feels about their job and the organisation they work for.</p> <p>The social support received by nurses from their supervisor was</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-As this was a cross-sectional study, conclusions about causality cannot be drawn.</li> <li>-The study did not measure individual psychological characteristics of the nursing staff.</li> <li>- The validity of self-reported working conditions and associated issues of common method variance is a limitation of survey studies.</li> <li>-The authors considered the response rate of the study (45%) to be low.</li> </ul> <p><b>Evidence gaps/recommendations for future research:</b> None stated.</p> <p><b>Source of funding:</b> Part funded by the Australian Research Council.</p>

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	<p>al. (1980). Organisational justice was measured using a 20-item scale developed by Colquitt (2001), for measuring four types of justice: procedural, distributive, interpersonal, and informational.</p> <p><b>Method(s):</b> Preliminary checks were used to examine the survey responses for missing data, outliers, collinearity, multicollinearity, and for appropriate univariate and multivariate distributions as well as the appropriate distributions of residuals. The data set used contained 222 cases, after missing values and outliers were removed.</p> <p><b>Setting(s):</b> Aged care facilities in a medium to large Australian healthcare organisation</p> <p><b>Dates:</b> Not stated.</p>		<p>positively related to well-being.</p> <p>The interaction between demands and supervisor support was related to job satisfaction.</p> <p>Moreover, informational fairness was related to organisational commitment.</p> <p>A lack of effects was found for distributive or procedural justice.</p>	
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## Rouse R A (2009)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Rouse R A</p> <p><b>Year of publication:</b> 2009</p> <p><b>Citation:</b> Ineffective participation: reactions to absentee and incompetent nurse leadership in an intensive care unit, <i>Journal of Nursing Management</i>, 2009, 17, 463-473</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions</b> To examine staff and physician reactions to ineffective leader participation in an intensive care unit (ICU)</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> Data was collected as part of a larger study using the supervisor communication inventory (SCI). An online questionnaire was administered and an automated web-hosting service collected the survey data. The data collection system generated a unique URL for each email address. Participant's responses were matched automatically with their general role in the ICU (staff nurse, administrative worker, nurse manager, senior leader or physician). This process maximized participant confidentiality.</p> <p><b>Method(s):</b> Participants indicated their level of agreement with a series of Likert items designed to measure leader communication, mentoring and planning as well as organisational outcomes (productivity and morale). Items for communication, mentoring, planning and productivity were totalled to produce four subscale</p>	<p><b>Sample population:</b> The unit had 70 employees, including staff nurses, administrative workers and nurse managers.</p> <p><b>Sampling approach:</b> All intensive care unit employees received electronic invitations to participate via their personal email addresses. This approach maximized the confidentiality of responses as respondents could complete the survey at home. Intensive care unit managers and senior leaders were invited via their work email addresses, as their computers were in private offices. Physicians were provided computer access to the survey at a private workstation in the ICU.</p> <p><b>Inclusion/exclusion criteria:</b> Not stated.</p> <p><b>Number and characteristics of participants:</b> The sample included 51 participants. The majority (69%) represented nurses (n = 35). These frontline nurses averaged approximately 10.85 years with the hospital, although experience levels varied (ranging from 6 months to 30 years). Physicians were the next largest group, representing 20% of the participants (n = 10). While the average length of time doctors reported working in the hospital was</p>	<p><b>Brief description of method and process of analysis:</b></p> <p>Multiple regression analyses evaluated the relative contribution of each construct. The two-open ended questions were independently content analysed by two trained coders. One coder manually categorized and tabulated major themes in the open-ended comments. A second coder used NVivo software to search for themes in participants' responses.</p> <p><b>Key findings relevant to the review:</b></p> <p><i>Quantitative findings:</i> Significant coefficient correlation [<math>r(1,45) = 0.54, P \leq 0.01</math>] was detected between perceived leader communication and staff perceptions of productivity. A significant rho coefficient [<math>r_s(1,45) = 0.41, P \leq 0.05</math>] was detected between nurse leader communication and employee morale. These results supported the hypothesis that increased supervisor communication was associated with higher levels of self-assessed organisational outcomes, whereas less leader communication correlated with lower perceptions of productivity and morale.</p> <p>No significant relationship was found between supervisor participation with mentoring and perceived productivity. Increased leader mentoring was highly correlated with employee morale [<math>r_s(1,46) = 0.56, P \leq 0.01</math>].</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-The study design used self-reported assessments of organisational outcomes.</li> <li>-Actual performance measures (ie unit revenue, medical errors, employee turnover, etc.) were not evaluated.</li> <li>-A single-item was used to measure employee morale. The similarity of the variable's measures of central tendency (median = 2; mean = 2.09) and regression analysis which treated the morale variable as an interval scale may have introduced errors into conclusions about employee morale.</li> </ul> <p>In addition the reviewers noted the small sample and in particular the small number of senior managers which could have limited the power of the statistical analysis.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <ul style="list-style-type: none"> <li>-Future research should use larger sample sizes across multiple organisations to</li> </ul>

	<p>scores, allowing the use of descriptive statistics [mean, standard deviation (SD) and skew].</p> <p>In addition, two open-ended questions asked participants to evaluate, in their own words, the leadership skills of the ICU managers.</p> <p><b>Setting(s):</b> ICU of a hospital in the United States</p> <p><b>Dates:</b> Data were collected in the summer of 2008.</p>	<p>between 5 and 10 years, the median experience level was over 10 years. Other participants included an intensive care unit manager (n=1); administrative employees (n=2), and senior hospital leaders (chief nursing officer, chief operating officer and director of human relations) (n=3).</p> <p><b>Response rate:</b> Participation varied by role, with an overall response rate of 64%.</p>	<p>Significant positive correlations were detected between employees perceptions of supervisor planning and perceived productivity [<math>r(1,46) = 0.33, P \leq 0.05</math>] as well as employee morale [<math>r(1,46) = 0.48, P \leq 0.01</math>].</p> <p><i>Qualitative results:</i></p> <p>The majority (56%) reported the primary ICU supervisor (Manager A) was ineffective. The most common observation centred on lack of availability. Inadequate face time and avoidance of conflict were associated with comments about poor communication. The ICU's second nurse leader (Manager B) was described as ineffective by 73% of participants. Most comments about Manager B, centred on poor interpersonal skills, lack of training and/or failure to follow-up on nurses concerns. These comments reinforced the quantitative finding that poor perceptions of nurse leader participation in were associated with perceptions of low productivity and morale in an ICU. When employees perceived their supervisors were absent or incompetent, employees reported productivity and morale suffered.</p>	<p>investigate whether the relationships detected in this study can be generalized to other ICUs.</p> <ul style="list-style-type: none"> <li>-As self-reported data are vulnerable to participant bias, inclusion of actual performance measures would further enhance the objectivity and usefulness of the conclusions.</li> <li>-Use of multiple measures of employee morale would also reduce the risk of potential measurement error.</li> <li>- Future research should also investigate how, if at all, a formal assessment of nurse leaders, using a tested instrument such as the SCI, may influence organisational outcomes and performance over time</li> </ul> <p><b>Source of funding:</b> Not stated.</p>
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## Rubin B A and Brody C J (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Rubin B A, Brody C J  <b>Year of publication:</b> 2011  <b>Citation:</b> Rubin B A &amp; Brody C J Operationalizing Management Citizenship Behavior and Testing Its Impact on Employee Commitment, Satisfaction, and Mental Health. <i>Work and Occupations</i> 2011 38(4) 465-499  <b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To test whether the relational and operational competence aspects of Hodson's (1999) management citizenship behaviours (MCB), managers' ethical behaviours and family-friendly behaviours increase employees' organisational commitment (willingness to work hard and loyalty); employees' job satisfaction and employees' mental health.</p> <p><b>Research approach:</b> Telephone survey</p> <p><b>Data collection:</b> The study used data from the 2002 National Study of the Changing Workforce (NSCW). The data for the 2002 NSCW were collected by Harris Interactive using an instrument developed by Families and Work Institute.</p> <p><b>Method(s):</b> Items were identified from the NSCW for measures of four potentially overlapping components of MCB: operational competence, relational management citizenship, ethical behaviours, and family-friendly behaviours. All of the items included Likert-type response categories. The authors conducted several factor analyses to explore the measurement properties of these sets of items and created four measures using the factor scores from these analyses: relational MCB (RLMCB), operational competence (OCMCB), family-supportive behaviours</p>	<p><b>Sample population:</b> National sample that included 3,504 interviews.</p> <p><b>Sampling approach:</b> Harris Interactive, using a CATI system and random digit dialling, drew up the national sample. After stratifying by region, Harris Interactive drew an unclustered random probability sample.</p> <p><b>Inclusion/exclusion criteria:</b> To be included in the final sample, respondents had to be 18 years of age or older, working in a paid job or income-producing business, residing in the lower 48 American states, and members of the non-institutionalized civilian labour force. Also only included data for wage/salaried workers who report having an immediate supervisor.</p> <p><b>Number and characteristics of participants:</b> Effective</p>	<p><b>Brief description of method and process of analysis:</b> Zero-order correlations were conducted among the various MCB measures, dependent variables, and key control variables.</p> <p>For each dependent variable, the authors estimated three different regression models including the control variables and differing measures of MCB.</p> <p><b>Key findings relevant to the review:</b></p> <p>The authors conclude that the study provides substantial support for their hypotheses that various forms of management citizen behaviour is positively associated with employee commitment, job satisfaction and mental health</p> <p>RLMCB had positive and significant (<math>p &lt; 0.01</math>) effects on commitment: (both willing to work for organisation success and loyalty (.068 (0.021), .138 (0.025)), job satisfaction (.271 (0.026)), and mental health (.179 (0.030)).</p> <p>OCMCB, also had positive and significant effects on commitment: (both willing to work for organisation success and loyalty (.0116 (0.022), .244 (0.025)), job satisfaction (.276 (0.026)), and mental health (.093 (0.030)).</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-The survey items used in some cases did not clearly identify managers as the enactors of the behaviour, instead referring only to 'my place of work.' In these instances the authors suspect the vagueness in the question weakened the validity of the measures.</li> <li>-The range of ethical behaviours tapped by the items was fairly limited compared to, for instance, family-friendly behaviours.</li> <li>-The positive wording of all of the management citizenship items may have contributed to response bias</li> </ul> <p><b>Evidence gaps/recommendations for future research:</b></p> <p>Further research should be conducted to determine whether the expanded operationalisation of MCB to include ethical and family-supportive behaviours of managers are best treated as separate dimensions of MCB or are subsumed under Hodson's (1999) concepts of</p>

	<p>(FSMCB), and ethical behaviours (EMCB).</p> <p>The dependent variables used in the study were: Commitment -measured using two single-item measures (willing to work for organisation's success and loyalty) that tap respectively normative and affective commitment. Job satisfaction: measured using a two item measure. The mental health measure combined six items from NSCW tapping stress, coping, and depression (two items from the CES-D depression scale).</p> <p>The study also included control variables including job autonomy; workplace insecurity; organisational size; industry (service vs. goods producing) and occupational category. Another set of controls indicated whether the respondent's supervisor was the same age, sex, and ethnicity as the respondent.</p> <p><b>Setting(s):</b> American household survey</p> <p><b>Dates:</b> Data was from the 2002 NSCW.</p>	<p>sample size of 2,131.</p> <p><b>Response rate:</b> Not applicable.</p>	<p>The effects of EMCB were significant (<math>p &lt; 0.01</math>) and positive for all four dependent variables for organisation success and (.088 (0.020)), loyalty (.170 (0.023)), job satisfaction (.196 (0.024)), and mental health (.084 (0.028)) and similar in magnitude to the effects of relational MCB.</p> <p>Positive and significant (<math>p &lt; 0.01</math>) effects of family-supportive MCB (FSMCB) were estimated for loyalty (.076 (0.026)), job satisfaction (.076 (0.0280), and mental health (.096 (0.032)). FSMCB was not significant in the model for willingness to work hard for one's organisation.</p> <p>Comparatively, the net effects of family-supportive MCB were not as strong as those for either relational MCB or ethical MCB but were more similar to those for operational competence.</p>	<p>operational competence and relational MCB.</p> <p><b>Source of funding:</b> The authors received no financial support for the research</p>
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## Schmidt et al. (2013a)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Burkhard Schmidt Adrian Loerbroks Raphael M. Herr Mark G. Wilson &amp; Marc N. Jarczok David Litaker Daniel Mauss Jos A. Bosch Joachim E. Fischer Year of publication: 2013 Citation: Associations Between Supportive Leadership and Employees Self-Rated Health in an Occupational Sample. International Society of Behavioral Medicine Published online 26 Sep 2013 doi:10.1007/s12529-013-9345-7)</p> <p>Quality rating: -</p>	<p><b>Setting(s):</b> Industrial site workers in Southern Germany</p> <p><b>Research aims/questions:</b> The aim of the study was to assess how perceived supportive managerial behaviour was linked to employees' self-rated health and, additionally, after controlling for other forms of work-related stress like effort-reward imbalance, high job demands/low job control, or low social support.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> Not reported.</p> <p>Perceived supportive leadership style in the workplace was assessed by four items adapted from the German version of the Copenhagen Psychosocial Questionnaire (COPSOQ, items 3 and 4 from the social support scale and items 3 and 4 from the relational justice scale).</p> <p>Replies to items were provided on a five-point Likert scale (1 = completely disagree; 5 = completely agree).</p> <p>Self-rated health was assessed on the basis of one item ("In general would you say your health is excellent, very good, good, fair or poor?") The variable was dichotomized into poor and good self-rated health by grouping</p>	<p><b>Sample population:</b> Industrial workers in Germany, who were asked to give information on supportive, employee-oriented leadership behaviour at their job, their SRH, and work stress as measured by the effort-reward model and scales measuring demands, control, and social support.</p> <p><b>Sampling approach:</b> Not reported</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Number of participants was 3331. 27% of participants were above 50 years of age and 74% were male. Nearly 34% hold managerial responsibilities.</p> <p><b>Response rate</b> 54.8%</p>	<p><b>Description of analysis method:</b> Univariate statistics and series of Logistic Regression measuring associations between self-rated health and lack of supportive leadership.</p> <p><b>Key findings relevant to the review:</b> The odds ratio (OR) for the association between lack of supportive leadership and SRH in the absence of confounders (model 0) was 2.39 (95 % CI 1.95-2.92). Following the addition of age, sex, socioeconomic status, and lifestyle variables (model 1), it was observed that an association of similar magnitude remained [OR 2.25 (1.81-2.79)]. After additionally controlling for aspects of participants' psychosocial work environment (model 2), the association was modestly attenuated but remained statistically significant [OR 1.60 (1.26-2.04)].</p> <p>In sensitivity analyses, the association of lack of supportive leadership and poor self-rated health, independent of work-related stress, appeared highest in females [OR 2.41 (1.49-3.88)] and in employees over 50 years of age [OR 2.21 (1.47-3.32)].</p>	<p><b>Limitations identified by author:</b> Cross-sectional design, the lack of objective health measures as the outcome was self-rated. Selection bias as workers who are in good health are more likely to respond.</p> <p><b>Limitations identified by review team:</b> Information on how data was collected is missing therefore it was difficult to make interpretations of representativeness of the sample. No analysis done between respondents and non-respondents which could have set light into the issue.</p> <p><b>Evidence gaps/recommendations for future research:</b> Further research looking at association between leadership behaviour and employee health, including efforts to clarify potential mechanisms through which leadership influences employee health.</p> <p>Source of funding: None reported.</p>

