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ScHARR School of Health and Related Research
Public Health Collaborating Centre

# Prevention of type 2 diabetes: Interventions to reduce risk factors for pre-diabetes among UK adults from black and minority ethnic groups.

Preventing type 2 diabetes in adults from black and minority ethnic groups.

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## *About the ScHARR Public Health Collaborating Centre*

The School of Health and Related Research (ScHARR), in the Faculty of Medicine, Dentistry and Health, University of Sheffield, is a multidisciplinary research-led academic department with established strengths in health technology assessment, health services research, public health, medical statistics, information science, health economics, operational research and mathematical modelling, and qualitative research methods. It has close links with the NHS locally and nationally and an extensive programme of undergraduate and postgraduate teaching, with Masters courses in public health, health services research, health economics and decision modelling.

ScHARR is one of the two Public Health Collaborating Centres for the Centre for Public Health Excellence (CPHE) in the National Institute for Health and Clinical Excellence (NICE) established in May 2008. The Public Health Collaborating Centres work closely with colleagues in the Centre for Public Health Excellence to produce evidence reviews, economic appraisals, systematic reviews and other evidence based products to support the development of guidance by the public health advisory committees of NICE (the Public Health Interventions Advisory Committee (PHIAC) and Programme Development Groups).

## *Contribution of Authors*

Maxine Johnson was the systematic review lead. Emma Everson-Hock, Roy Jones and Sue Baxter were reviewers on the project. Louise Guillaume and Helen Buckley Woods developed and undertook literature searches. Nick Payne and Jim Chilcott were the senior leads. Elizabeth Goyder was the topic expert.

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This report was commissioned by the Centre for Public Health Excellence of behalf of the National Institute for Health and Clinical Excellence. The views expressed in the report are those of the authors and not necessarily those of the Centre for Public Health Excellence or the National Institute for Health and Clinical Excellence. The final report and any errors remain the responsibility of the University of Sheffield. Elizabeth Goyder and Jim Chilcott are guarantors.

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# 1. LIST OF ABBREVIATIONS

| | |
|---|---|
| BME | Black and Minority Ethnic groups |
| BMI | Body Mass Index |
| CHD | Coronary Heart Disease |
| CI | Confidence Interval |
| DH | Department of Health |
| FACET | Five a Day Community Evaluation Tool |
| FHA | Food and Health Advisor |
| GP | General Practitioner |
| Hr | Hour |
| IFG | Impaired Fasting Glucose |
| IGT | Impaired Glucose Tolerance |
| ITT | Intention to Treat |
| NHS | National Health Service |
| NICE | National Institute for Health and Clinical Excellence |
| NNT | Number Needed to Treat |
| OR | Odds Ratio |
| QUOROM | Quality Of Reporting Of Meta-analyses |
| RCT | Randomised Controlled Trial |
| RR | Relative Risk |
| SES | Socio-economic status |

# 2. EXECUTIVE SUMMARY

## 2.1 Background

Type 2 diabetes is associated with significant public health and social consequences. The National Institute for Health and Clinical Excellence has been asked by the Department of Health to develop public health guidance on the prevention of type 2 diabetes among high-risk groups. The referral is divided into 2 separate pieces of guidance. The first will address the prevention of pre-diabetes (raised and impaired glucose levels) in populations and communities of high risk adults aged 18-74 using determinants of health such as creating an environment supportive of behaviour change. The second piece of guidance will address how to prevent the progression of pre-diabetes to type 2 diabetes at the individual level.

It is recognised that the term 'pre-diabetes' is not ideal, as not everyone with raised or impaired blood glucose levels will go on to develop type 2 diabetes. However, the term 'pre-diabetes' has been chosen because of its widespread use and recognition by a broad range of stakeholder groups and because of the lack of consensus on a suitable alternative. As the aims of preventing pre-diabetes overlap with those of CHD prevention in terms of improving dietary and physical activity outcomes, a broad approach to inclusion is made in assessing potential evidence.

Within this first piece of guidance, three reviews will be carried out that each focus on a particular population within the UK. This second review focuses on prevention of pre-diabetes in adults from black and minority ethnic (BME) groups. The first review focused on adults from lower socioeconomic groups, and the third will assess interventions that impact upon health professionals and services.

## 2.2 Aims and Objectives

The aim of this, the second of three reviews, is to undertake an assessment of the effectiveness and, where available information allows, cost-effectiveness of UK-based population level interventions that aim to raise awareness, and / or reduce the risk of pre-diabetes. The review focuses on the promotion of healthy lifestyle behaviours among adults aged 18-74 from BME groups. In addition, an assessment of barriers and facilitators to the implementation of interventions will be made.

**Review Questions:**

**What interventions encourage dietary and physical activity behaviour changes needed to prevent pre-diabetes in black and minority ethnic (BME) communities within the UK? Are identified interventions cost-effective? What factors influence their uptake and effectiveness?**

### 2.3 Methods

A systematic review of effectiveness of evidence was carried out that identified only one paper. No relevant cost-effectiveness literature was identified and therefore could not be reviewed. The main focus of the review, therefore, is an examination and synthesis of studies that provide evidence of barriers and facilitators to the implementation of effective interventions. Grey literature was searched systematically to supplement the database searches.

### 2.4 Results

Only one study was found that examined the effectiveness of community interventions to encourage behaviour change (e.g. diet and/or physical activity) on outcomes that relate to the prevention of pre-diabetes among BME groups. Therefore, this review largely focuses on addressing the second review question, which relates to barriers and facilitators to implementation of interventions targeted at adults from BME groups. One effectiveness / views paper, as well as twelve qualitative and views studies of varying quality were included to address effectiveness and barriers and facilitators to implementation of interventions and behaviour change. Qualitative data were thematically synthesised.