	<p>responses indicating fair or poor health and those indicating good, very good, or excellent (good health = 0; poor health = 1).</p> <p>Three work-related characteristics thought to contribute or ameliorate stress and its potential effects on health were measured:</p> <ul style="list-style-type: none"> <li>• the balance between work-related efforts and reward (effort-reward imbalance (ERI)), using a brief, validated German language version of the original instrument that measured the subscales effort (three items) and reward (seven items)</li> <li>• social support at work from peers was measured using the teamwork subscale from the “Work Health Check” (five items).</li> <li>• job demands and the level of decision latitude in one’s job were measured by five and nine items, respectively.</li> </ul> <p><b>Dates:</b> Sep 2009-May 2010</p>		<p>Although smaller in magnitude, this association was also observed among workers not holding a managerial position [OR 1.74 (1.29-2.38)]. When examining the presence of possible interactions, we observed a significant association between self-rated health and SLS <math>\times</math> gender (<math>p = 0.03</math>), but none related to either employee age or managerial position.</p> <p>The authors concluded that the lack of supportive leadership was associated with poor health and that this association held true for nearly all subgroups in sensitivity analyses.</p>	
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## Schmidt et al. (2013b)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Schmidt, Burkhard, Adrian Loerbroks, Raphael Herr, David Litaker, Mark Wilson, Michael Kastner, and Joachim Fischer</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Schmidt, Burkhard, Adrian Loerbroks, Raphael Herr, David Litaker, Mark Wilson, Michael Kastner, and Joachim Fischer 2013 <i>Psychosocial resources and the relationship between transformational leadership and employees' psychological strain</i> Work: A Journal of Prevention, Assessment and Rehabilitation</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Germany</p> <p><b>Research aims/questions:</b> This study explores the relationship between transformational leadership (TL) and stress by examining potential mediating roles for established organizational and personal resources.</p> <p><b>Overall research approach:</b> Cross-sectional study</p> <p><b>Data collection method:</b> Secondary analysis of cross-sectional data (May 2009) from a larger, federally-funded research (online survey) in which several companies participated. One site was identified as meeting the required inclusion criteria, and employees were invited to participate. Where possible, previously standardised instruments were used, and where not, items were created, and Cronbach's <math>\alpha</math>, inter-item correlation and discriminatory power confirmed their basic psychometric properties.</p> <p><b>Transformational leadership:</b> 6 subscales of the German version of the 'Transformational Leadership Inventory' (TLI), using Likert ratings from 1 (do not agree) to 5 (strongly agree). TLI-AV (5 items): 'identifying and articulating a vision', TLI-PAM (3 items): 'providing an appropriate role model', TLI-FAG (4 items): 'fostering the acceptance of group goals', TLI-IS (4 items): 'providing individualised support', TLI-ISN (3 items): 'intellectual stimulation', TLI-CR (4 items): 'contingent reward'. These</p>	<p><b>Sample population:</b> One professional services company previously included in a (previous) larger, federally-funded research project in which several companies participated.</p> <p><b>Sampling approach:</b> All employees of the company (see below) were invited to complete an online questionnaire which was open for one month. Voluntary participation implied informed consent.</p> <p><b>Inclusion/exclusion criteria:</b> The sole inclusion criterion for the current study was that a workplace health promotion intervention was in place, enabling the collection and analysis of health</p>	<p><b>Description of analysis method:</b> Although most of the distribution of composite scores was normally distributed, the skewness of 'psychological strain' required a log transformation to meet the assumption of data normality for linear models.</p> <p>1) The authors examined unadjusted two-tailed correlations between score means for transformational leadership, psychosocial resources and psychosocial strain.</p> <p>2) Mediation was tested with the Freedman-Schatzkin test in a series of linear regression models. Baseline model: association between TL accounting for age and sex, subsequent models added subscale scores for individual psychosocial resources.</p> <p>3) The last model: the baseline model plus all resources. Structural equation modelling was used to confirm and quantify the degree of mediation. Bootstrapping generated 1000 samples, providing maximum likelihood estimates for the models and 95% CIs and a p-value for an indirect effect between the independent and dependent variables.</p> <p><b>Key findings relevant to the review:</b> Transformational leadership (<math>M = 1.38</math>, <math>SD = .42</math>), psychological strain (<math>M = 3.45</math>, <math>SD = .77</math>).</p> <p><b>Linear regression:</b> While an association between transformational leadership and strain (<math>\beta = -0.24</math>, <math>p = 0.00</math>) exists, relatively little variance (7%) is explained. Subsequent models containing psychosocial resources explain more variance while the association of transformational leadership with psychological strain is attenuated to the point that</p>	<p><b>Limitations identified by author:</b> Causal relationships cannot be asserted due to cross-sectional design, and reverse causality between the considered factors cannot be ruled out. Small sample size, despite the response rate, may potentially lead to response bias. The sample is drawn from a single company consisting primarily of white collar employees, necessarily limiting the generalizability of the findings. Employee strain measured through self-report.</p> <p><b>Limitations identified by review team:</b> Demographic variables are lacking for both source and sample population. The ratings used for psychological strain is not reported Limited confounding</p>

	<p>subscales were chosen from past work demonstrating significant intercorrelations and interaction with subscales assessing transformational leadership. Composite score <math>\alpha = .97</math>.</p> <p><b>Psychological Strain:</b> Derived from four subscales from the standardised German version of the Symptom Check List (SCL-90R) - validated clinical screening tool for stress. Subscales: somatisation (12 items), depression (13 items), anxiety (10 items) and interpersonal sensitivity (9 items). High subscale scores indicated high levels of symptoms. Cronbach's <math>\alpha = .96</math>.</p> <p><b>Psychosocial resources:</b> Informed by the Job-Demands-Resources-Model. Job demands are comprised of the physical or psychological efforts to be expended at work (reflecting individual mental health 'costs'). Job resources refer to physical, psychological, social and organisational aspects of the job that are able to buffer the negative effects of job demands and their consequences. Uses 5-point Likert-scale from 1 (do not agree) to 5 (strongly agree). Subscales: decision latitude (3 items), social support (4 items), organisational culture (3 items), employee satisfaction (2 items), work life balance (4 items), general self-efficacy scale (9 items), meaningfulness of job and specific tasks (1 item each).</p> <p><b>Controls:</b> Age and gender</p> <p><b>Dates:</b></p>	<p>related data from employees. The only site meeting this criterion was a large provider of professional services in Germany, with a white collar workforce comprised of employees with an academic or administrative background. Out of 320 accessed the questionnaire and 285 persons provided complete data.</p> <p><b>Number and characteristics of participants:</b> N = 285. The participants were mostly male, mostly white-collar employees, between the ages of 30-50 years</p> <p><b>Response rate</b> All responses: 64% Valid responses: 57%</p>	<p>it is no longer statistically significant. The Freedman-Schatzkin test is significant for every psychosocial resource and for the complete model as well, indicating a significant mediation effect.</p> <p><b>Structural equation modelling:</b> The model fit indices (CMIN=236,382; df=139; p=0.00; CMIN/DF=1.7; CFI=0.97; TLI=0.96; RMSEA=0.05; PNFI=0.75) suggest good model fit. The model method automatically involved a confirmatory factor analysis of the latent constructs. With factor loadings of 0.76 to 0.92 for the TLI, 0.35 to 0.77 for resources and 0.65 to 0.95 for psychological strain, the model construction of the latent variables is acceptable with the loadings for personal resources Work-life balance and Self-Efficacy being the weakest.</p> <p>The first model shows a negative association between leadership and self-reported psychological strain (<math>\beta = -0.28</math>, <math>p = 0.00</math>) with stress reported as significantly higher when transformational leadership was perceived to be low. The next steps establish a strong direct effect between transformational leadership and resources (<math>\beta = 0.61</math>, <math>p = 0.00</math>) as well as a strong negative effect (<math>\beta = -0.54</math>, <math>p = 0.00</math>) between resources and strain. In the full model, the association of transformational leadership and strain is nearly fully mediated by resources, with an estimated indirect effect from transformational leadership, incorporating the influence on resources, on psychological strain that is somewhat stronger than direct effects observed in the initial model (<math>\beta = -0.33</math>, <math>p = 0.00</math>).</p>	<p>factors are adjusted for.</p> <p><b>Evidence gaps/recommendations for future research:</b> Longitudinal research is needed to investigate causal relationships</p> <p><b>Source of funding:</b> The study was supported by the German Federal Ministry of Education and Research.</p>
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## Schreuder et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Jolanda Schreuder Corne' Roelen Nely van Zweeden Dianne Jongsma Jac van der Klink Johan Groothoff</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Leadership styles of nurse managers and registered sickness absence among their nursing staff. Health Care Manage Rev, 2011, 36(1), 58-66. DOI: 10.1097/HMR.0b013e3181edd96b</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Nurses working in somatic hospital in the Netherlands</p> <p><b>Research aims/questions:</b> The relationship of leadership styles with employer-registered sickness absence was investigated. The specific research question was: whether the leadership styles of the situational leadership theory were associated with registered sickness absence in health care.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> Eligible nurses received a questionnaire from the human resources department of the hospital.</p> <p>The self-administered questionnaire assessed six scales: general health and mental health (Stewart, Hays, &amp; Ware, 1988), job demands and control (Storms, Casaer, De Wit, Van den Bergh, &amp; Moens, 2001), and work efforts and rewards (Siegrist 1996). General and mental health scores were expressed as percentages of the maximum score possible for each subscale. The score for job demands was divided by the score for job control to yield a demand to control ratio (DC ratio). Accordingly, the score for work efforts was divided by the score for rewards into an effort/reward ratio (ER ratio), which is a recognized measure for job strain (Siegrist 1996).</p> <p>The nurse managers completed the Leadership Effectiveness and Adaptability Description (LEAD) questionnaire (Hersey et al.1974) in autumn 2008. The questionnaire measures leader behaviours as perceived by managers (LEAD-Self) and followers (LEAD-Other).</p> <p>The LEAD-Self has been used in a nursing setting (Johnson &amp; D'Argenio, 1991) and assesses a leader's style by 12 management situational questions with four possible responses each, corresponding to the four styles of the</p>	<p><b>Sample population:</b> The study population was enlisted from a somatic hospital in the Dutch province Friesland employing a total of 1,153 persons of whom 699 worked at least 3 years in clinical wards (n = 495) or the outpatient's clinic (n = 204). The 699 eligible employees worked in six wards (four clinical wards and two outpatient wards), with staffs ranging between 91 and 140 employees, which were headed by the same manager for at least the last 3 years. The six nurse managers worked in the same ward throughout the entire period under study.</p> <p><b>Sampling approach:</b> Purposive sampling</p> <p><b>Inclusion/exclusion criteria:</b> Nurses were</p>	<p><b>Description of analysis method:</b> Multiple logistic regression analysis</p> <p><b>Key findings relevant to the review:</b> The leadership style, characterized by high relationship and high task behaviour (selling style), was inversely associated with the number of days of sickness absence (OR = 0.60, 95% CI = 0.41-0.84) and short episodes of sickness absence (OR = 0.61, 95% CI = 0.48-0.72). Low relationship and low task behaviour (delegating style) was positively related to the number of days of sickness absence (OR= 2.82, 95% CI = 1.50-5.29) and short episodes of sickness absence (OR = 2.40, 95% CI = 1.29-4.46). A low relationship and high task (telling) leadership style was also positively associated with the number of days of sickness absence (OR = 2.68, 95% CI = 1.36-5.27) and short episodes of sickness absence (OR = 3.02, 95% CI =1.52-5.98). These unadjusted associations explained only 8% of the variance in days of</p>	<p><b>Limitations identified by author:</b> -Cross-sectional design -Information of the leadership styles was based on managers themselves - Most LEAD-Self instrument respondents consistently score in the high task-high relationship leadership style category. This clustering may indicate that respondents 'knew' how they should score and apparently reflects some form of self-deception of the respondents.</p> <p><b>Limitations identified by review team:</b> The study took place in one hospital only. Could be subject of biased results as limitations identified by authors suggest.</p> <p><b>Evidence gaps/recommendations for future research:</b> Further research is required to investigate the impact of leadership styles of nurse managers on sickness absence and staff shortages of nursing teams.</p>

	<p>situational leadership theory. Several validity studies showed satisfactory results supporting the four style dimensions; in 46 of 48 item options, the expected relationship was found. Across a 6-week interval, 75% of the managers maintained their dominant style and 71% their backup style (Bruno &amp; Lay, 2008). The contingency coefficients were both 0.71, and each was significant at the .01 level.</p> <p>The managers' LEAD-Self scores were linked cross-sectionally to the registered sickness absence of their nursing team in the period from 2006 to 2008.</p> <p>The total number of registered days of sickness absence of each employee between January 1, 2006, and December 31, 2008, was dichotomized by median (20 days) split. We also counted the number of registered episodes of sickness absence in this period for each individual and distinguished between short episodes lasting 1 to 7 days and long episodes lasting &gt;7 days. The number of short episodes of sickness absence was dichotomized by median (two episodes) split. The number of long episodes of sickness absence was dichotomized into no long episodes and one or more long episodes.</p> <p><b>Dates:</b> Autumn 2008</p>	<p>considered eligible who had worked under the same manager at least 3 years.</p> <p><b>Number and characteristics of participants:</b> N=699, Average age was 41.6 (9.1), 95% were women, average years of service was 13.8 (8.0)</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Total of 82% response rate (ranging from 76% to 84% by a ward) / representativeness not discussed</p>	<p>sickness absence, 10% of the variance in short episodes of sickness absence, and 2% of the variance in long episodes of sickness absence. After adjustment for seniority, hours worked, general health, DC ratio, and ER ratio, the an inverse relationship (OR = 0.76, 95% CI =0.65-0.85) remained between the selling leadership style and the number of short episodes of sickness absence.</p> <p>The delegating leadership style also remained positively associated with the number of days (OR = 2.62, 95% CI = 1.36-5.09) and short episodes (OR = 2.44, 95% CI = 1.26-4.71) of sickness absence after controlling for seniority, hours worked, general health, DC ratio, and ER ratio.</p>	<p><b>Source of funding:</b> None reported</p>
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## Sluss and Thompson (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> David M. Sluss Bryant S. Thompson</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Socializing the newcomer: The mediating role of leader-member exchange. <i>Organisational Behaviour and Human Decision Processes</i> 119 (2012) 114-125dx.doi.org/10.1016/j.obhdp.2012.05.005</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Newcomer employees in telemarketing companies in the USA</p> <p><b>Research aims/questions:</b> The research aimed to expand organisational socialization research by integrating social exchange theory, specifically leader-member exchange (LMX), as an important mediator in explaining newcomer attachment to the job, occupation, and organisation.</p> <p><b>Overall research approach:</b> Two cross-sectional surveys. The first survey, two (2) weeks after formal training, consisted of measures that assessed supervisory socialization tactics, newcomer LMX, and contextual socialization tactics. The second survey, eight (8) weeks after formal training, assessed occupational identification, perceived PO fit, job</p>	<p><b>Sample population:</b> Telemarketing newcomers (within our sample) worked exclusively in sales and/or customer service within both outbound and inbound call centres. Of the 12 organisations, seven were 'third party' telemarketing firms and five were 'in-house' call centres. The call centres ranged from purely out-bound calls; to both out-bound and in-bound calls (5); and to purely inbound calls. All 12 organisations implemented similar 'on-boarding' practices. First, all newcomers received extensive formal training, ranging from three (3) to ten (10) days (with the average being five [5] days). Second, the organisations (via training) sequestered the newcomers together and away from other organisational members. Third, the newcomers did not perform hands-on tasks until after training. After training and only after training, the newcomers began work under their immediate supervisor.</p> <p>The telemarketer's core task was to 'be productive' (ie, register someone for a sales appointment, offer technical support, or obtain a donation). Supervisors measured the newcomer's performance frequently - thereby increasing the salience of the supervisor. A newcomer had only one assigned supervisor. The span of control for supervisors ranged from 5 to 15 newcomers.</p> <p><b>Sampling approach:</b></p>	<p><b>Description of analysis method:</b> Observed variable path analysis was used to test the hypotheses. Analysis allowed to test hypotheses simultaneously, include control variables, and estimate error. Given parameters to sample size ratio, determined observed variable path analysis to be most appropriate. Bootstrapping analyses were then used to estimate the indirect or mediating effects. Finally, hierarchal linear modelling was applied to confirm the variables are at the individual-level</p> <p><b>Key findings relevant to the review:</b> The study found that newcomer perceptions of LMX mediate the association between supervisory socialization tactics (ie supervisory job-focused advice, guidance, and role modelling) and occupational identification as well as between supervisory socialization tactics and perceived person organisation fit - but not between supervisory socialization tactics and job satisfaction. Hypothesis 1 contended that supervisory socialization tactics were positively associated with newcomer LMX. As hypothesized, the path coefficient was significant (.47, <math>p &lt; .01</math>). Hypotheses 2-4 asserted that newcomer LMX would mediate the relationship between supervisory socialization tactics and the three newcomer attitudes (note that we control for the mediating role of newcomer learning as well as the direct effect of contextual socialization tactics). The observed variable path analysis results support Hypotheses 2 and 3 yet do not support Hypothesis 4. For Hypothesis 2, the paths between supervisory</p>	<p><b>Limitations identified by author:</b> First, data was collected directly from the newcomer, increasing the risk of common method bias. Second, the measurement of supervisory socialization tactics and the newcomer's perception of LMX were not looked at separately, which makes it more difficult to substantiate the structural relationship and (2) creates increased potential for an inflated uncorrected bivariate correlation. In addition, newcomer attitudes were measured only nine weeks after organisational entry. The authors recognize the possibility that newcomer attitudes may be still be in flux - even after eight major task cycles. Third, the study focused exclusively on the immediate supervisor at the expense of other</p>

	<p>satisfaction, and newcomer learning.</p> <p><b>Data collection method:</b> Surveys were administered via online-encrypted surveys or via mail surveys. For mail surveys, the organisation’s human resources department distributed the surveys. The participants returned their surveys directly to the research team.</p> <p><b>Dates:</b> Not reported</p>	<p>Two surveys separated by a temporal lag to the newcomers as part of a larger, more expansive data collection effort.</p> <p><b>Inclusion/exclusion criteria:</b> None reported</p> <p><b>Number and characteristics of participants:</b> Final sample of 213 respondents with the following sample description: female = 54%; Caucasian = 59%; mean age = 29 years; full-time employees = 57%; probationary employees = 62%; and outbound call centres = 52%.</p> <p><b>Response rate / Representativeness of sample</b> of 819 surveys sent, 481 (59%) participants returned a completed first survey. Total of 213 (44%) participants returned a completed second survey. The sample resembles average demographics of call centre employees within the US telemarketing sector.</p> <p>Attrition analyses revealed slight differences between those who stayed and those who dropped out of the study. Specifically, those who ‘stayed’ had more work experience and were more likely to be full-time, in-bound call centre employees. However, these variables did not change the interrelationships between supervisory socialization tactics and newcomer LMX.</p>	<p>socialization tactics and newcomer LMX (.47, <math>p &lt; .01</math>) as well as between newcomer LMX and occupational identification (.19, <math>p &lt; .01</math>) were significant.</p> <p>The path coefficient between supervisory socialization tactics and occupational identification was not significant (.10, ns). For Hypothesis 3, the paths between supervisory socialization tactics and newcomer LMX (.47, <math>p &lt; .01</math>); between newcomer LMX and perceived PO fit (.18, <math>p &lt; .01</math>); as well as between supervisory socialization tactics and perceived PO fit (.15, <math>p &lt; .05</math>) were significant. For Hypothesis 4, results indicated that newcomer LMX did not mediate the relationship for job satisfaction given that the path coefficient between newcomer LMX and job satisfaction was not significant (.10, ns). Note that supervisory socialization’s direct effect on job satisfaction was significant (.23, <math>p &lt; .01</math>). The final model (ie, supervisory socialization tactics + newcomer LMX + organisational identification/perceived PO fit) obtained good to excellent fit on all four indices - including a non-significant Chi-square (<math>\chi^2 = 5.24</math> [df = 2; <math>p = .07</math>]; RMSEA = .08 [Ho: RMSEA &lt; .05, <math>p = .18</math>]; CFI = .98; SRMR = .05).</p>	<p>relational incumbents (eg, senior co-workers, mentors, clients).</p> <p><b>Limitations identified by review team:</b> None that were not reported by the authors</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research should examine workgroup socialization tactics and team-member exchange as co-contributors to the newcomer adjustment process.</p> <p><b>Source of funding:</b> None reported</p>
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## Smith et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Smith, R.D., Muto, T, Sairenchi, T., Ishikawa, Y., Sayama, S., Yoshida, A. and Townley-Jones, M.</p> <p><b>Year of publication:</b> (2010)</p> <p><b>Citation:</b> Smith, R.D., Muto, T, Sairenchi, T., Ishikawa, Y., Sayama, S., Yoshida, A. and Townley-Jones, M. (2010). Hospital safety climate, psychological risk factors and needlestick injuries in Japan. <i>Industrial Health</i>, 48, 85-95.</p> <p><b>Quality rating:</b> ++</p>	<p><b>Research questions:</b> Study to investigate the interactions between safety climate, psychosocial issues and needlestick and sharp injuries (NSI).</p> <p><b>Research approach:</b> Cross-sectional study</p> <p><b>Data collection:</b> Questionnaires distributed to nurses in a teaching hospital</p> <p><b>Method(s):</b> Survey was based on Gershon's et al. (2000) Hospital Safety Climate Scale, All 20 questions translated into Japanese, and checked for accuracy, clarity and readability. Likert scale answers (strongly disagree, disagree, agree, strongly agree). Removed the 'no opinion' as cultural differences are known to affect responses to Likert scale questions. Other sections of the HSCS were also amended for cultural reasons. Cronbach's alpha = 0.906.</p> <p>15 questions relating to psychosocial risk factors were also included in the survey tool, all of which were based on previous research in the field (focussing on work support, mental pressure, time pressure etc.). Cronbach's alpha was 0.887.</p> <p>NSI questions based on similar research previously conducted across a variety of countries. Questions focussed on the type of device which caused the injury, the number of times they have received an injury in the</p>	<p><b>Sample population:</b> Nurses in a large teaching university hospital in Japan.</p> <p><b>Sampling approach:</b> All nurses</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> A total of 1,027 questionnaires were distributed, 31 nurses were on leave at the time of the study, leaving 996 for inclusion. Among them 882 questionnaires were returned</p> <p>Most nurses, 93.9% were female with an average age of 32 years (SD = 9.1 years). Females were on average slightly older than males (32 vs 29 years). Their average working week comprised 42 hours with an average nursing career of 4 years. Almost all (92.3%) were registered nurses, and</p>	<p><b>Brief description of method and process of analysis:</b> Statistical analysis included prevalence rates for Likert style responses to the HSCS, as well as NSI sustained cause of injury and reporting behaviour following the incident. HSCS were collapsed into dichotomous responses. Chi-squared analysis was then undertaken to examine potential relationships between the dimensions of the HSCS and NSI devices.</p> <p><b>Key findings relevant to the review:</b> 77% strongly agreed that a copy of the health and safety manual was available in their unit, and that protection of workers from blood-borne diseases was a high priority for managers (75%). 58% agreed that there was minimal conflict in their department. 27% disagreed that they usually have so much work to do that they cannot follow universal precautions. 56% strongly agreed that there was too much responsibility in their job. 41% reported that they experienced too much mental pressure at their workplace. 62% disagreed with the statement that there was not enough teamwork in the department, while 39% strongly disagreed that their work was too boring or tedious. Ampoules or vials were responsible for most NSIs (29%), and were most likely to have been used before injury (87%).</p>	<p><b>Limitations identified by author:</b> Important to recognise the limitations of using translated instruments.</p> <p><b>Limitations identified by review team:</b> Female dominated sample No differentiation between wards/departments - some may be more prone to NSI's than others. All self-reported scales</p> <p><b>Evidence gaps/recommendations for future research:</b> More attention needs to be directed towards holistic stress reduction techniques in the workplace. Further work needs to be done with a more specific focus on NSI and the worker's emotional climate. Research should now be considered with regard to specific psychological consequences of NSI in healthcare workers. Country specific NSI issues that should be considered when planning preventative strategies.</p> <p><b>Source of funding:</b> Not reported</p>

	<p>previous 12 months, whether the item had been used on the patient prior to the injury and whether nurses had officially reported to management any NSI they sustained.</p> <p>Additional questions focussed on demographic and workplace items, such as age, gender, weekly working hours and length of employment as a nurse.</p> <p>Questionnaires were distributed in late 2008 and collected within a 2 week period.</p> <p><b>Setting(s):</b> A large teaching hospital in central Japan.</p> <p><b>Dates:</b> 2008</p>	<p>around half (49.6%) worked rotating day and night shifts. Around half (49.6%) had received the full three-course Hepatitis B (HB) vaccination regimen, 28.0% had been vaccinated once or twice, while the remaining 22.4% reported having received no HB vaccinations at all.</p> <p><b>Response rate (if relevant):</b> Response rate of 88.6%</p>	<p>Only 25.5% of nurses had always reported to management any NSI they sustained, with 64.1% never reporting it and 10.4% reporting it sometimes. 13% of people did not know they had to report it, 5% said they were too busy to report it, and 4% were too embarrassed at their mistake.</p> <p>NSI due to butterfly needles was related to staff supporting one another at work (p=0.014). NSI due to blood collection tubes was correlated with the protection of staff against blood-borne diseases exposures being a high management priority (p =0.008), managers doing their part to protect staff from blood borne exposures (p =0.024) and unsafe work practices being corrected by supervisors (p=0.043). NSI from suture needles was statistically correlated with managers doing their part to protect staff from blood-borne disease exposures (p=0.002), having the opportunity to be trained to use safety equipment to protect against blood borne disease exposures (p=0.026) and having clean working areas (p&lt;0.001).</p>	
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## Theorell et al. (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Tores Theorell Anna Nyberg, Constanze Leineweber Linda L. Magnusson Hanson, Gabriel Oxenstierna, Hugo Westerlund</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Non-Listening and Self Centered Leadership: Relationships to Socioeconomic Conditions and Employee Mental Health. <i>PLOS One</i>. Sep 2012, Vol 7 (9).</p> <p><b>Quality rating:</b> ++</p>	<p><b>Setting(s):</b> Stratified random sample of employees</p> <p><b>Research aims/questions:</b> How two manager behavioural styles (Listening manager and self-centred manager) are experienced in different economic strata.</p> <p><b>Overall research approach:</b> Longitudinal survey</p> <p><b>Data collection method:</b> Data was collected in three separate years</p> <p>The key measures used were: Listening manager: Does your manager listen to you and pay attention to what you say? In this one-item 'Non-listening leadership' variable there were four response categories ranging from 'to a very high extent' to 'a very small extent or not at all'. High score indicates poor condition (non-listening). Range</p>	<p><b>Sample population:</b> The Swedish Longitudinal Survey of Occupational Health (SLOSH) was originally recruited from the Swedish Work Environment Survey (SWES) which is conducted biennially by Statistics Sweden (SCB) and consists of subsamples of gainfully employed people, aged 16-64 years, from the Labour Force Survey (LFS). These individuals had been sampled into the LFS through stratification by county of birth, sex, citizenship, and inferred employment status. This stratified random sample represents the full population of working Swedish men and women.</p> <p><b>Sampling approach:</b> Stratified random sampling</p> <p><b>Inclusion/exclusion criteria:</b> No applicable. Sample represents the whole working population in Sweden.</p> <p><b>Number and characteristics of participants:</b> 2006: 899 participants 2008:53 2010:403</p> <p><b>Response rate / Representativeness of sample (if survey)</b> The total participation rate in this first sampling step (from the general population to LFS) is estimated to 74%. Participants in LFS were then invited to participate in SWES. In this step (from LFS to SWES) the participation</p>	<p><b>Description of analysis method:</b> First, product moment correlations were computed between all the study variables. Secondly, since the relationship between education and the leadership dimensions was crucial, the mean score of each one of the two leadership variables for each one of the five education levels was computed. In the final analyses statistical predictions of the three different health outcomes (from 2006 to 2008 and from 2006 to 2010 separately) were made by means of multiple linear regressions, with separate analyses for emotional exhaustion and depressive symptoms and for self-centred and non-listening leadership respectively. These analyses were performed in two steps: 1) using gender, age, education and income as explanatory variables and 2) as in step 1, but with the addition of psychological demands and decision latitude at work. The leadership and health outcome variables were subjected to a one-way analysis of variance exploring changes over time.</p> <p><b>Key findings relevant to the review:</b></p> <ul style="list-style-type: none"> <li>• Psychological demands had strong correlations with emotional exhaustion (0,43) and depressive symptoms (0,27)</li> <li>• There were also significant correlations between decision latitude and emotional exhaustion (20,11) and between decision latitude and depressive symptoms (20,13).</li> <li>• Non-listening leadership style showed modest and significant correlations with emotional exhaustion (0,28) and depression (0,24).</li> <li>• Correlations between self-centred leadership and the mental health indicators were 0,21 for emotional exhaustion and 0,19 for depressive symptoms.</li> </ul>	<p><b>Limitations identified by author:</b> Interpretations of the directions of the relationships should be handled with caution. Accordingly the data cannot disentangle to what extent the relationships between leadership and employee health are mediated by the leader's influence on work environment factors or whether both the leader and the work environment are influenced by common organisational factors that are beneficial to the health of the employees.</p> <p><b>Limitations identified by review team:</b> Single item measure was used to assess degree of managerial listening behaviour. Degree of bias as a result of respondent self-selection in the findings is unclear.</p>