Three key areas were therefore addressed:

1. Effectiveness (one study which also included some views data).
2. Acceptability of interventions to BME populations (two studies).
3. Barriers and facilitators to carrying out optimum lifestyle behaviours that might prevent pre-diabetes in the long term. These were stand-alone qualitative studies (i.e. not part of an intervention evaluation) that aimed to obtain the views and beliefs of BME populations (ten studies).

There was some evidence from one case series study to suggest that an Asian women's healthy eating and physical activity group was effective in reducing the

body weight and BMI of those attending the group, although these findings must be interpreted with caution.

Acceptability of lifestyle change interventions among Indian, Pakistani and Bangladeshi men can be enhanced by greater levels of staff flexibility and speaking an appropriate language. Increased cultural sensitivity in terms of content, delivery and timing can be important, for example access to interpreters and planning around religious events such as Ramadan.

Barriers and facilitators relating to health behaviour change were identified within views studies. Such evidence needs to be read with the acknowledgement that these are the reported views and / or beliefs of participants and therefore are interpretations of reality rather than reality itself.

One reported barrier to behaviour change was professionals' lack of understanding of BME communities and their needs. For BME groups, barriers include religious influences, cultural influences, and a lack of understanding of lifestyle and its relation to health. Lack of knowledge, lack of available information and language barriers potentially reduced such understanding. Lack of access to and affordability of health promoting activities was also an issue for some participants. Social norms and traditions, in terms of diet and physical activity were a barrier to change, whilst body image issues varied across groups and could be influenced by significant others.

There is evidence to suggest that the approach to health behaviour of BME communities, in particular South Asians, has been misunderstood by other sectors of society. For example, common beliefs among health professionals that South Asians consider a large body size to be healthy and that they are fatalistic in regard to disease are not consistent with the views of South Asian laypeople. There was suggestion in one study of a general lack of concern for the health of South Asian Muslim women and a lack of engagement from practitioners. There is evidence that Islamic religious leaders disagree with a common belief among South Asian Muslim laypeople that the five times daily Muslim prayer Nazam is sufficient physical activity.

The influence of religion among BME communities provided both barriers and facilitators to health behaviour change. South Asian communities may be more likely than European communities to contextualise illness in terms of religion, which was both a barrier and a facilitator to health behaviour change, in that God may be viewed as being responsible for their condition, but also that illness may be viewed as a prompt from God to lead a healthier lifestyle. The Westernised conceptualisation of physical activity was sometimes seen as being at odds with South Asian religious

beliefs, for example the perception of walking briskly or jogging as being unacceptable for Muslim women. In addition, some Muslim participants saw the Namaz five times daily prayer as sufficient physical activity, while religious leaders did not. Religious practices may facilitate a healthy diet in that access to fast food outlets can be restricted by the need to eat Halal meat.

Similarly, both barriers and facilitators to health behaviour change were identified in cultural influences among BME communities. Adopting UK dietary and physical activity practices can involve experiences that are alien to traditional culture and identity. For example, swimming was perceived as being easier and more natural in Bangladesh than in the UK due to access and a single-sex cultural norm. Gyms were perceived as playing loud music and inappropriate images on TV screens. Similarly, familiar or traditional fruit and vegetables were seen as being too expensive and sometimes less healthy in the UK. Traditional South Asian beliefs regarding the attributes of certain vegetables for preventing ill health might be protective due to increased consumption of vegetables, although there may be the risk of complacency in terms of other risk factors. A family history of diabetes among some South Asians was found to be a barrier to preventative health behaviours by fostering fatalistic attitudes to diabetes aetiology. The understanding that BME groups have of lifestyle and health can also act as a barrier and facilitator to health behaviour change. South Asians appeared to have a high level of knowledge about the role of lifestyle in the aetiology of diabetes and coronary heart disease, although this was not always translated into practice. One Somali group were uncertain about what constitutes a healthy diet and expressed a need to learn how to prepare healthy food.

Among South Asian women, education was viewed as a facilitator to a healthy lifestyle. For example, education could increase awareness of health issues and encourage independent thought. A more liberal interpretation of religious teachings encouraged appropriate resistance to restricting cultural influences. More information was regarded as a facilitator of motivating and sustaining lifestyle change for South Asian participants. Finally, language, in particular poor fluency in English, was also reported as a barrier to lifestyle change, making it more difficult to travel to buy food or be active, particularly among first generation South Asians, who often relied on family and friends to interpret. Bilingual workers may increase the acceptability of physical activity interventions and facilities.

Access and affordability could also act as a barrier and also a facilitator to health behaviour change. South Asian and African participants suggested that local availability of fresh fruit and vegetables was poor, and when these items were

available locally they were viewed as expensive. Fruit and vegetables were perceived as undesirable by a Somali population as they were cheap to purchase in Somalia and thus associated with poverty. In contrast, one Gypsy Traveller community was reported to typically consume vegetables every day. Activities to encourage healthy food preparation were welcomed on site, whereas commitment to physical activities was lacking. On site, free activities were preferred as they increased access and affordability.

Barriers and facilitators to health behaviour change also lay in social norms and traditions. In terms of diet, social norms varied according to background but both South Asian and Somali populations associated a diet high in fat and high in meat and low in vegetables respectively to be associated with cultural identity, prosperity and generous hospitality, with resistance to changing these traditional norms, especially among first-generation migrants. One study suggested overcoming this barrier among South Asians by providing advice on preparing traditional food in more healthy ways. Interestingly, among Zimbabweans, lack of experience in cooking overall may be a barrier to preparing healthy food, as food had previously been cooked by a maid. Takeaway food consumption was found to be common in second-generation South Asian and male Somali populations as a change from traditional fare. However some South Asian women were beginning to cook in more healthy ways.

In terms of physical activity, this was perceived as part of normal life, or 'integral' to daily life, either in the form of the five times daily Namaz prayer or housework and childcare. However perceived barriers were lack of time to participate in arranged or 'separate' types of physical activity due to family or work commitments, weather conditions, language barriers, overcrowding at home, fears for safety, beliefs that physical activity led to weakness in older people and the perception that vigorous activity was not acceptable to some South Asian participants, especially women, for whom modesty and single-sex classes were important considerations. Preferred forms of physical activity were slow walking and swimming, which were regarded as part of everyday life in Bangladesh. Culturally sensitive activities were regarded as a way of overcoming these barriers.

Body image could also be a barrier or facilitator to health behaviour change. Evidence from studies with South Asian and African populations suggested that body image expectations vary according to background culture and often differ from those currently popular within the UK. One study found Pakistani and Indian participants perceived an association between overweight and prosperity, with weight loss viewed

as unattractive and related to poor health. Contrary to this, however, another study found that Bangladeshi participants viewed a medium body size as the most aesthetically pleasing and associated with good health, with both underweight and overweight body sizes being perceived as associated with poor health. In terms of drive to be slim, Pakistani and Bangladeshi women appeared to be more motivated than Zimbabwean women, among whom there was no pressure to be slim in their homeland but this pressure was felt more in the UK. Such pressure was more of a potential motivator for dietary change than the risk of ill-health.

Attitude and behavioural differences were found between first generation and second generation migrants. In general, first generation participants adhered to views and behaviours that they grew up with 'back home', whilst younger participants were more influenced by the culture they grew up with in the UK.

## 2.5 Evidence statements

The following evidence statements result from a synthesis of available evidence and are presented by acceptability of intervention and barriers and facilitators relating to health behaviour. The evidence statements will be repeated in section 6 alongside the relevant narrative synthesis of included studies.

### 2.5.1. Effectiveness of a healthy eating and physical activity intervention

**Evidence statement 2.1: Effectiveness of a healthy eating and physical activity group on body weight and body mass index (BMI)**

There is some evidence from one case series study to suggest that an Asian women's healthy eating and physical activity group meeting once weekly for 14 weeks is effective in reducing the body weight and BMI (mean drop in BMI of 1.13) of those attending the group both from the initial visit to the last visit and from the initial visit to 17 months post-intervention (Williams & Sultan 1999 case series -), although these findings must be interpreted with caution as there was no control group.

### 2.5.2 Barriers to intervention implementation

**Evidence statement 2.2: Structural barriers**

There was evidence from one qualitative evaluation of the Exercise on Prescription (EoP) programme (Carroll e*t al.* 2002 +) of structural barriers in the implementation of interventions for increasing access to physical activity with South Asian Muslim women. These include lack of communication between organisational agencies, and lack of financial resources with which to improve services in line with the special requirements of this group of users. There was evidence of reported inconsistent delivery of special facilities for South Asian Muslim women such as childcare and women only classes, across sites.

### 2.5.3 Acceptability of interventions and sustaining motivation

**Evidence statement 2.3: Acceptability of interventions and sustaining motivation**

There was evidence from one focus group study (Netto *et al.* 2007+) that acceptability of lifestyle change interventions can be increased by raising the cultural sensitivity of delivery; for example the importance of avoiding Ramadan needs to be considered in the timing of delivery, and separate sessions for men and women need to be considered. There was evidence that flexibility around the timing of interventions as well as the bilingual abilities of staff were important. Learning to cook traditional foods in a more healthy way was one way to preserve cultural identity. In addition, advice (particularly one-to-one delivery), information that takes into account literacy levels and encouragement were crucial to sustaining motivation to adopt a healthier lifestyle.

Evidence from one focus group study that included suggestions from participants (Lawrence *et al.* 2007++), showed that acceptability of a nutritional education intervention might be increased by including free food, by timing classes to suit those with childcare responsibilities, and providing a crèche or possibly holding the classes in schools. Cook and eat sessions and weight management classes that were made freely available on a Gypsy Traveller site (Kopp 2009 +) were valued by women residents for their non-threatening environment and as a forum for discussion of health issues as well as a way to reduce social isolation. Lack of child care facilities,

transport issues and costs were barriers to off-site activity.

Evidence from an interview-guided questionnaire study (Khanam & Costarelli 2008 +) and one qualitative evaluation (Carroll *et al.* 2002 +) included suggestions to increase the acceptability for Muslim South Asian women who may wish to access a gym. Suggestions included the provision of women-only facilities, women-only sessions, swimming facilities for women, more walking physical activity facilities, fewer aerobic classes, Sylheti-speaking assistants, better transport facilities and childcare facilities, less loud music, no inappropriate TV programmes and provocative music videos, and access to more local gyms. Evidence from one evaluation of the Exercise on Prescription (EoP) programme (Carroll *et al.* 2002) also identified lack of access to facilities, lack of childcare arrangements, as well as a limited choice of women-only sessions as barriers to attendance.

There was evidence from one mixed method study (Williams & Sultan 1999 +) that social interaction was a motivator for South Asian women attending a healthy eating and physical activity group. Some women also stated that they ate less when attending as they were not tempted to snack in the same way as when they stayed in the house.

### 2.5.3 Barriers and facilitators relating to health behaviour change

**Evidence statement 2.4: Lack of understanding**

There was evidence from one focus group study (Grace *et al.* 2008++) of lack of understanding between professional and lay groups in terms of Islamic teaching and its relation to healthy lifestyle practices. There was also evidence from this study of communication difficulties arising from health literacy deficiencies in lay South Asian people and cultural sensitivity deficiencies in professionals which obstruct appropriate health promotion messages.