	<p>1-4 with mean 2,15 to 2,20 (2006, 2008 and 2010) and standard deviation 0,7-0,8.</p> <p>‘Self centered leadership’ - calculated from three questions (non-participating, asocial and loner) according to results from factor analysis [13]. For each question there were five response categories ranging from ‘very infrequently’ to ‘very often’. The items were added up to a sum score (range 3-15) with mean 5,9 (same for all study years) and standard deviation 2,5-2,6.</p> <p><b>Dates:</b> April 2006, 2008 and 2010</p>	<p>rate was 86%.</p> <p>Three years later eligible respondents to SWES 2003 (9154) were invited to enrol in the SLOSH which was initiated by the Stress Research Institute at the Stockholm University in collaboration with Statistics Sweden in April 2006.</p> <p>The participation rate in this step was 65%. In the prospective part of the present study the participants in 2006 were followed up in 2008 and then again in 2010. Out of the 5141 working respondents in SLOSH in 2006, 4,484 respondents had complete data for the correlation analysis (87%) this year and in 2008 3269-3730 out of those 5141 respondents had complete data for statistical multivariate analyses (64%-73%). 6,5% of the participants in 2006 had reached retirement age until 2008. In the follow-up in 2010 the numbers of participants in the analyses with complete data for multivariate analyses ranged from 2701 to 3285 (53%-64%). An additional 6,8% of the participants in 2006 had reached retirement age from 2008 to 2010. Two reminders by mail were used for minimization of drop-out.</p> <p>The study controlled for part-time work - this had no effect on the findings.</p> <p>Women, older subjects (aged 50+) and married/cohabiting subjects as well as men and women with high education were overrepresented among responders. The authors note that how these differences influence the findings is not clear.</p>	<ul style="list-style-type: none"> <li>• Non-listening leadership showed a small but significant variation with incidence increasing over time (means 2,15, 2,14 and 2,24 for the years 2006, 2008 and 2010 respectively, <math>p = 0,0001</math>). A similar tendency was found also for self-centred leadership (means 5,83, 5,84 and 5,99, <math>p = 0,01</math>).</li> </ul> <p>Using multiple linear regression to predict health status in 2008 and 2010 showed.</p> <ul style="list-style-type: none"> <li>• Self-centred leadership significantly predicted depressive mood (<math>p = 0,004</math>) in 2008 when adjustments had been made for socio-demographic variables and depressive mood in 2006.</li> <li>• Self-centred leadership was still a significant predictor when psychological demands and decision latitude in 2006 had been added to the equation although with reduced strength (<math>p = 0,041</math>).</li> <li>• Non-listening leadership predicted depressive mood in 2008 (<math>p = 0,026</math>) by means of the ‘non-listening’ leadership score in 2006 even after adjustment for depressive score in 2006 as well as the demographic variables, but was not significant when psychological demands and decision latitude had been taken into account (<math>p = 0,334</math>).</li> <li>• High psychological demands were independently and significantly predictive of both health outcomes both from 2006 to 2008 and from 2006 to 2010. High decision latitude predicted significantly and independently low emotional exhaustion score in 2010 (with adjustment both for non-listening and self-centred leader score).</li> </ul>	<p><b>Evidence gaps/recommendations for future research:</b></p> <p>The mechanisms behind the weak but consistent and significant relationship between low education level and ‘non-listening’ leadership are unknown.</p> <p><b>Source of funding:</b></p> <p>The Swedish Research Council, SLOSH - The Swedish Longitudinal Occupational Survey of Health - Wave III (<a href="http://www.vr.se">www.vr.se</a>) and the Swedish Council for Working Life and Social Research</p>
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## Top et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Top M, Tarcan M, Tekingunduz S, Hikmet N</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> An analysis of relationships among transformational leadership, job satisfaction, organisational commitment and organisational trust in two Turkish hospitals. <i>International Journal of Health Planning and Management</i> 2013; 28: e217-e241.</p> <p><b>Quality rating:</b> +</p>	<p><b>Research questions:</b> To investigate the relationships among employee organisational commitment, organisational trust, job satisfaction and employees' perceptions of their immediate supervisors' transformational leadership behaviours in two Turkish public hospitals and how job satisfaction, organisational trust and transformational leadership affect organisational commitment and organisational trust.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> A quantitative, cross-sectional method, self-administered questionnaire was used for this study. The survey questionnaires were distributed to each department; participants were provided with written informed consent form, and were informed that their involvement was voluntary and confidentiality and anonymity of the participants was guaranteed.</p> <p><b>Method(s):</b> The measurement instruments used in the survey were the Job Satisfaction Survey (developed by P. Spector); the Organisational Commitment Questionnaire (developed by J. Meyer and N. Allen) (which comprises three types of commitment: normative, affective and continuance commitment,); the Organisational Trust Inventory-short form (developed by L. Cummings and P. Bromiley); and the</p>	<p><b>Sample population:</b> Employees (N= 2108) working in two public hospitals in Turkey.</p> <p><b>Sampling approach:</b> All personnel at the hospitals working at the time of data collection were contacted.</p> <p><b>Inclusion/exclusion criteria:</b> 42 subjects were excluded from the study because they failed to fill out their questionnaires properly.</p> <p><b>Number and characteristics of participants:</b> 804 employees participated (358 employees in the public hospital in Sivas, 446 employees in the public hospital in Balikesir). The majority of the respondents (64.0%) were female. 55.5% were from the health organisation</p>	<p><b>Brief description of method and process of analysis:</b> Descriptive statistics were used to identify participant characteristics and the distribution of subscale scores. Data analysis was conducted using SPSS 15.0.</p> <p>Correlation tests (the Pearson's rank test) were used to examine relationships between variables. Also, multiple regression analysis was used to determine the regressors for organisational commitment and organisational trust.</p> <p><b>Key findings relevant to the review:</b> The strongest correlations were among dimensions of transformational leadership.</p> <p>The highest correlation coefficient (<math>r = 0.965</math>; <math>p &lt; 0.001</math>) was between Intellectual Stimulation and Fostering the Acceptance. The lowest correlation coefficient (<math>r = 0.146</math>; <math>p &lt; 0.01</math>) was between Providing Individualized Support and Continuance</p> <p>Commitment. There were significant correlations among overall organisational commitment, transformational leadership, job satisfaction and</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>- The samples in the study were only limited to the personnel in two organisations. Therefore the results cannot be generalized to other hospital settings or to other types of organisations.</li> <li>- The results also have limited generalisability because all measures used were based on self-reports.</li> </ul> <p><b>Limitations identified by review team:</b></p> <p>Potential sources of bias in the study are not addressed.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <ul style="list-style-type: none"> <li>-Generalisability of the present findings should be examined in future research in other types of organisations, with more heterogeneous samples and larger populations.</li> <li>-Future research should use other objective measures of commitment, leadership, job performance, job satisfaction and organisational trust.</li> <li>- Other important organisational outcomes, such</li> </ul>

	<p>Transformational Leadership Inventory (TLI) (P. M. Podsakoff). The six transformational leadership dimensions are: (1) Articulating a Vision (eg, ‘ my supervisor paints an interesting picture of the future for our practice area’ ); (2) Providing an Appropriate Model (eg, ‘ my supervisor provides a good model to follow’ ); (3) Fostering the Acceptance of Group Goals (eg, ‘ my supervisor fosters collaboration’ ); (4) High Performance Expectations (eg, ‘ my supervisor shows us that he/she expects a lot from us’ ); (5) Providing Individualized Support (eg, ‘ my supervisor shows respect for my personal feelings’ ); and (6) Intellectual Stimulation (eg, ‘ my supervisor has provided new ways of looking at problems that used to puzzle me’ ). Five-point Likert scales were used in all the measurement instruments.</p> <p><b>Setting(s):</b> Two Turkish public hospitals.</p> <p><b>Dates:</b> The study was conducted between June 1, 2009 and August 10, 2009.</p>	<p>in Balıkesir. Of the respondents, 8.2% were physicians, and 28.4% were nurses. Some 36.4% had a high school diploma, and 13.8% had a higher education degree. The mean age of the respondents was 36.64 years.</p> <p><b>Response rate:</b> The overall response rate was 38.14%. The response rate for the public hospital in Sivas was 54.42% and in Balıkesir was 37.15%.</p>	<p>organisational trust.</p> <p>There was a significant relationship between transformational leadership with organisational commitment (<math>r = 0.285</math>; <math>p &lt; 0.01</math>), organisational trust (<math>r = 0.424</math>; <math>p &lt; 0.01</math>) and job satisfaction (<math>r = 0.229</math>; <math>p &lt; 0.01</math>). Job satisfaction had the strong correlation with organisational trust (<math>r = 0.363</math>; <math>p &lt; 0.01</math>) and organisational commitment (<math>r = 0.385</math>; <math>p &lt; 0.01</math>). Transformational leadership had the strongest relationship with organisational trust. Job satisfaction had the strongest relationship with organisational commitment.</p> <p>It was found that one transformational leadership dimension (articulating a vision), two job satisfaction dimensions (pay and supervision) and two organisational commitment dimensions (affective commitment and normative commitment) were significant regressors for organisational trust.</p>	<p>as organisational citizenship, adjustment, trust, job performance, absenteeism, empowerment and turnover should be studied.</p> <p>-Future research should include <i>transactional</i> leadership because managers of hospitals/healthcare organisations normally use both transformational and transactional leadership in their routine work and roles.</p> <p>-Future research in this area should include longitudinal studies and the study should be conducted in other countries or regions for comparing and contrasting.</p> <p>Further research in the health sector might also discuss the relationship between leadership styles and organisational cultures and examine how they influence employees’ organisational commitment, organisational justice, organisational trust, organisational support and job satisfaction.</p> <p><b>Source of funding:</b> Not stated</p>
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## Treiber and Davis (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Linda A. Treiber a Shannon N. Davis b</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> The role of 'workplace family' support on worker health, exhaustion and pain, <i>Community, Work &amp; Family</i>, 15:1, 1-27, DOI: 10.1080/13668803.2011.580123</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> All English-speaking people 18 years or older living in the USA</p> <p><b>Research aims/questions:</b> The goal of the study was to improve understanding of the potential health benefits of social support at work.</p> <p><b>Research questions:</b> First, are increased levels of support from co-workers, supervisors, and/or organisational safety support (ie, a workplace family) directly associated with better worker health? Second, does work-family conflict mediate the relationship between workplace family support and worker health?</p> <p><b>Overall research approach:</b> Population based survey</p> <p><b>Data collection method:</b> the General Social Survey (GSS) 2002, a national probability sample of all non-institutionalized English-speaking persons 18 years of age or older living in the United States. The number of completed interviews in the GSS 2002 is 2765. The study was largely draw from the Quality of Working Life module, centred on questions about working conditions in respondent's 'main job' and health (N=1796).</p> <p><b>Outcome variables included:</b> <b>Perceived general health.</b> Respondents were asked a general health question: 'Would you say that in general your health is excellent, very good, good, fair, or poor?' and also about exhaustion, persistent pain. Work-family conflict</p>	<p><b>Sample population:</b> Working adults in the USA</p> <p><b>Sampling approach:</b> A probability sampling</p> <p><b>Inclusion/exclusion criteria:</b> Respondents who did not work were deemed non-eligible for this portion of the GSS. Analyses are restricted to respondents currently working full or part time at time of interview or who were 'not at work (last week) because of temporary illness, vacation or strike'.</p> <p><b>Number and characteristics of participants:</b> N=1602/ 47% were currently married, 52% were female and 79% were white. Average age was 40.84 (SD 12.75) and average years of education: 13.76 (SD 2.73)</p> <p><b>Response rate / Representativeness of sample (if survey)</b></p>	<p><b>Description of analysis method:</b> First regression analysis were performed predicting work-family conflict. To test hypotheses regarding direct and mediated influences of workplace family with each of the three measures of health (reported health, feeling used up, and experiencing persistent pain), a set of six hierarchical regressions were performed. The first model for each health measure shows the direct effect of family demands, which were expected to be negatively related to health, on the outcome, while controlling for all background characteristics. Model 2 added family resources, which were expected to be positively related to health. Model 3 added all workplace demands. Workplace demands were expected to be negatively related to health. Model 4 added workplace controls. Workplace controls were expected to be positively related to health. Model 5 added measures of workplace family. Workplace family measures should be positively associated with health. The</p>	<p><b>Limitations identified by author:</b> Cross-sectional nature of the data</p> <p><b>Limitations identified by review team:</b> Design of the study raises some concerns: No justification why so many models had to be included. Tests to decide which variables needs to be included in the final model should have been performed. Now it is difficult to say which factors are relevant for the work and family conflict.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research incorporating the workplace family concept as a part of the DCS</p>

	<p>was captured by a measure averaging the responses to two items: ‘How often do the demands of your family interfere with your work on the job?’ and ‘How often do the demands of your job interfere with your family life?’</p> <p>Workplace family conflict comprised of three components: co-worker support, supervisor support, and organisational safety support. Supervisor support was measured as the average of responses to two items: ‘My supervisor is concerned about the welfare of those under him or her’; and ‘When you do your job well, are you likely to be praised by your supervisor or employer?’. Organisational safety support was measured as the mean of responses to four questions (eg, ‘The safety of workers is a high priority with management where I work’ and ‘There are no significant compromises or shortcuts taken when worker safety is at stake’), coded so that higher scores indicate a more favourable safety climate. Cronbach’s alpha for the organisational safety support index was .90.</p> <p>Other outcome variables included work control, skill utilization, autonomy, community, work and family, work demands, weekly hours worked, family resources, family demands.</p> <p><b>Dates:</b> Data collected in 2002</p>	<p>Not applicable because the existing data was used. The percentage of useable questionnaires was 89%. / As population based survey, its representative of the working population in the USA.</p>	<p>final model, Model 6, included work-family conflict.</p> <p><b>Key findings relevant to the review:</b></p> <p>It was found that increased co-worker support in the workplace was associated with better worker self-reported health (0.098 OR 0.046, p&lt;0.05) , lower exhaustion (-0.255 OR 0.049, p&lt;0.05) and less pain (-0.351 OR 0.704, p&lt;0.05).</p> <p>In addition, higher levels of perceived organisational safety support were associated with better self-reported health and lowered exhaustion (0.091 OR 0.036, p&lt;0.05).</p> <p>There was no evidence that work-family conflict mediated between work and family characteristics and worker health, and work-family conflict did not mediate the relationship between workplace family measures and worker health.</p>	<p>model should also employ panel data to discern whether the associations found herein are indeed causally ordered.</p> <p><b>Source of funding:</b> None reported</p>
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## Tremblay et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Tremblay, M., Vandenberghe, C. and Doicet, O.</p> <p><b>Year of publication:</b> (2013)</p> <p><b>Citation:</b> Tremblay, M., Vandenberghe, C. and Doicet, O. (2013). Relationships between leader-contingent and non-contingent reward and punishment behaviours and subordinates' perceptions of justice and satisfaction, and evaluation of the moderating influence of trust propensity, pay level and role ambiguity. <i>Journal of Business and Psychology</i>, 28,</p>	<p><b>Research questions:</b> The research evaluates how reward and punishment behaviours are related to employee satisfaction and how perceptions of justice mediate the effect of these behaviours. Study also seeks to examine the connection between some boundary conditions and the efficacy of reward and punishment behaviours.</p> <p><b>Research approach:</b> Cross-sectional survey</p> <p><b>Data collection:</b> Questionnaires transmitted through the internal mail system and completed during working hours.</p> <p><b>Method(s):</b> <i>Contingent Positive Reinforcers:</i> Positive reinforcers assessed using 16 items from Sims et al. (1975) and incorporated into Likert-type scale: (1) would not happen, (4) would happen. Scale measures four factors: earning esteem from others (contingent social rewards, <math>\alpha=.77</math>); administration of financial rewards (contingent financial rewards, <math>\alpha=.71</math>); negative consequences associated with poor performance (contingent punishment, <math>\alpha=.71</math>); negative consequences associated with good performance (non-contingent punishment, <math>\alpha=.68</math>).</p> <p><b>Outcome variables:</b> 4 outcomes were evaluated in this study, distributive and procedural justice and satisfaction with the</p>	<p><b>Sample population:</b> Survey was distributed to managers at all levels, from the first-line supervisor to top executives.</p> <p><b>Sampling approach:</b> Purposive sampling of managers at all levels.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> The sample consisted of 3,067 managers from 44 business units and managers' associations. Of this sample, 1,227 individuals were from the private sector while 1,851 were from the public sector. Response rates ranged from 23% to 80% across organisations. The</p>	<p><b>Brief description of method and process of analysis:</b> Confirmatory Factor Analysis was used to specify the measurement model and compare it to alternative measurement models. The results were all satisfactory, and the 8 factor model showed a good fit to the data. Structural equations were then used to test the hypotheses. Mediation tests were carried out based in a structural equation modelling approach. Moderating hypotheses were tested using a multi-stage procedure. Models were compared using chi-squared (<math>\chi^2</math>) difference tests.</p> <p><b>Key findings relevant to the review:</b> The study found that that using contingent rewards is more effective in promoting positive attitudes at work than using contingent punishments. The authors conclude that organisations would benefit from encouraging their managers to use financial and social rewards and reducing the administration of non-contingent punishment among performing employees.</p> <p>Contingent financial rewards are weakly related to distributive and procedural justice (<math>\beta=.08</math>, <math>p&lt;.01</math> and <math>\beta=.03</math>, <math>p&lt;.05</math> respectively). A significant positive relationship was found between contingent social rewards and distributive and procedural justice (<math>\beta=.28</math>, <math>p&lt;0.1</math> and <math>\beta=.13</math>, <math>p&lt;.01</math>). These results indicate that non-contingent punishment is negatively related to distributive justice (<math>\beta=-.31</math>, <math>p&lt;.05</math>) and to procedural justice (<math>\beta=-.1</math>, <math>p&lt;.01</math>). However contingent punishment is negatively related only</p>	<p><b>Limitations identified by author:</b> All predictor variables and outcomes were obtained from the same source (employees) at the same time. The self-reporting measures and the cross-sectional design increase the probability of common method variance and preclude establishing causal direction among variables.</p> <p>A final limitation pertains to the less than desired reliability estimates for the NCP measure. The reliability estimate for this variable (.68) is close to what we normally expected. This relatively low alpha reliability suggests that the influence of this scale should be interpreted cautiously.</p> <p><b>Limitations identified by review team:</b> Very high male sample May not be generalizable to other industries/countries.</p> <p><b>Evidence gaps/recommendations for future research:</b> Future research should consider the influence of combinations of positive and negative rewards and punishments on attitudes and behaviours. Future research should also</p>