**Evidence statement 2.5: Religious influences**

There was evidence from four focus group and two interview studies that religious customs can become barriers or facilitators to lifestyle change. Change was more likely where participants believed they had some degree of free will (Darr *et al.* 2008+). There was conflicting evidence regarding fatalism; in one study (Grace *et al.* 2008++) health professionals spoke of fatalism as a barrier to health prevention in some BME groups. However, evidence from one study (Darr *et al.* 2008+) suggests that whilst the occurrence of health conditions might be regarded as God's will, it is also, according to teachings, the responsibility of the individual to attempt to maintain good health and well being.

There was evidence from three focus groups, one interview study and one qualitative evaluation that healthy activities were acceptable provided they did not include aspects that were conflicting with religious teachings (Grace *et al.* 2008 ++; Khanam & Costarelli 2008 +; Farooqi *et al.* 2000 +; Rai & Finch 1997 +; Carroll *et al*. 2002 +). One focus group study showed evidence that some practices, such as eating Halal meat could be seen as limiting choices in fast food outlets (Lawrence *et al.* 2007 ++).

**Evidence statement 2.6: Cultural influences and differences**

There was evidence from nine qualitative studies that cultural influences and issues of identity can be barriers or facilitators to lifestyle change.

There is evidence from one focus group study (McEwen *et al.* 2009+) that a nomadic identity influenced dietary choices for Somalians. As descendants of camel herders, diet in the UK continued to be influenced by the staple meat with rice or spaghetti and a low consumption of fruit and vegetables which were less valued.

A needs assessment with Gipsy Travellers (Kopp 2009 +) found that some fruit and vegetables were eaten daily, as they were seen as relatively cheap. In particular, vegetables were favoured as they could be incorporated into daily cooking. However, whilst 60% of participants considered themselves as 'heavy', they also stated that the meal was often followed by a take-away in the evening.

Evidence from one interview study suggested that traditional South Asian beliefs regarding the preventive attributes of certain vegetables in terms of ill health are part of a cultural identity, and that this might be taken on board by professionals when discussing health promotion (Pieroni *et al*. 2007+). Dietary practices in the UK can involve experiences that are alien to traditional culture and identity (Khanam & Costarelli 2008+; McEwen *et al.* 2009+). However, one qualitative study (Bradby 1997 +) showed that food choices made by South Asian women can be informed by both traditional ('our' food) and Western ('your sort of foods') explanations in terms of 'good' and 'bad' effects upon the body so long as such explanations are complementary rather than in conflict.

Evidence was found in one guided interview study, one focus group study, one needs assessment and one qualitative evaluation for differences between UK culture and non-Western culture in terms of the perception of physical activity as either 'separate' or 'integral' to daily routine. Physical activity as separate incurred financial costs as well as often being organised in ways that are insensitive to different cultural values (Khanam & Costarelli 2008+; Rai & Finch 1997+; Kopp 2009 +; Carroll *et al*. 2002 +).

Evidence from one study highlighted the belief that expending sweat is important for increased well-being; this influenced the practices that might be taken up in the UK where a cold climate limits sweat production (Rai & Finch 1997+).

There was evidence from one guided interview study, two focus group studies and

one qualitative evaluation that a limited command of the English language is a barrier to accessing information (Netto *et al.* 2007+; Grace *et al.* 2008++; Khanam & Costarelli 2008+; Carroll *et al.* 2002 +), as well as accessing activities and shopping facilities outside the neighbourhood (Grace *et al.* 2008++).

There was evidence from one interview study that some South Asians consider that nothing can be done to prevent diabetes if there is already a family history (Darr *et al.* 2008+).

**Evidence statement 2.7: Understanding**

**a) Knowledge**

There was evidence from three focus group studies that knowledge regarding risk factors is at a high level in South Asian communities (Grace *et al.* 2008++; Lawrence *et al.* 2007++; Netto *et al.* 2007+). However, evidence from one focus group study of predominantly male Somali participants suggested a low level of knowledge (McEwen *et al.* 2009+). When knowledge levels were high, there was evidence from two focus group studies that this does not always translate to practice in terms of healthy lifestyle (Lawrence *et al.* 2007++; Netto *et al.* 2007+). However, evidence from one focus group study suggested that one way to resist restrictive practices is through education (Grace *et al.* 2008 ++).

**b) Information**

Evidence from one focus group study suggested that South Asian people in the UK would appreciate increased information on risk factors, advice and encouragement in order to motivate and sustain behaviour change (Netto *et al.* 2007+).

There was evidence from one focus group study that information and advice regarding physical activity came mainly from the media, role models, family and friends, the medical establishment (mainly hospitals) and to a limited degree, fitness campaigns (Rai & Finch 1997+).

**c) Language**

There was evidence from one guided interview study, two focus group studies and one qualitative evaluation that a limited command of the English language is a barrier to accessing information (Grace *et al.* 2008++; Khanam & Costarelli 2008+; Netto *et al.* 2007; Carroll *et al*. 2002 +), as well as activities and shopping facilities outside the neighbourhood (Grace *et al.* 2008++).

**Evidence statement 2.8: Access and affordability**

For South Asian and African populations within the UK, and especially first generation migrants, there was evidence from three focus group studies that traditional fresh foods are not readily available locally and are expensive (Grace *et al.* 2008++; Lawrence *et al.* 2007++; McEwen *et al.* 2008+). There is therefore more reliance on local food provision and physical activity facilities.

Evidence from one focus group study showed that older people are less willing to travel beyond the immediate neighbourhood for food (Grace *et al.* 2008++) due to language barriers and fears for their safety. There is evidence from one focus group study that the price of food is more of an issue for older people (Lawrence *et al.* 2007++).

There was evidence from one mixed method evaluation and one qualitative evaluation that distance from physical activity facilities, lack of transport, fear of walking alone, having conflicting family commitments (Williams & Sultan 1999 +; Carroll *et al*. 2002 +), not being able or willing to walk, ill health and cold weather (Williams & Sultan 1999 +) were barriers to attending a healthy eating and physical activity group. Having to travel to venues incurred extra costs even if physical exercise was on prescription, as for some South Asian women even a small financial contribution was reported as a barrier (Carroll *et al.* 2002).

**Evidence statement 2.9: Social norms and traditions**

**a) Diet**

There was evidence from four focus group studies that traditional South Asian cooking is associated with a high usage of fat, particularly during special occasions which occur frequently (Rai & Finch 1997+; Grace *et al.* 2008++; Lawrence *et al.* 2007++; Netto *et al.* 2007+) and that there is resistance to change such traditions. This was particularly difficult for Indian men who wished to control their diet within a close-knit community where social events were common (Netto *et al.* 2007+).

Evidence from one focus group study showed that Somali cooking is associated with high meat and low fruit and vegetable content (McEwen *et al.* 2009+) and again there is resistance to change. These traditions are part of cultural identity and symbolic of prosperity and hospitality.

Evidence from two focus group studies suggested that consumption of take-away food is common in second generation South Asian males and females as a change from traditional fare (Grace *et al.* 2008++). Similarly, takeaway meals were commonly used by Somalian males, particularly those living alone (McEwen *et al.* 2009+)

Some South Asian women are beginning to cook in more healthy ways. There were suggestions from one focus group study that learning to cook traditional food in healthy ways may be beneficial to South Asian groups (Netto *et al.* 2007+). Women from Zimbabwe were not used to cooking for themselves as in Africa maids had done the cooking; having to cook in the UK was seen as time consuming (Lawrence *et al.* 2007++).

**b) Physical activity**

There was evidence from two interview studies, four focus group studies and one qualitative evaluation that in South Asian groups, physical activity was perceived as a part of normal life and that there was little time for formal or 'separate' sessions, due to work or childcare commitments (Darr *et al.* 2008+; Rai & Finch 1997+; Farooqi *et al*. 2000+; Grace *et al.* 2008++; Khanam & Costarelli 2008+; Netto *et al.* 2007+; Carroll *et al*. 2002 +). In particular, women were expected to stay home and look after children rather than enrol the help of others (Grace *et al.* 2008++). Older participants perceived that vigorous physical activity was unnecessary in the context of advancing age and that keeping active and mobile was preferable (Darr *et al.*

2008+).

There was evidence from one focus group study of variation in views of South Asian and black participants regarding the appropriate level of physical activity required to obtain benefits (Rai & Finch 1997+), depending on own level of activity. There was evidence from the same focus group study of the view among South Asian participants that partaking in physical activity could compensate for unhealthy eating or smoking (Rai & Finch 1997+).

Evidence from two interview studies, three focus group studies and one qualitative evaluation suggests that vigorous activity such as aerobics was not acceptable to some South Asian participants, particularly females, for whom modesty and single sex classes were important considerations (Darr *et al.* 2008+; Rai & Finch 1997+; Grace *et al.* 2008++; Farooqi *et al.* 2000+; Khanam & Costarelli 2008+; Carroll *et al*. 2002 +). For some young people, however, going to the gym created a means of filling time, escape from social conditions and keeping up with fashion trends (Rai & Finch 1997+). There was evidence from one focus group study of the view among South Asian participants that partaking in physical activity could compensate for unhealthy eating or smoking (Rai & Finch 1997+).

There was also evidence from one focus group study that encouraging sweating was important to some South Asians (Rai & Finch 1997+). Evidence from one focus group study and one guided interview study suggested that swimming and slow walking were preferred ways to remain active (Rai & Finch 1997+; Khanam & Costarelli 2008+).

There is evidence from one focus group study of a 'complex value hierarchy' in that the notion of perceived shame associated with choosing healthier options such as low fat in cooking, and particular physical activities that involve certain dress codes were seen as more important than the benefits of a healthy lifestyle (Grace *et al.* 2008++). In addition, as in white communities, support from families can act as a facilitator (if the new behaviour is integrated with the sense of self and one's own values without the control of others) or a barrier to changing health related behaviours (Grace *et al.* 2008++).

**Evidence statement 2.10: Body image**

There was evidence from five good quality qualitative studies (three focus group and two interview studies) that body image expectations vary according to background culture and often differ from those currently popular within the UK (Darr *et al.* 2008+; Grace *et al.* 2008++; Lawrence *et al.* 2007++; Khanam & Costarelli 2008+; Netto *et al.* 2007+).

Body size can be positively or negatively associated with health and attractiveness, and attempting to reach an ideal body size can be a strong motivator for behaviour change (Lawrence *et al.* 2007++). Only 64% of overweight / obese Bangladeshi women classed themselves as overweight (Khanam & Costarelli 2008+). There was evidence from one interview study that weight management was more important for South Asian males than females (Darr *et al.* 2008+), and for young South Asian and black females in a focus group study (Rai & Finch 1997+).

Evidence was found for an association between overweight and prosperity in one focus group study with Indian, Pakistani and Indian participants. Changing dietary and physical activity patterns in old age was perceived as potentially weakening (Netto *et al.* 2007+).

Having the 'right' body size was influenced by the media as well as some male views, and was important for attracting a partner for young South Asian and black females in one focus group study (Rai & Finch 1997+).

In one focus group study body size was found to be a stronger motivator for healthy behaviour changes than health issues (Lawrence *et al.* 2007++).

### 2.5.4 Applicability

All the above studies were carried out within the UK, therefore applicability is relatively high. It must be recognised however that age, generation, socio-economic and cultural differences exist within BME groups in the UK.