<p>233-249.</p> <p><b>Quality rating:</b> +</p>	<p>organisation and the supervisor. Distributive and procedural justice measures developed by Tremblay et al. (2001). Distributive justice measured using 6 items on a 7 point scale from -3 (considerably less) to =£ (considerably more) (<math>\alpha</math>-.82). Procedural justice was measured using two items on a 5 point scale 1 (others decide for me) to 5 (I decide alone) (<math>\alpha</math>-.77). Satisfaction with the superior (5 items, <math>\alpha</math>-.86) and the organisation (5 items, <math>\alpha</math>-.82) measured using the Warr et al.(1969) Managerial Scale.</p> <p><i>Moderators:</i> 6 items from Roter (1966,67) interpersonal trust scale were used to measure propensity to trust. Higher scores indicated a great propensity to trust (<math>\alpha</math>-.74). Role of ambiguity comes from items developed by Rizzo et al.(197) and Hose et al.(1983), 6 items with internal consistency of .76. Pay level was measured on an 11 point scale ranging from less than \$15,000 to \$75,000 up.</p> <p><i>Control variables:</i> previous research has shown that work attitudes and behaviours are often influenced by demographic variables. Several control variables were used: age, organisational tenure, sex, marital status and number of dependents.</p> <p><b>Setting(s):</b> Data collected from three large industries: pulp and paper, consumer and food services and the public sector. The research is part of a wider study of managers in Canadian organisations.</p> <p><b>Dates:</b> Not reported</p>	<p>large number of managers in the sample (over 3,000) allows adequate representation of the managerial population in the three industrial sectors. The vast majority of respondents was men (83%), and had supervisory responsibilities (90%). In terms of hierarchical status, 30% of respondents was junior managers, 45% were middle managers and 15% held senior positions. Respondents were on average 42 years of age and had 22 years of experience in the workforce and 16 years of seniority in the organisation.</p> <p><b>Response rate (if relevant):</b> See above</p>	<p>to distributive justice (<math>\beta</math>-.24, <math>p</math>&lt;.01).</p> <p>The two dimensions of justice were positively and significantly related to satisfaction with organisation (DJ, <math>\beta</math>-.03, <math>p</math>&lt;.01) and PJ, <math>\beta</math>-.56, <math>p</math>&lt;.01) and superior (DJ, <math>\beta</math>-.08, <math>p</math>&lt;.01 and <math>\beta</math>-.68, <math>p</math>&lt;.01).</p> <p>The indirect relationships between contingent financial rewards and satisfaction with organisation and superior through distributive justice are .06 and .05 respectively, and these were significant. The indirect relationships between contingent financial rewards, organisation and superior satisfaction through procedural justice were not significant. The indirect relationship between contingent social rewards and satisfaction with organisation and superior through distributive justice were significant, as well as the indirect relationship between the same factors through procedural justice. The indirect relationship between contingent punishment and satisfaction with organisation and superior through distributive justice and procedural were not significant.</p> <p>Role ambiguity has a positive moderating effect between cognitive financial rewards, cognitive social rewards and satisfaction with a supervisor, and the relationship is stronger for those with perceived high ambiguity.</p> <p>The relationship between distributive justice and organisation satisfaction was stronger for those who tend to distrust others, whereas the relationships between the justice dimensions and the superior satisfaction were stronger for those who perceive high role ambiguity (DJ=.07, <math>p</math>&lt;.05, PJ=.19, <math>p</math>&lt;.01)</p>	<p>investigate a larger array of rewards and punishments, particularly the role of colleagues and customers.</p> <p>It is worth exploring whether Contingent Reinforcers and Contingent Punishment from leaders, customers and colleagues produce the same effects on attitudes and performance, and whether Contingent Reinforcers from customers reduces or enhances the effect of leader behaviours on subordinates' outcomes.</p> <p>The examination of other individual dispositions such as cynicism, locus of control, negative affectivity, self-esteem, or emotional stability may advance knowledge of the effects of rewards and substitutes for leadership.</p> <p><b>Source of funding:</b> This research was supported in part by Grants from the Social Sciences and Humanities Research Council of Canada and from the Omer DeSerres Chair of Retailing of HEC-Montreal.</p>
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## Vlachos et al. (2013)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Vlachos P A, Panagopoulos N G, Rapp A A</p> <p><b>Year of publication:</b> 2013</p> <p><b>Citation:</b> Feeling good by doing good: Employee CSR-induced attributions, job satisfaction, and the role of charismatic leadership. <i>J Bus Ethics</i> (2013) 118:577-588</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> To examine how the charismatic leadership qualities of middle managers influence employee corporate social responsibility (CSR)-induced attributions and how these attributions influence employee job satisfaction.</p> <p><b>Research approach:</b> Survey</p> <p><b>Data collection:</b> Employees completed paper-and-pencil surveys on predefined dates during work hours.</p> <p><b>Method(s):</b> All survey constructs (based on scales taken from previous research) used multiple-item, seven-point Likert type scales and were assessed at the employee level. Measures included were: Charismatic leadership (Conger and Kanungo 1998); CSR-induced intrinsic attributions (Du et al. 2007; Ellen et al. 2006); CSR-induced extrinsic attributions (Du et al. 2007; Ellen et al. 2006); Job satisfaction (Churchill et al. 1974); Organisational tenure (Wieseke et al. 2009); and Dyadic tenure (Wieseke et al. 2009).</p> <p>The survey was designed in English, translated into the local language, and subsequently back translated in English by one</p>	<p><b>Sample population:</b> 709 employees across three organisations.</p> <p><b>Sampling approach:</b> Senior executives contacted employees to request their voluntary participation and to assure them of confidentiality.</p> <p><b>Inclusion/exclusion criteria:</b> Responses with missing values were discarded.</p> <p><b>Number and characteristics of participants:</b> 497 employee responses, of which 59 were discarded due to missing values (N=438 across 47 organisational units). Mean group size was 15.09 employees; the mean employee job experience was 7.59 years; and the mean employee tenure with the organisation and current supervisor were 7.94 and 4.44 years, respectively. The functional areas represented were sales/marketing (38.3%), production (17%), finance (12.8%), supply chain management/logistics (12.8%), information technology (4.3%), human resources (4.3%), business development (4.3%), engineering (2.1%), R&amp;D (2.1%), and others (2%).</p> <p><b>Response rate (if relevant):</b> 70 %.</p>	<p><b>Brief description of method and process of analysis:</b> Performed a confirmatory factor analysis (CFA) on a four-factor model consisting of charismatic leadership, intrinsic CSR-induced attributions, extrinsic CSR-induced attributions, and job satisfaction. Included in the model four control variables: organisational tenure, dyadic tenure and two dummy variables to control for organisational-related differences as the data was collected from three different organisations. Employed hierarchical linear modelling (HLM) using Mplus 6.12 to test hypotheses because data were nested— individuals were nested within units. Next conducted a series of ANOVAs to calculate the intraclass correlation coefficients for all study constructs.</p> <p><b>Key findings relevant to the review:</b> The effect of immediate manager's charismatic leadership on employee CSR-induced intrinsic attributions was confirmed (<math>y = .622, p &lt; .001</math>). Manager's charismatic leadership is not significantly related to employee extrinsic attributions (<math>y = .059, p &gt; .70</math>).</p>	<p><b>Limitations identified by author:</b></p> <ul style="list-style-type: none"> <li>-Employed statistical procedures to minimize the potential for common method variance, but such bias cannot be ruled out, since the data used in the study originated from a single source.</li> <li>- The data is cross-sectional in nature, and therefore prevents the authors from establishing causality.</li> </ul> <p><b>Limitations identified by reviewer:</b></p> <p>The integrity of the questionnaire may have been compromised by translations from English into the local language.</p> <p><b>Evidence gaps/recommendations for future research:</b></p> <ul style="list-style-type: none"> <li>-Future research is needed to expand the framework by examining additional leadership types. For example, one might examine the relationships tested in this study with ethically neutral or transactional leaders.</li> <li>- Also future research could compare the effect sizes of different types of 'ethically biased' leadership styles such as charismatic leadership vis-a-vis servant or ethical leadership.</li> <li>- Future research might also extend</li> </ul>

	<p>professional translator.</p> <p><b>Setting(s):</b> Three world-leading manufacturing organisations operating in an EU country, which have been engaged in CSR initiatives over the past few years.</p> <p><b>Dates:</b> Not stated.</p>		<p>Charismatic leadership is positively related to job satisfaction (<math>y = .426, P &lt; .001</math>).</p> <p>Job satisfaction positively relates to employee CSR-induced intrinsic attributions (<math>y = .541, p &lt; .001</math>).</p> <p>The relationship between job satisfaction and CSR induced extrinsic attributions (<math>y = .05, p &gt; .17</math>) was not found to be statistically significant.</p>	<p>the multilevel framework to include external/institutional levels of analyses. For example, to examine the relationship between CSR-induced attributions of boundary-spanning personnel with customers' own CSR-induced attributions.</p> <p><b>Source of funding:</b> The research was partially funded by the Research Center of the Athens University of Economics and Business.</p>
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## Volmer et al. (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Judith Volmer, Cornelia Niessen, Daniel Spurk, Alexandra Linz, Andrea E. Abele</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Volmer et al.(2011) Reciprocal Relationships between Leader- Member Exchange (LMX) and Job Satisfaction: A Cross-Lagged Analysis <i>Applied Psychology: an International Review</i>, 2011, 60 (4), 522- 545 doi: 10.1111/j.1464- 0597.2011.00446.x</p> <p><b>Quality rating: +</b></p>	<p><b>Setting(s):</b> Employees of large information technology company in Germany</p> <p><b>Research aims/questions:</b> To look at the importance of Leader-membership exchange (LMX) and job satisfaction and how this can enhance supervisor- employee relationships.</p> <p><b>Overall research approach:</b> Follow-up questionnaire study</p> <p><b>Data collection method:</b> The design comprised two measurement points with a three- month interval between the assessments to be able to assess variations in LMX and job satisfaction but also to hold constant seasonal effects on business activities.</p> <p>Questionnaires were administered and filled out during working hours. Completed questionnaires were collected in a sealed box or could alternatively be sent back to the researchers in a pre-stamped envelope. Participants took part in a lottery and received feedback on the results after Time 2.</p> <p>Measures included:</p> <p><i>Leader-Member Exchange</i>. We employed the highly recommended seven-item LMX 7</p>	<p><b>Sample population:</b> 2,500 employees of the company.</p> <p><b>Sampling approach:</b> A total of 378 randomly selected employees were asked to voluntarily participate in the study.</p> <p><b>Inclusion/exclusion criteria:</b> Not reported</p> <p><b>Number and characteristics of participants:</b> Of the 279 individuals, 205 were men (74.3%). On average, participants were 39.90 years old (SD = 10.36). The majority (79%) of the sample held an apprenticeship, 14.7 per cent had a university degree or a comparable education, and 6.3 per cent had no formal professional training. Only a minority of the participants had a supervisory position (7.6%). The majority (54.2%) had worked in the company for more than 15 years. Respondents worked in different areas of operation, including production (46.2%), research and development (15.8%), logistics (12.2%), sales and marketing (12.5%), and others (13.3%).</p> <p><b>Response rate / Representativeness of sample (if survey)</b> Time 1 (response rate: 73.81%), and 193 employees completed the questionnaire at Time 2 (69.18% of those who participated at Time 1). Of the Time 2 participants, 144 indicated</p>	<p><b>Description of analysis method:</b> Hypotheses were tested by means of structural equation modelling (SEM)</p> <p>Reciprocal hypotheses (LMX and job satisfaction) were estimated a cross-lagged panel model with these variables. In this modelling design, every outcome variable (LMX and job satisfaction) is regressed on its auto-regressor and cross-lagged on the other variable in the previous time of measurement (LMX t2 regressed on job satisfaction t1 and job satisfaction t2 regressed on LMX t1).</p> <p><b>Key findings relevant to the review:</b> Findings revealed a positive relationship between LMX and job satisfaction both at Time 1 (<math>r=.50, p&lt;.001</math>) and Time 2 (<math>r=.27, p&lt;.01</math>). Moreover, LMX at Time 1 predicted the increase of job satisfaction at Time 2, and job satisfaction at Time 1 predicted the increase of LMX at Time 2 (<math>Beta=.26, p&lt;.01</math>) and also after controlling for the auto- regressor (<math>Beta=.44, p&lt;.001</math>). The results demonstrate the need to consider reciprocal relationships between job satisfaction and LMX when explaining employees' workplace</p>	<p><b>Limitations identified by author:</b> The use of self-reported data could have led to method bias.</p> <p><b>Limitations identified by review team:</b> -Not reported why and how this company was selected -Not well justified why follow-up study was needed as there is a strong evidence that there is association between LMX and job satisfaction. -No information about managers provided</p> <p><b>Evidence gaps/recommendations for future research:</b> Future studies should include supervisor's perspective. Investigating reciprocal effects between LMX and other variables (eg proactivity, organisational citizenship behaviour). Investigating mediating variables (eg empowerment and climate) that help to explain why there is reciprocal relationship between LMX and job satisfaction</p> <p><b>Source of funding:</b>  Not reported</p>

	<p>scale (Graen &amp; Uhl-Bien, 1995) in its German version (Schyns, 2002). Participants answered on 5-point Likert-type scales with question-specific labels (for the sample item, 1 = <i>not much</i> to 5 = <i>a great deal</i>). Cronbach's <math>\alpha</math> was .86 (T1) and .87 (T2).</p> <p><i>Job Satisfaction.</i> Our measure of job satisfaction was taken from Baillod and Semmer (1994). Following Kunin (1955), participants were instructed to indicate how satisfied they were, in general, with their job, on a 7-point Likert-type faces scale. Meta-analytical work by Kaplan, Warren, Barsky, and Thoresen (2009) showed that Kunin's faces scale is best suited to capturing both employees' affective and cognitive reactions to work; thus, a single-item faces scale is well suited to obtaining a comprehensive rating of employees' attitude to work.</p> <p><i>Control Variables.</i> Leadership position was measured with one item asking if the respondent had any disciplinary responsibilities. Other measures included education and job tenure.</p> <p><b>Dates:</b> June-Sep 2008</p>	<p>that they had already participated at Time 1 (51.61% of those who participated at Time 1)/ It was examined whether the Time 2 sample was representative of the Time 1 sample by conducting drop-out analyses. No significant differences were found with respect to the study variables assessed at Time 1 (age, gender, leadership position, job tenure, education, LMX, job satisfaction).</p>	<p>outcomes.</p>	
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## Wong and Laschinger (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Carol A. Wong Heather K.S. Laschinger</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Authentic leadership, performance, and job satisfaction: the mediating role of empowerment <i>Journal of Advanced Nursing</i> 69(4), 947-959. doi: 10.1111/j.1365-2648.2012.06089.x.</p> <p><b>Quality rating:</b> +</p>	<p><b>Setting(s):</b> Nurses working in acute care hospitals across Ontario, Canada</p> <p><b>Research aims/questions:</b> Avolio et al.'s (2004) theory of authentic leadership was used to develop and test a model linking authentic leadership of nurse managers with acute care nurses' perceptions of structural empowerment, self-rated performance, and job satisfaction.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> Nurses received a survey that included a letter of information about the study, a questionnaire, and a researcher addressed, stamped envelope to return the completed questionnaire. .</p> <p>Measures in the questionnaire included:</p> <ul style="list-style-type: none"> <li>• Authentic leadership - the Authentic Leadership Questionnaire (ALQ) (Avolio et al. 2007) was used to measure nurses' perception of manager authentic leadership. The ALQ is divided into four subscales, based on the four authentic components: relational transparency, balanced processing, self-awareness, and internalized moral perspective. Confirmatory factor analysis has supported the four dimensions of the ALQ (Walumbwa et al. 2008). Cronbach's alphas ranged from 0.70-0.90 (Walumbwa et al. 2008). On the survey, nurses were asked to rate their perceptions of their immediate manager, who was defined as the formal leader of the clinical unit where they worked the majority of their time.</li> <li>• Structural empowerment - measured using The</li> </ul>	<p><b>Sample population:</b> A sample size of at least 200 participants is recommended as sufficient for structural equation modelling. A random sample of 600 registered nurses (RNs) working in acute care teaching and community hospitals in Ontario was selected from the College of Nurses registry list.</p> <p><b>Sampling approach:</b> Random sampling</p> <p><b>Inclusion/exclusion criteria:</b> Inclusion criteria incorporated RNs employed full-time and part-time in staff direct care nursing positions. Nurses working in manager, charge, or educator positions were excluded.</p> <p><b>Number and characteristics of participants:</b> A final sample of 280. The average age of nurses in the sample was 43.4 years with 18.9 years' experience in nursing and an average of 8.6 years tenure in their respective work unit. Nurses worked primarily full time (65.6%) in medical/surgical or critical care units (37.3%</p>	<p><b>Description of analysis method:</b> Descriptive statistics, reliability estimates, and Pearson correlations were computed for all study variables. The hypothesized structural model was tested using structural equation modelling. Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables. Maximum likelihood (ML) estimation, which assumes multivariate normal data and a sample size of 200 cases. Several fit indices were used to evaluate fit of the model: the chi-square (<math>\chi^2</math>) and significance (p), the chi-square/degrees of freedom ratio (<math>\chi^2/d.f.</math>), and incremental fit indices such as the comparative fit index (CFI), the incremental fit index (IFI), and the root mean square error of approximation (RMSEA). The generally agreed-on critical value for the CFI and IFI is 0.90 or higher (Kline 2005). Low values (between 0.0-0.06) for RMSEA indicate a good fitting model.</p> <p><b>Key findings relevant to the review:</b> The initial <math>\chi^2</math> for the model was 11.58 (d.f. = 3, P = 0.009), <math>\chi^2/d.f.</math> = 3.86, CFI = 0.94, IFI = 0.95, and RMSEA = 0.10. The statistically significant P value indicated sizeable inconsistencies between</p>	<p><b>Limitations identified by author:</b> The cross-sectional design.</p> <p><b>Limitations identified by review team:</b> Relatively small response rate may have caused nurses who perceived their supervisor in positive light to respond more often than those who had more negative experiences causing response bias.</p> <p><b>Evidence gaps/recommendations for future research:</b> Longitudinal designs examining authentic leadership in managers and how they develop relationships with their staff over time should be considered for future research. Exploration of other mediators of the nurses performance and the relationship between authentic leadership and work outcomes such as positive psychological capital and psychological</p>

	<p>Conditions of Work Effectiveness Questionnaire II (CWEQ-II) (Laschinger et al. 2001). This scale consisted of 19 items that measure six components of structural empowerment: access to opportunity, information, support, resources, formal power, and informal power. All items were measured on a five-point Likert scale ranging from 1 ('none')-5 ('a lot')..</p> <ul style="list-style-type: none"> <li>• Job satisfaction -the 6-item Global Job Satisfaction Survey (Quinn &amp; Shepard 1974) was used to measure job satisfaction. The items measure an employee's general affective reaction to his or her job without reference to any specific facets. Responses were rated on a five-point Likert-type scale (5 = more satisfied) and the anchors vary by item.</li> <li>• Performance - measured using an 8-item General Performance scale developed by Roe et al. (2000), a composite of a task- and role-performance measure and is an indirect measure that captures a person's self-appraisal of the comparison of his/her performance with the performance of others with similar task and roles.. Alpha coefficients for the composite measure ranged between 0.72-0.80.</li> </ul> <p><b>Dates:</b> Over four months in late 2008</p>	<p>and 22.1%, respectively). Most were diploma prepared (69.5%) and the majority of respondents (54%) worked in teaching hospitals.</p> <p><b>Response rate / Representativeness of sample (if survey)</b> 48% of response rate. Demographic characteristics of the final sample were similar to the overall population of Ontario nurses (CNO 2008).</p>	<p>the model and the covariance data. All path estimates in the final model were statistically significant (<math>P &lt; 0.01</math>) and in the hypothesized direction.</p> <p>Structural empowerment mediated the relationship between authentic leadership and job satisfaction and performance. Authentic leadership had a statistically significant positive direct effect (<math>b = 0.46</math>, <math>P &lt; 0.01</math>) on structural empowerment, which in turn had a statistically significant direct effect on job satisfaction (<math>b = 0.41</math>, <math>P &lt; 0.01</math>) and on performance (<math>b = 0.17</math>, <math>P &lt; 0.01</math>).</p> <p>In addition, authentic leadership had a statistically significant positive direct (<math>b = 0.16</math>, <math>P &lt; 0.01</math>) and an indirect effect on job satisfaction through empowerment (<math>b = 0.19</math>, <math>P &lt; 0.01</math>). Authentic leadership also had a small positive and statistically significant indirect effect on performance through empowerment (<math>b = 0.08</math>, <math>P &lt; 0.01</math>). Sobel tests confirmed statistically significant mediation effects of empowerment on both job satisfaction (<math>z = 2.61</math>, <math>P &lt; 0.01</math>) and performance (<math>z = 2.65</math>, <math>P &lt; 0.01</math>).</p>	<p>empowerment should also be considered in future research. Testing the authentic leadership model in nurses in other healthcare settings and work roles is important to expanding generalisability of authentic leadership theory in health care.</p> <p><b>Source of funding:</b> The University of Western Ontario, Academic Development Fund New Research and Scholarly Initiative Awards competition.</p>
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## Zampetakis and Moustakis (2011)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Leonidas A. Zampetakis Vassilis Moustakis</p> <p><b>Year of publication:</b> 2011</p> <p><b>Citation:</b> Managers' Trait Emotional Intelligence and Group Outcomes: The Case of Group Job Satisfaction <i>Small Group Research</i> 2011 42: 77 DOI: 10.1177/1046496410373627</p> <p><b>Quality rating:</b> -</p>	<p><b>Setting(s):</b> Managers and their members in public and quasi-public Organisations in Crete, Greece</p> <p><b>Research aims/questions:</b> The purpose of the study was to extend the emerging literature on the effects of managers' emotional skills on group outcomes. Specifically, the authors propose and test a theoretical model that examines impact of managers' trait emotional intelligence (EI) on group job satisfaction.</p> <p><b>Overall research approach:</b> Cross-sectional survey</p> <p><b>Data collection method:</b> Fifty-one managers from 11 organisations completed the questionnaire and returned it by mail to the first author. Three weeks later, we visited the managers in the 11 organisations. Managers' team members were informed that they were participating in a voluntary study on organisation effectiveness. Questionnaires were personally distributed by the first author. The questionnaires assessed managers' perceived EI and individual JS along with demographic variables. On completion of the survey, employees deposited their responses in a sealed container on-site.</p> <p><b>Measures:</b> All the main constructs included in the analysis were assessed with self-report measures based on multi-item scales. Responses to all items were made on 7-point Likert-type scales (1 = <i>strongly disagree</i>, 7 =</p>	<p><b>Sample population:</b> A letter was sent to 160 randomly selected managers from a total population of 25 public and quasi-public organisations located on the island of Crete, Greece. The population of organisations contacted consisted of local health care hospitals (n = 4), prefectures (n = 4), public water companies (n = 6), universities (n = 3), research institutions (n = 3), and higher education (n = 5). The letter explained the purpose of the survey, as a study on organisational effectiveness, and was accompanied by a questionnaire assessing managers' EI together with demographic variables. Managers were informed that their immediate team members should also participate in the study in the near future, and permission was requested for team members to complete a questionnaire during working hours.</p> <p><b>Sampling approach:</b> Random sampling</p> <p><b>Inclusion/exclusion criteria:</b> None reported</p> <p><b>Number and characteristics of participants:</b> The managers in the sample included 37 men (72.5%) and 14 women (27.5%). The managers had</p>	<p><b>Description of analysis method:</b> Prior to testing the proposed model and the associated hypotheses, confirmatory factor analyses were conducted to demonstrate the construct validity of the managers' and team members' variables. Analysis of Moment Structures (AMOS version 7.0) software was used. A Bayesian Approach was chosen to estimate confirmatory factor analysis of managers' and individual team members' measurement models along with Markov chain Monte Carlo (MCMC) for model fit.</p> <p><b>Key findings relevant to the review:</b> Managers' trait EI (emotional intelligence) was not significantly related to group JS (job satisfaction) (<math>r = .13, p = .38</math>), providing support for the notion that the impact of managers' trait EI on group JS is more appropriate to be considered distal than proximal. Managers' trait EI correlated positively with group evaluative judgment of managers' trait EI (<math>r = .51, p = .002</math>), and group evaluative judgment of managers' trait EI correlated positively with group JS (<math>r = .39, p = .012</math>). Thus, results provided support for</p>	<p><b>Limitations identified by author:</b> Composite trait EI scale for analysis was created. The problem with the approach are that it neglects the individual influence of each dimension and assumes a universal and uniform influence by each dimension. The small sample size and the low response rate in the present study calls into question the generalisability of the present findings.</p> <p><b>Limitations identified by review team:</b> None in addition to those identified by the team</p> <p><b>Evidence gaps/recommendations for future research:</b> In the present study, used aggregated group</p>

	<p><i>strongly agree</i>). Native speakers translated all the items into the Greek language.</p> <p><b>Manager emotional intelligence.</b> - the measure was based on the Wong and Law Emotional Intelligence Scale WLEIS (Wong &amp; Law, 2002). The WLEIS is a 16-item measure that conceptually adheres to the ability model but assesses the four EI capabilities in a self-reported fashion. The WLEIS measures perception of own (self-emotional appraisal-SEA) and others' emotions (others' emotional appraisal-OEA), regulation of emotions (ROE), and utilization of emotions (UOE). Cronbach's <math>\alpha</math> reliabilities for SEA, OEA, ROE, and UOE were .78 (four items), .76 (four items), .76 (four items), .71 (four items), respectively.</p> <p><b>Group evaluative judgment of managers' trait EI.</b> - the same four subscales of the WLEIS construct for team members was used, but the wording of the items referred to their immediate manager. Cronbach's <math>\alpha</math> reliabilities for perceived SEA, OEA, ROE, and UOE were .84 (four items), .87 (four items), .71 (four items), and .88 (four items), respectively.</p> <p><b>Subordinates' job satisfaction.</b> - 18-item Job Satisfaction Index (JSI) (Brayfield &amp; Rothe, 1951) was used, consisting of 18 items measuring JS. Example of sample items are: 'I feel fairly satisfied with this job' and 'Each day at work seems like it will never end' (reverse scored). Cronbach's reliability coefficient for all 18 items was .89.</p> <p><b>Dates:</b> Not reported</p>	<p>been employed at their current management position for an average of 10.39 years (SD = 7.1), their mean age was 45.63 years (SD = 7.5); almost 60% had a university degree. These managers were leaders of formal teams of individuals that were collectively in charge of the achievement of one or several task. There were a total of 158 team members in this study, with 3.06 subordinates on average per manager (SD = 1.35).</p> <p>Across the sample of 51 teams, 15 teams had 2 members, 22 had 3 members, 8 had 4 members and 6 had 5 members. The sample of participating team members included 73 males and 85 females aged 18 to 60 years (M = 35.11 years, SD = 8.4). The average organisation tenure was 7.59 years (SD = 7.2) and 52.5% of the respondents had a university degree. The average time working with their immediate manager was 3.2 years (SD = 4.01).</p> <p><b>Response rate / Representativeness of sample (if survey)</b> 31.8.% of managers and 44% of organisations responded, 100% subordinates responded. No indication of representativeness of the sample was given.</p>	<p>support for Hypotheses 1, 2, and 3. Additionally, results indicated that managers' tenure correlates positively with group evaluative judgment (<math>r = .30</math>, <math>p = .038</math>). None of the group diversity indexes was significantly correlated, with either managers' self-reported EI or group evaluative judgment of managers' trait EI. The complete mediation model postulated that the effects of managers' trait EI on group JS were completely mediated by group evaluative judgment of managers' trait EI. The standardized direct effect of managers' EI group evaluative judgment of managers' trait EI was .49 (95% credible interval: 0.23, 0.68); the direct effect of group evaluative judgment on group JS was 0.39 (95% credible interval: 0.12, 0.62). In sum, the standardized total effect of trait EI on group JS was 0.19 (95% credible interval: 0.046, 0.36). The proportion of variance in group evaluative judgment of managers' trait EI and group JS explained by the collective set of predictors was 26% and 19%, respectively.</p>	<p>members' individual JS ratings were used. It is likely that additional variance could be explained if future research used a measure that assess group JS directly.</p> <p>Furthermore, future research should consider explicitly the construct of group evaluative judgment of managers' trait EI.</p> <p><b>Source of funding:</b> The Greek State Scholarship Foundation (for post-doctoral study)</p>
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## Zineldin M and Hytter A (2012)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Zineldin, M and Hytter, A</p> <p><b>Year of publication:</b> (2012)</p> <p><b>Citation:</b> Zineldin, M and Hytter, A (2012). Leaders' negative emotions and leadership styles influencing subordinates' well-being. <i>The International Journal of Human Resource Management</i>, 23, 748-758.</p> <p><b>Quality rating:</b> -</p>	<p><b>Research questions:</b> The aim of the study is to investigate the relationship between transformational, transactional and laissez-faire leadership styles, and leaders' negative emotions perceived by the subordinates. The aim is also to investigate the influence of leadership styles on the subordinates' over psychological health and well-being.</p> <p><b>Research approach:</b> Cross-sectional survey</p> <p><b>Data collection:</b> Questionnaires were sent to the leaders directly to the 20 respondents. Administration of the questionnaires was completed within a period of 8 weeks.</p> <p><b>Method(s):</b> The current dean of the university contacted the three previous deans, of which one refused to participate. Questionnaire was revised slightly as a result of a pilot investigation.</p> <p>To answer the research questions and hypotheses, two different instruments were used:</p> <p>MLQ, leadership items: Well-developed scale (Bass et al, 2000). 21 descriptive statements were listed. Respondents were asked to judge how each of the four leaders according to their opinion (n=48). Responses measured with a 5 point Likert scale (0=Not at all to 4=frequently if not always). Each leadership sub-style was</p>	<p><b>Sample population:</b> 742 people had worked at the faculty between 1995-2007. 50 faculty members were identified to have worked there the entire period, out of which 30 were academics. Out of these 30, 20 accepted to participate in the study. Twelve complete surveys, that is with responses for all 4 leaders over the studied period were handed in, thus resulting in a possibility to perform that analyses with n=48.</p> <p><b>Sampling approach:</b> Purposive sampling</p> <p><b>Inclusion/exclusion criteria:</b> Not Reported</p> <p><b>Number and characteristics of participants:</b> Questionnaires were sent to the 20 participants. 14 questionnaires were returned, out of which</p>	<p><b>Brief description of method and process of analysis:</b> Data were analysed in SPSS. Scales Cronbach alpha's were measured. Various regression analyses were used to determine the relation between dependent and independent variables. B were used to determine each variable's contribution to explaining the dependent variable.</p> <p><b>Key findings relevant to the review:</b> Leadership style and negative emotions: The regression model with the total sum of the 7 negative emotions as the dependent variable and the leadership sub-styles as independent variables explained 20% of the variance in total negative emotions. Idealised influence behaviour made the strongest contribution, so if a high idealised leader explains low negative emotions (<math>\beta=-0.30</math>, <math>p&lt;0.02</math>). This was the only factor significant at the 5% level. Although with lower levels of significance (approaching 10%), three other factors made some contribution to the understanding of leadership styles and negative emotions. Individual consideration (<math>\beta=-0.22</math>, <math>p&lt;0.07</math>) indicated that the more IC from a leader, less negative emotions experienced. The more contingent rewards experienced, the less negative emotions from employees (<math>\beta=-0.22</math>, <math>p&lt;0.08</math>) and the more inspirational a leader is, the less</p>	<p><b>Limitations identified by author:</b> Study took place in an academic context with highly educated professionals as respondents. There are indications that contextual factors could have influenced the result. A limitation is the subjective measurement of employees' overall psychological health and well-being.</p> <p>Study's design involuntarily became one of common source - having the same rater for both the dependent and independent variables. Study was cross-sectional, inhibiting the possibility to report on causality. Study did not empirically examine to which degree a leader's emotions were actually translated into a positive or negative working place climate.</p> <p><b>Limitations identified by review team:</b> Small sample size Academic leadership may not be generalizable to other organisations/ workplaces.</p> <p><b>Evidence</b></p>