## 2.6 Discussion

The dearth of evidence for effectiveness and lack of evidence for cost-effectiveness in regard to interventions targeted at BME groups suggests that activities carried out within the UK in order to encourage behaviour change in these groups may be

fragmented and / or unreported. One evaluation study suggested that women who attend a healthy eating and physical activity group meeting once weekly for 14 weeks is effective in reducing the body weight and BMI of those attending both from the initial visit to the last visit and from the initial visit to 17 months post-intervention, although these findings must be interpreted with caution. Twelve qualitative studies of good to very good quality suggested that cultural beliefs and practices were often a barrier to lifestyle change in terms of dietary and physical activity practices, and though there are commonalities, such beliefs and practices differ across groups. Commonalities between the barriers to behaviour change in these groups and low income groups include family preferences for traditional or non-healthy food, and a lack of knowledge regarding the preparation of healthy food.

For BME groups in particular, identities formed in the homeland remain a strong influence on physical activity and dietary practices while living in the UK, particularly among older generations. This can be both a facilitator (e.g. fresh food preparation) and a barrier (e.g. high fat cooking, low fruit and vegetable consumption, reluctance towards vigorous physical activity, lack of time due to family and work commitments) to good health. Younger generations who grew up in the UK appear to be adapting more to UK culture. However, this presents potential barriers to their health promotion such as a higher level of fast food consumption. Facilitators include education that raises awareness of health issues and ways to resist barriers in culturally sensitive ways.

The findings of this review have many implications for health behaviour change intervention among BME populations. Islamic religious leaders are keen to overcome barriers presented by misinterpretations of religious teachings by emphasising that in Islam looking after one's mind and body is important. There is therefore an opportunity for leaders to disseminate health promotion messages that relate to particular groups and that are acceptable within religious teachings. There is also scope for groups to maintain their identity while leading a healthy lifestyle, but there is evidence that interventions that are sensitive to individual cultures, including the use of local amenities that increase access might be more acceptable to users. This may include the recruitment of staff fluent in the languages of target groups and knowledgeable about the local culture.

No relevant data for cost-effectiveness were found for the assessed interventions. Health economic issues will therefore be considered within the forthcoming Modelling Report. Further well-reported primary research is required that evaluates, with adequate follow-up, the outcomes of population level preventive interventions.

# 3. INTRODUCTION

## 3.1 Aims and objectives

The National Institute for Health and Clinical Excellence has been asked by the Department of Health to develop public health guidance on the prevention of type 2 diabetes among high-risk groups. The referral is divided into 2 separate pieces of guidance. The first will address the prevention of pre-diabetes (raised and impaired glucose levels) in populations and communities of high risk adults aged 18-74 using determinants of health such as creating an environment supportive of behaviour change. The second piece of guidance will address how to prevent the progression of pre-diabetes to type 2 diabetes at the individual level. As the aims of preventing pre-diabetes overlap with those of CHD prevention in terms of improving dietary and physical activity outcomes, a broad approach to inclusion is made in assessing potential evidence.

### Rationale for review focus

The focus of this review is to synthesise evidence for the effectiveness of interventions to change diet and increase physical activity, specifically from studies conducted in black and minority ethnic (BME) populations in the UK. The rationale for this focus can be found in the NICE Public Health Guidance issued in 2007 on *"Behaviour change at population, community and individual level"* which emphasises the need to tailor interventions to individual and community characteristics rather than assuming that behaviour change interventions that have been effective in one population can be replicated in other populations without adaptation or consideration of local barriers to (or facilitators of) intervention implementation and effectiveness.

While the wider evidence-base in relation to behaviour change and obesity prevention, summarised within previous public health and clinical guidance from NICE, will also be directly relevant to diabetes prevention, this review addresses a specific area of uncertainty around the effectiveness, acceptability and feasibility of interventions implemented in BME communities with the objective of changing diet or increasing physical activity.

This implies an underlying assumption that, even though these interventions have not been explicitly designed to reduce risk of diabetes, any intervention that has effectively changed diets or increased activity levels in UK BME populations will be relevant to diabetes prevention in similar populations at high risk of diabetes. A previous review has considered interventions with the objective of changing diet or

increasing physical activity in socio-economically deprived UK communities with a similar rationale.

The evidence for a causal link between these behaviour changes and potential reductions in diabetes risk is relatively well established and comes from international trials of behaviour change interventions in individuals at high risk of diabetes. Evidence from diabetes prevention RCTs in populations with pre-diabetes has confirmed that behaviour change is causally associated with a reduction in diabetes incidence (Li *et al.* 2008; Lindstrom *et al.* 2006). Additional evidence from major cohort studies such as the EPIC study confirms consistent associations between diet and physical activity and diabetes risk in the general population (Simmons *et al.* 2006). There is still a lack of direct evidence for interventions that can effectively prevent pre-diabetes in high risk populations, hence the need to extrapolate from evidence on intermediate outcomes including behaviour change and BMI (Alberti *et al.* 2007).

It is recognised that the term 'pre-diabetes' is not ideal, as not everyone with raised or impaired blood glucose levels will go on to develop type 2 diabetes. However, the term 'pre-diabetes' has been chosen because of its widespread use and recognition by a broad range of stakeholder groups, and because of the lack of consensus on a suitable alternative.

Within this first piece of guidance, three reviews will be carried out that each focus on a particular high risk population within the UK. This review focuses on prevention of pre-diabetes in adults from BME groups, including first-, second- and subsequent generations of people of South Asian (e.g. Indian, Pakistani, Bangladeshi), African and Caribbean origin. The first review focused on adults from low socio-economic groups, and the third will assess interventions that impact upon health professionals and services. The relationship between ethnicity and socio-economic status is not always clear-cut and thus low-SES and BME groups are not always mutually exclusive (Davey-Smith, 2000). Therefore some studies may be included in both the first and second review.

**Research questions:**

**What interventions encourage dietary and physical activity behaviour changes needed to prevent pre-diabetes in black and minority ethnic communities? Are identified interventions cost-effective? What factors influence their uptake and effectiveness?**

The following will be identified according to available evidence:

Population and community level interventions to change and sustain knowledge levels, attitudes and behaviour relating to diet, weight management and physical activity among adults from BME groups.

Cultural and social barriers and facilitators to awareness raising and behaviour change among the population under question.

**Interventions**

The following section describes the types of intervention that were assessed within the review, and the context in which the interventions were considered. Specific types of intervention were not pre-defined prior to searching or sifting; rather, interventions with aims that addressed the research question and met the inclusion criteria were considered. It should be noted that no research was identified that assessed the effectiveness of an intervention.

*Raising awareness of risk factors for developing pre-diabetes*

Methods of increasing levels of knowledge of the risk of developing pre-diabetes and how to prevent this happening, e.g. health promotion campaigns (mass media, localised advertising, social marketing), community outreach work (e.g. group teaching in places of worship; leaflet dropping etc).

*Interventions to promote healthy eating/ weight management*

How to reach, engage and promote healthy eating/weight management among BME groups, e.g. tailored/targeted dietary advice, education and support to review/self assess their weight/Body Mass Index (BMI); changes to legislation/policy e.g. food labelling; environmental changes; use of technologies; improving access to resources.

*Interventions to promote physical activity*

How to reach, engage and promote physical activity among adults from BME groups, e.g. tailored/targeted physical activity advice and education; changes to legislation/policy; environmental changes; use of technologies; improving access to resources.

*Interventions are to be considered in the context of:*

Universal delivery to the whole population, and the evidence about what impact those interventions have had on BME groups.

Tailored or designed interventions specifically for implementation with adults from BME groups, and whether they could be delivered on a wider scale.

How the effectiveness and cost-effectiveness of interventions varies according to the following:

a) Whether the intervention is based on an underlying theory or conceptual model.

b) Diversity of the population (e.g. in terms of the user's age, gender, religion/ethnicity or socio-economic group) for whom the intervention is designed.

c) Status of the person (or organisation) delivering the intervention and the way it is delivered.

d) Frequency, length and duration, media format, where the intervention takes place, whether it is individual or group based and whether it is transferable to other settings.

# 4. BACKGROUND

## 4.1 Description of the health problem

The NICE scope (2009b), which sets out what the guidance will and will not cover, highlights that every year, 100,000 people in the UK are diagnosed with type 2 diabetes and many more may have the condition (Diabetes UK 2006). It can lead to long-term complications including micro- and macrovascular diseases such as eye problems, kidney disease, foot ulcers and cardiovascular disease. Between 33% and 66% of people with pre-diabetes – raised or impaired blood glucose levels – will go on to develop type 2 diabetes over a period of 3–6 years (Diabetes Prevention Programme Research Group 2002; Lindstrom *et al.* 2003; Pan *et al.* 1997; Ramachandran *et al.* 2006). During that time they may also be at increased risk of coronary heart disease (Waugh 2007).

An individual's risk factors for pre-diabetes include: obesity (a body mass index [BMI] of more than 25 kg/m$^2$); a high waist circumference measurement (more than 80 cm in women and 94 cm in men); a sedentary lifestyle; a close family history of type 2 diabetes; a history of gestational diabetes in women; and being older than 40 (or older than 25 for some black and minority ethnic groups). In addition, certain groups of people are at greater overall risk of developing pre-diabetes, for example people of South Asian, African–Caribbean and black African descent. The prevalence of diagnosed diabetes (the majority of cases of which are accounted for by type 2 diabetes) is nearly four times greater in Bangladeshi men and almost three times greater in Pakistani and Indian men, more than five times greater in Pakistani women, three times greater in Bangladeshi and Black Caribbean women and two and a half times greater in Indian women, compared with the general population of England, adjusted for age (The Information Centre 2006). With rates of obesity on the increase and the population becoming more sedentary (The Health and Social Care Information Centre 2009) type 2 diabetes (and pre-diabetes) is becoming more prevalent.

For most people, both pre-diabetes and type 2 diabetes can be prevented by maintaining a healthy weight, improving dietary intake and being physically active. However, many people are unaware that they are at risk – and of the extent to which changes to their lifestyles can help prevent the onset of type 2 diabetes (Model Group 2007).

In addition to the personal cost to individuals, families and communities, diabetes is estimated to account for at least 5% of UK healthcare expenditure. Up to 10% of hospital budgets are used for the care of people with the condition – drug costs alone for people with type 2 diabetes have been estimated to account for about 7% of the total NHS drugs budget (Waugh *et al.* 2007). Preventing pre-diabetes among groups at high risk of developing type 2 diabetes could help save some of these NHS resources.

In 2007, 60% of primary care trusts (PCTs) had programmes in place to raise public awareness of the risk factors for diabetes and 37% were raising awareness of its signs and symptoms. Only 42% had assessed the needs of their population in relation to diabetes and less than 40% had developed a diabetes strategy (Innove 2008).

### 4.2 Remit of the assessment

A mapping review was carried out in order to assess the breadth of literature relevant to the overall research question. Searches showed that the quantity of literature from international studies was copious, therefore inclusion of such a large body of work would not be feasible within the resources available. In addition, much of the work carried out outside the UK is not transferable to UK minority ethnic populations and services. Only UK based literature was therefore included in the searches. The next sections detail the inclusion and exclusion criteria as described within the scope document.

#### 4.2.1 Groups that will be covered

Adults (aged 18–74) with one or more of the following individual risk factors:

- Family history of type 2 diabetes
- History of gestational diabetes
- BMI of 25 kg/$m^2$ or above
- High waist circumference above 80 cm (for women) or 94 cm (for men).