	<p>measured through 3 items, thus the possible score per subtype varied between 0 and 12. (Cronbach alpha's suitable for all subscales).</p> <p><b>Well-Being:</b> Overall psychological health and well-being were measured by a subjective self-reporting item as part of the MLQ. A 5-point Likert scale (0=very bad to 4=Much better) was used.</p> <p><b>Emotion item scales:</b> A self-designed emotional scales questionnaire was adapted based on PANAS (Watson et al., 1988). The instrument provides two sets of 20 different items. The negative set included emotions such as stress, tense, jealous and regretful. The positive set included emotions such as cheerful, happy, relaxed and hopeful. Respondents were asked to describe each leaders' overall emotion status on a 5 point Likert scale, ranging from 0=not at all, to 4=frequently. In this report that hypotheses focus only on the negative emotions, Based on the Cronbach alpha, 4 negative items were deleted, thus the negative emotions scale consisted of angry, depressed, miserable, regretful, sad, tense, uneasy and worried. The Cronbach's alpha for this is <math>\alpha=.74</math>.</p> <p><b>Setting(s):</b> A faculty of a Western European University.</p> <p><b>Dates:</b> Not reported</p>	<p>two were blank. 12 respondents provided complete usable questionnaires for all four deans.</p> <p>Participant characteristics were not reported.</p> <p><b>Response rate (if relevant):</b> See above.</p>	<p>negative emotions expressed as evaluated by the subordinates is reported (<math>\beta=-0.18</math>, <math>p&lt;0.10</math>).</p> <p>Leadership style and subordinates overall well-being:</p> <p>Transformational and transactional leadership styles are positively related and Laissez-faire leadership is negatively related to overall well-being. The regression model explained 36% of the variance, so the dependent variable of subordinates well-being is to some extent influenced by the factors measured. 3 leadership styles were significant: Intellectual stimulation (<math>\beta=-0.47</math>, <math>p&lt;0.02</math>), management by exception (<math>\beta=-0.35</math>, <math>p&lt;0.03</math>) and individual consideration, (<math>\beta=0.43</math>, <math>p&lt;0.05</math>).</p>	<p><b>gaps/recommendations for future research:</b> A comparative study of negative emotions and leadership styles in different contexts would be interesting.</p> <p>Future research could benefit from examining the relationship between emotions and overall psychological health and well-being by defining and using objective outcome variables.</p> <p>Repeating the study with a time series design is of interest.</p> <p>Future research could measure leadership styles and emotions as well as the positive-negative emotional climate itself.</p> <p><b>Source of funding:</b> Not Reported.</p>
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## Zori et al. (2010)

Study Details	Research parameters	Population and sample selection	Outcomes and methods of analysis and results	Notes by review team
<p><b>Authors:</b> Zori, S., Nosek, L.J. and Musil, C.M.</p> <p><b>Year of publication:</b> 2012</p> <p><b>Citation:</b> Zori, S., Nosek, L.J. and Musil, C.M. (2010). Critical thinking of nurse managers related to staff RN's perceptions of the practice Environment. <i>Journal of Nursing Scholarship</i>, 42, 305-313.</p>	<p><b>Research questions:</b> Is there a difference between nurse managers' critical thinking dispositions and their respective staff nurses' perceptions of the practice environment?</p> <p><b>Research approach:</b> Descriptive study</p> <p><b>Data collection:</b> Individually addressed packets containing the invitation to participate, demographic and PES surveys, and a sealable return envelope were delivered to each participating unit for distribution to the selected staff RNs. The completed surveys were returned to secured ballot boxes placed throughout the hospital for a 2-week period.</p> <p><b>Method(s):</b> Nurse managers were categorised as weak or strong in critical thinking dispositions based on scores on the California Critical Thinking Disposition Inventory (CCTDI). Staff RNs from the units of participating nurse managers completed the Practice Environment Scale (PES). CCTDI - tool developed to measure the disposition or attitudes toward critical thinking. Each of the 75 items on the CCTDI targets one of the seven critical thinking dispositions and is scored using a continuous 6 point Likert scale from 1 (disagree strongly) to 6 (agree strongly); a lower score of 1,2 or 3 indicates weakness while a higher score (4,5,6) indicates strength in the targeted disposition. The specific</p>	<p><b>Sample population:</b> 38 managers were considered eligible to participate and as a result of a power calculation, 327 (79%) of the 467 RNs were invited to participate to ensure the required number of surveys were obtained for analysis.</p> <p><b>Sampling approach:</b> Convenience sample of nurse managers and a random sample of their respective staff registered nurses.</p> <p><b>Inclusion/exclusion criteria:</b> For nurse managers: had to have had at least 6 months in their current position, and the ability to read and write English. For registered nurses: inclusion criteria were full-or-part time employment for at least 6 months on a patient care unit whose nurse manager had participated in the study and the ability to read and write English.</p> <p><b>Number and characteristics of participants:</b> Nurse managers: a total of 16 nurse managers completed the survey, 4 surveys submitted had missing data and 22 nurse managers did not submit completed data in the 2 week data collection time frame. Nurse managers were predominantly female (91.7%), Caucasian (83.3%) and highest degree held was a bachelor of science in nursing (BSN) degree (59%). The age of the nurse managers ranged from 28 to 60 years, with a mean of 47.33 years. Total number of nurse manager experience ranged from 1 to 27 years, with a mean of 11.3 years and time in current nurse</p>	<p><b>Brief description of method and process of analysis:</b> A two tailed independent sample t-test was conducted to determine if there were significant differences in PES mean overall and subscale scores of the two groups of staff RN's.</p> <p><b>Key findings relevant to the review:</b> Significant (<math>p &lt; .001</math>) differences were found between specific nurse managers' CCTDI scores for open-mindedness, analyticity, and critical thinking, confidence, and significant differences (<math>p &lt; .01</math>) were found for systematicity when compared with their respective staff RN's mean subscale and overall PES scores. There were significant differences in staff RN's PES subscale and overall scores for 5 dimensions of the practice environment (participation in hospital affairs, staffing and resource adequacy, nursing foundations for quality care,</p>	<p><b>Limitations identified by author:</b> Ability to generalise these findings are limited in several ways: The study was conducted in a single tertiary medical centre in the north eastern United States and may not be representative of the entire population of nurse managers and their respective staff nurses. Only those nurse managers who voluntarily chose to answer the CCTDI were included in the study. The limited nurse manager response, in turn limited the inclusion of staff RNs to only those whose nurse manager chose to participate in the study. The random sample size for nurse managers and staff limits the ability to generalise the findings to a broader population. Variables that may influence staff RNs' perceptions of the practice environment is the type of patient care unit worked on and full-time or part-time work status were not examined in this study. Small sample size limited the</p>

<p><b>Quality rating:</b> -</p>	<p>disposition subscale score is a sum of the total points across all the items on the particular subscale, and the subscales are summed to yield an overall scale score. Subscale scores of 40 and above indicate strength in the disposition and 39 and below indicate weakness. The overall Cronbach alpha was 0.90, and is considered a reliable tool to measure critical thinking dispositions.</p> <p>PES - practice environment was measured by the Practice Environment Scale (PES), a tool designed to examine nurses' job satisfaction. Includes 31 items grouped into 5 subscales (nurse participation in hospital affairs <math>\alpha=.83</math>, nursing foundations for quality of care <math>\alpha=.77</math>, nurse manager ability, leadership and support of nurses <math>\alpha=.91</math>, staffing and resource adequacy <math>\alpha=.84</math> and collegial nurse-physician relations <math>\alpha=.83</math>). Items are scored on a 4-point Likert scale of 4 (strongly agree) to 1 (strongly disagree). Subscales of 2.5 and above indicate agreement with the item, and 2.4 and below indicate a disagreement with the item. Individual subscale scores are calculated as a mean score, and the overall score in a mean calculated from the five subscale scores. This was considered a reliable tool to measure the practice environment.</p> <p><b>Setting(s):</b> The study was conducted at a 490 bed voluntary, non-profit tertiary care hospital located in the north eastern United States.</p> <p><b>Dates:</b> Not reported.</p>	<p>manager position ranged from 1 to 27 years with a mean of 10.42 years. The types of patient care units for which the nurse managers were responsible were two (15%) medical-surgical; three (23%) critical care, 1 (8%) emergency department, 1 (8%) PACU; one (8%) labour and delivery; 1 (8%) post-partum-nursery; two (15%) cardiac procedures; and two (15%) ambulatory procedure areas, including chemotherapy and infusion and dialysis.</p> <p>The demographic profile of the staff RNs in the study was similar to that of the nurse managers in age, gender and education. Staff RN's were predominantly women (95.5%) and held a BSN (61%). More of the staff RNs had an associate degree (26%) than did the nurse managers (8%). The average age of the staff nurse respondents was 41.39 years, with an average of 15.8 years of RN experience and an average of 8.05 years in their current position. The ethnicity of the staff nurses differed to that of the nurse managers: 60% of staff RNs and 84% of nurse managers were Caucasian. This reflects that the staff nurses were more diverse in ethnicity than managers. The demographic data of the nurse managers and the staff nurses used in this study were similar to the overall population of nurses employed in this setting.</p> <p><b>Response rate (if relevant):</b> Final sample of nurse managers was 31.6% 132 of 327 RNs responded: 44%</p>	<p>nurse manager ability and support and collegial nurse-physician collaboration) with regard to nurse-managers' scores on 4 subscales (analyticity, systematicity, open-mindedness and critical thinking confidence) of the CCTDI. Staff PES scores were consistently higher when the nurse managers showed a positive disposition in these 4 critical thinking domains. The only significant difference between nurses working for managers with strength versus weakness on the truth-seeking scale was the nurse-physician relationship. There was a statistically significant positive relationship between nurse managers' critical thinking dispositions and their respective staff RN's perceptions of the practice environment as measured by PES scores.</p>	<p>ability to address how the difference in type of unit may influence the staff RNs perceptions of the practice environment.</p> <p><b>Evidence gaps/recommendations for future research:</b> Replication of study with a larger sample would be useful in further exploring the impact that nurse managers with strength in critical thinking many have on RNs' perceptions of the practice environment. Explore how critical thinking strength of staff RNs may influence their perceptions of the practice environment. Strategies to strengthen critical thinking in nurse managers may likewise be used with staff RNs, and perhaps strengthening critical thinking skills in staff RNs might also improve their clinical practice and job satisfaction and provide a useful avenue for future research.</p> <p><b>Source of funding:</b> Not reported</p>
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## Appendix 2: Sample search strategies

### MEDLINE

1996 to present - OVID SP - 19 October 2013

Set number	Search term	Number of hits
1	exp Workplace/	11927
2	workplace.ti,ab	15016
3	worksite.mp.	1238
4	("work place*" or "work site*" or "work location*" or "work setting*").ti,ab	2485
5	((job* or employment) adj2 (place* or site* or setting* or location*)).ti,ab	592
6	(office* or factory or factories or shop* or business*).ti,ab	56948
7	(company or companies).ti,ab	25150
8	(worker* or employee* or staff*). ti,ab	141756
9	exp Employment/	33888
10	exp Work/	6463
11	employer*. ti,ab	8290
12	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11	245392
13	("line manager*" or manager* or supervisor* ). ti,ab	25025
14	"Quality of Life"/ or "quality of life". ti,ab	145082
15	health/ or men's health/ or mental health/ or occupational health/ or women's health/	55742

16	exp Job Satisfaction/	12574
17	(well-being or well-being or "well being" or wellness). ti,ab	34165
18	happiness/	1937
19	((mental or physical or general) adj1 health). ti,ab	65109
20	((employee* or staff) adj2 health). ti,ab	3444
21	((work or job) adj1 (contentment or happiness or fulfilment or engagement or satisfaction)). ti,ab	3776
22	14 or 15 or 16 or 17 or 18 or 19 or 20 or 21	279301
23	12 and 13 and 22	2827
24	limit 23 to (english language and yr="2000 -Current")	1998

Note: / means MESH term.

Note: ti, ab = title, abstract

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## ABI-Inform - from Proquest

SU.EXACT("Supervisors") OR SU.EXACT("Line managers") OR SU.EXACT("Middle management")

AND

SU.EXACT("Work environment") OR SU.EXACT("Occupational safety") OR  
 SU.EXACT("Occupational health") OR SU.EXACT("Occupational accidents") OR  
 SU.EXACT("Occupational diseases") OR SU.EXACT("Occupational psychology")

Limits:

English,

2000-2013

Source type

Books, Conference Papers & Proceedings, Reports, Scholarly Journals, Working Papers

102 hits

Repeated in Proquest Digital Dissertations, without the narrowing by source type :  
62 hits.

## Web of Science

presented in reverse order

#5 AND #1

Refined by: Languages=(ENGLISH) AND  
[excluding] Web of Science

Categories=(COMPUTER SCIENCE THEORY  
METHODS OR HOSPITALITY LEISURE SPORT  
TOURISM OR INFECTIOUS DISEASES OR CARDIAC  
CARDIOVASCULAR SYSTEMS OR ENGINEERING  
MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY  
OR MEDICAL INFORMATICS OR ONCOLOGY OR  
INSTRUMENTS INSTRUMENTATION OR  
PERIPHERAL VASCULAR DISEASE OR COMPUTER  
SCIENCE HARDWARE ARCHITECTURE OR  
ENGINEERING BIOMEDICAL OR AUTOMATION  
CONTROL SYSTEMS OR MATERIALS SCIENCE  
MULTIDISCIPLINARY OR OPTICS OR  
ORTHOPEDICS OR CLINICAL NEUROLOGY OR  
TELECOMMUNICATIONS OR AUDIOLOGY SPEECH  
LANGUAGE PATHOLOGY OR BIOLOGY OR  
PEDIATRICS OR PHARMACOLOGY PHARMACY OR  
COMPUTER SCIENCE CYBERNETICS OR  
COMPUTER SCIENCE SOFTWARE ENGINEERING  
OR FAMILY STUDIES OR COMPUTER SCIENCE  
INTERDISCIPLINARY APPLICATIONS OR  
EDUCATION SPECIAL OR DERMATOLOGY OR  
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EMERGENCY MEDICINE OR GENETICS HEREDITY  
OR CRIMINOLOGY PENOLOGY OR OBSTETRICS  
GYNECOLOGY OR NEUROSCIENCES OR  
PARASITOLOGY OR ENGINEERING ELECTRICAL  
ELECTRONIC OR PATHOLOGY OR  
GERONTOLOGY OR RHEUMATOLOGY OR  
COMPUTER SCIENCE INFORMATION SYSTEMS OR  
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HEPATOLOGY OR HISTORY PHILOSOPHY OF  
SCIENCE OR MEDICAL ETHICS OR MICROBIOLOGY  
OR OPHTHALMOLOGY OR RADIOLOGY NUCLEAR  
MEDICINE MEDICAL IMAGING OR ANDROLOGY OR  
ANESTHESIOLOGY OR HEMATOLOGY OR  
GEOSCIENCES MULTIDISCIPLINARY OR HISTORY  
OR DENTISTRY ORAL SURGERY MEDICINE OR  
UROLOGY NEPHROLOGY OR SURGERY OR  
BIOCHEMISTRY MOLECULAR BIOLOGY OR  
VIROLOGY) AND [excluding]

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[excluding] Countries/Territories=(KENYA OR

GHANA OR MALAWI OR NEPAL OR MALAYSIA OR  
TANZANIA OR RUSSIA OR INDIA OR SRI LANKA  
OR INDONESIA OR U ARAB EMIRATES OR  
VIETNAM OR SOUTH AFRICA OR PAKISTAN OR  
AFGHANISTAN OR PHILIPPINES OR BOTSWANA  
OR ARGENTINA OR BRUNEI OR CAMEROON OR  
BANGLADESH OR CONGO OR SAUDI ARABIA OR  
GAMBIA OR UGANDA OR GUYANA OR ETHIOPIA  
OR KUWAIT OR TAIWAN OR MOZAMBIQUE OR  
LEBANON OR BRAZIL OR NIGERIA OR  
MADAGASCAR OR NAMIBIA OR THAILAND OR  
NETH ANTILLES OR BENIN OR REP OF GEORGIA  
OR JORDAN OR RWANDA OR IRAN OR PERU OR  
SENEGAL OR SUDAN OR ZIMBABWE OR SYRIA OR  
SINGAPORE OR ZAIRE OR EGYPT OR ZAMBIA)  
*DocType=All document types; Language=All  
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#10

#5 AND #1

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METHODS OR HOSPITALITY LEISURE SPORT  
TOURISM OR INFECTIOUS DISEASES OR CARDIAC  
CARDIOVASCULAR SYSTEMS OR ENGINEERING  
MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY  
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INSTRUMENTS INSTRUMENTATION OR  
PERIPHERAL VASCULAR DISEASE OR COMPUTER  
SCIENCE HARDWARE ARCHITECTURE OR  
ENGINEERING BIOMEDICAL OR AUTOMATION  
CONTROL SYSTEMS OR MATERIALS SCIENCE  
MULTIDISCIPLINARY OR OPTICS OR  
ORTHOPEDICS OR CLINICAL NEUROLOGY OR  
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GASTROENTEROLOGY HEPATOLOGY OR HISTORY  
PHILOSOPHY OF SCIENCE OR MEDICAL ETHICS

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OR MICROBIOLOGY OR OPHTHALMOLOGY OR RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR ANDROLOGY OR ANESTHESIOLOGY OR HEMATOLOGY OR GEOSCIENCES MULTIDISCIPLINARY OR HISTORY OR DENTISTRY ORAL SURGERY MEDICINE OR UROLOGY NEPHROLOGY OR SURGERY OR BIOCHEMISTRY MOLECULAR BIOLOGY OR VIROLOGY) AND [excluding] Countries/Territories=(PEOPLES R CHINA)

*DocType=All document types; Language=All languages;*

#9

#5 AND #1

Refined by: Languages=(ENGLISH) AND [excluding] Web of Science

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 MOLECULAR BIOLOGY OR VIROLOGY)  
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<input type="checkbox"/>	S19	S17 OR S18	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S18	health OR well* OR happiness OR contentment	Search modes - Find any of my search terms	<a href="#">Rerun</a> <a href="#">View Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S17	DE "QUALITY of work life" OR DE "JOB satisfaction" OR DE "JOB enrichment" OR DE "JOB stress"	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S16	DE "SUPERVISORS" OR DE "COLLECTIVE bargaining -- Supervisors" OR DE "GANG bosses (Labor)" OR DE "INDUSTRIAL supervisors" OR DE "WOMEN supervisors" OR DE "MANAGING your boss" OR DE "MIDDLE managers" OR DE "SUPERIOR-subordinate relationship" OR DE "SUPERVISION of employees" OR DE "SUPERVISORS -- Employee rating of"	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S15	S5 AND S8 AND S14	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View Details</a> <a href="#">Edit</a>

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<input type="checkbox"/>	S12	AB (work OR job) N2 (contentment OR happiness OR fulfilment OR engagement OR satisfaction OR well*)	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S11	((DE "Job Satisfaction") OR (DE "Happiness")) OR (DE "Employee Engagement")	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S10	(DE "Well Being") OR (MM "Health" OR MM "Holistic Health" OR MM "Mental Health" OR MM "Occupational Health" OR MM "Physical Health" OR MM "Public Health" )	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S9	DE "Quality of Life" OR "quality of life"	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S8	S6 OR S7	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S7	TI ( ("line manager*" or manager* or Supervisor* or foreman or foremen) ) OR AB ( ("line manager*" or manager* or Supervisor* or foreman or foremen) )	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S6	DE "Middle Level Managers" OR DE "Industrial Foremen"	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S5	S1 OR S2 OR S3 OR S4	Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S4	TI ( staff* OR employ* ) OR AB ( staff* OR employ* )	Limiters - Publication Year: 2000- 2013; English Search modes - Find all my	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>

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<input type="checkbox"/>	S3	TI ( (company OR companies) ) OR AB ( (company OR companies) )	search terms Limiters - Publication Year: 2000- 2013; English Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S2	TI ( (office* OR factory OR factories OR shop* OR business*) ) OR AB ( (office* OR factory OR factories OR shop* OR business*) )	Limiters - Publication Year: 2000- 2013; English Search modes - Find all my search terms	<a href="#">Rerun</a> <a href="#">View</a> <a href="#">Details</a> <a href="#">Edit</a>
<input type="checkbox"/>	S1	TI ( work* OR job* OR employment* ) OR AB ( work* OR job* OR employment* )	Limiters - Publication Year: 2000- 2013; English Search modes - Find all my search terms	

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## Appendix 3: Inclusion and quality checklists

### Inclusion/exclusion checklist

#### Population

Does the study population include:

adults over age 16?

in full or part-time employment, paid or unpaid?

who work for an organisation with at least one employee?

Yes	No

No > exclude

No > exclude

No > exclude

#### Setting

Is the study exclusively set in:

OECD countries?

the workplace?

Yes	No

No > exclude

No > exclude

#### Publication data

Is the study published before 2009

Yes	No

Yes > exclude

## Relevance

Does the study examine:

the influence of line managers' actions on the health and well-being of the people they manage?

the influence of organisational culture and/or workplace practices on how line managers influence the health and well-being of their employees?

Yes	No

No to both > exclude

Does the study focus on:

specific policies practices or interventions to promote physical activity, mental well-being and smoking cessation in the workplace, and to manage sickness absence and the return to work of those who have been on long-term sick leave?

intervention or support that employees accesses on their own, without input from the employer, organisation or line manager?

statutory provision to employees?

Yes	No

Yes > exclude

Yes > exclude

Yes > exclude

## Outcomes

Does the study include an explicit measure(s) of employee health and well-being outcomes?

Yes	No

No > exclude

## Quality

If the study is a survey, does the response

Yes	No

No t> exclude

rate exceed 25%?

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**Other information**

Is the study a dissertation

Yes	No

Yes >

exclude

Is the study a book?

Is the study set in:

USA?

UK?

Europe?

Other OECD?

No particular location?

Yes	No

## Quality Appraisal Checklist

<b>Study identification:</b> (Include full citation details)		
<b>Study design:</b> Refer to the glossary of study designs and the algorithm for classifying experimental and observational study designs to best describe the paper's underpinning study design		
<b>Guidance topic:</b>		
<b>Assessed by:</b>		
<b>Section 1: Population</b>		
<b>1.1 Is the source population or source area well described?</b> Was the country (eg developed or non-developed, type of health care system), setting (primary schools, community centres etc.), location (urban, rural), population demographics etc. adequately described?	++ + - NR NA	Comments:
<b>1.2 Is the eligible population or area representative of the source population or area?</b> Was the recruitment of individuals, clusters or areas well defined (eg advertisement, birth register)? Was the eligible population representative of the source? Were important groups under-represented?	++ + - NR NA	Comments:

<p><b>1.3 Do the selected participants or areas represent the eligible population or area?</b></p> <p>Was the method of selection of participants from the eligible population well described?</p> <p>What % of selected individuals or clusters agreed to participate? Were there any sources of bias?</p> <p>Were the inclusion or exclusion criteria explicit and appropriate?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>
<p><b>Section 2: Method of selection of exposure (or comparison) group</b></p>		
<p><b>2.1 Selection of exposure (and comparison) group. How was selection bias minimised?</b></p> <p>How was selection bias minimised?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>
<p><b>2.2 Was the selection of explanatory variables based on a sound theoretical basis?</b></p> <p>How sound was the theoretical basis for selecting the explanatory variables?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>
<p><b>2.3 Was the contamination acceptably low?</b></p> <p>Did any in the comparison group receive the exposure?</p> <p>If so, was it sufficient to cause important bias?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>
<p><b>2.4 How well were likely confounding factors identified and controlled?</b></p> <p>Were there likely to be other confounding factors not considered or appropriately adjusted for?</p> <p>Was this sufficient to cause important bias?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>

<p><b>2.5 Is the setting applicable to the UK?</b></p> <p>Did the setting differ significantly from the UK?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>Section 3: Outcomes</b></p>		
<p><b>3.1 Were outcome measures reliable?</b></p> <p>Were outcome measures subjective or objective (eg biochemically validated nicotine levels ++ vs self-reported smoking -)?</p> <p>How reliable were outcome measures (eg inter- or intra-rater reliability scores)?</p> <p>Was there any indication that measures had been validated (eg validated against a gold standard measure or assessed for content validity)?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>3.2 Were the outcome measurements complete?</b></p> <p>Were all or most of the study participants who met the defined study outcome definitions likely to have been identified?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>3.3 Were all important outcomes assessed?</b></p> <p>Were all important benefits and harms assessed?</p> <p>Was it possible to determine the overall balance of benefits and harms of the intervention versus comparison?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>

<p><b>3.4 Was there a similar follow-up time in exposure and comparison groups?</b></p> <p>If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison.</p> <p>Analyses can be adjusted to allow for differences in length of follow-up (eg using person-years).</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>3.5 Was follow-up time meaningful?</b></p> <p>Was follow-up long enough to assess long-term benefits and harms?</p> <p>Was it too long, eg participants lost to follow-up?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>Section 4: Analyses</b></p>		
<p><b>4.1 Was the study sufficiently powered to detect an intervention effect (if one exists)?</b></p> <p>A power of 0.8 (ie it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard.</p> <p>Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>4.2 Were multiple explanatory variables considered in the analyses?</b></p> <p>Were there sufficient explanatory variables considered in the analysis?</p>	<p>++ + - NR NA</p>	<p>Comments:</p>
<p><b>4.3 Were the analytical methods appropriate?</b></p> <p>Were important differences in follow-up time and likely confounders adjusted for?</p>	<p>++ + - NR</p>	<p>Comments:</p>

	NA	
<p><b>4.4 Was the precision of association given or calculable? Is association meaningful?</b></p> <p>Were confidence intervals or p values for effect estimates given or possible to calculate?</p> <p>Were CIs wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered?</p>	<p>++</p> <p>+</p> <p>-</p> <p>NR</p> <p>NA</p>	<p>Comments:</p>
<p><b>Section 5: Summary</b></p>		
<p><b>5.1 Are the study results internally valid (ie unbiased)?</b></p> <p>How well did the study minimise sources of bias (ie adjusting for potential confounders)?</p> <p>Were there significant flaws in the study design?</p>	<p>++</p> <p>+</p> <p>-</p>	<p>Comments:</p>
<p><b>5.2 Are the findings generalisable to the source population (ie externally valid)?</b></p> <p>Are there sufficient details given about the study to determine if the findings are generalisable to the source population?</p> <p>Consider: participants, interventions and comparisons, outcomes, resource and policy implications.</p>	<p>++</p> <p>+</p> <p>-</p>	<p>Comments:</p>

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## Appendix 5: Bibliography of excluded studies with reasons for exclusion

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### Exclude reason: Date

*Study published prior to 2009*

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*Not fully set in an OECD country.*

E. M. Ajala (2013) Quality of Work Life and Workers Well-being: The Industrial Social Workers Approach, IFE Psychologia

H. Y. Chang, C. I. Teng, T. L. Chu, H. T. Chang and W. H. Hsu (DATE) Impact of nurse agreeableness and negative mood of nursing supervisors on intention to help colleagues, Journal of Advanced Nursing

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