Groups of adults at greater risk of pre-diabetes including:

- People of south Asian, African–Caribbean or black African descent (to be assessed in this review)

- People from a lower socioeconomic group (assessed in a previous review).

### 4.2.2 Groups that will not be covered

- People who have already been diagnosed with IFG or IGT (the second piece of NICE guidance on preventing type 2 diabetes will consider this group)
- People with diabetes.
- Children and young people aged under 18.
- Adults older than 74.
- Pregnant women.
- Adults with other medical conditions who have been prescribed medication that may increase the risk of type 2 diabetes (e.g. steroids).

The guidance will apply to all high-risk groups within the general population.

### 4.2.3 Activities/interventions that will be covered

Ways of helping high-risk groups improve their diet, increase their physical activity levels and reach or maintain a healthy weight, to include:

**Work with high risk populations**

a) Awareness-raising among high-risk groups of the factors that can lead to pre-diabetes. This may include mass-media campaigns, advertising and social marketing. In addition, it may include community outreach work (for example, in places of worship), use of community leaders to disseminate health promotion messages and the use of culturally appropriate educational materials. It may also include integrated health promotion programmes which could contain several or all of these activities.

b) Methods used to ensure interventions are culturally sensitive and appropriate for groups at high risk of pre-diabetes. These would include getting these groups involved in both the planning and delivery of the intervention, as well as participating in health-promoting activities.

### 4.2.4 Activities/interventions that will not be covered

- Population-level screening to identify pre-diabetes.

- Diagnostic testing to identify pre-diabetes.
- BMI and waist circumference cut-off points used to assess risk in minority ethnic groups (this is covered in the NICE guideline on the prevention and management of obesity).
- Interventions to prevent the progression from diagnosed pre-diabetes to type 2 diabetes (this will be addressed by the second piece of guidance).
- Treatment and management of diagnosed type 1 and type 2 diabetes (this is the subject of previously published NICE guidance).

# 5. METHODS

## 5.1 Methods for identification of evidence

A systematic review of the effectiveness of interventions, and barriers/facilitators to implementation of interventions for prevention of pre-diabetes was undertaken according to the general principles recommended in the methods guide for development of NICE public health guidance (2009a). Methods followed the development of a review protocol and search protocol and are detailed below.

### 5.1.1 Search Strategy

The standard NICE Methods, as outlined in the Methods for the Development of NICE Public Health Guidance (2009a) were used to guide the development of the search methods. The aim of the search strategy was to retrieve a manageable number of relevant records to inform the development of the mapping review, views review, effectiveness and cost effectiveness reviews and the economic model.

An initial search strategy, limited to UK literature, was developed for the mapping review. This search was supplemented by additional searches for the views and effectiveness reviews as well as the economic model, in order to ensure that the review topic was fully explored as the reviews progressed. The search strategies were developed in conjunction with NICE Information Specialists.

A targeted approach to the identification of further UK-based evidence was taken. Instead of aiming to identify the relevant literature for a specific question using one search, we adopted an emergent approach which attempts to identify key literature. This literature was then explored in order to inform further retrieval by the identification of useful keywords/index terms.

The search strategy and key literature identified for the mapping review formed the basis of the search strategies for the review questions. An initial strategy was generated by identifying free text and MeSH terms from studies identified through the mapping review as being relevant to the review questions. Iterations were then repeated as new concepts were identified, within the time frame of the study.

The questions to be addressed in the reviews have differing existing evidence bases. Therefore, decisions on the type of evidence (e.g. RCTs, observational) to be used in the reviews were made through an iterative searching process that allows decisions to be made based on the available evidence. Details of search terms and types of

evidence used were made available to members of the NICE Programme Development Group (PDG) for comment and to provide an opportunity to alert the assessment team to any additional key pieces or sources of evidence.

The searches were limited to English Language, 1990-current and human studies. A UK filter was applied to all the searches in order to limit the evidence to that which is directly applicable and therefore relevant; in particular to NHS services, the circumstances of low socioeconomic groups and, for the subsequent second review, UK BME groups. High risk groups resident in the UK differ in their cultural experiences from those in, for example, the US and Australia. As this guidance is concerned with accessing specific populations and the influences of their contextual backgrounds, UK based research was deemed more applicable.

A thorough audit trail of the search process was maintained; this includes all searches, number of results and number of relevant references identified. This process ensures that the search process is transparent, systematic and replicable.

In addition to the database searching, additional searches were undertaken in specialist websites and grey literature sources in order to identify evidence not indexed in the bibliographic databases. Key authors were also identified and searched for in Medline (via OVID SP), Cumulative index to nursing and allied health literature, (Cinahl, via EBSCO) and Scopus (via Elsevier), in order to interrogate medical, nursing and interdisciplinary data sources. The ScHARR team also conducted reference and citation searching for those studies identified for inclusion in the reviews using Web of Science (via Thomson ISI), Scopus (via Elsevier) and Google Scholar.

The mapping review search strategy was used to search specific economic databases: NHS Economic Evaluation Database (via Wiley) and EconLit (via OVID SP). The Public Health Interventions Cost Effectiveness Database (PHICED) which is part of the National Library for Public Health was also searched using the limits of public health area: obesity or physical activity.

Two additional searches were undertaken in response to a request from the PDG. The searches were: a search for population level interventions on financial incentives or disincentives for healthy eating or physical activity and a search for intake of specific dietary elements, for example soluble fibre, by people from low socioeconomic groups. These additional searches were undertaken in Cinahl, (via EBSCO), Medline (via OvidSP) and PsycINFO (via OvidSP).

The mapping review was made available to members of the PDG and they will have access to this review. Following scrutiny, it is possible that additional papers will be suggested by PDG members.

An overview of evidence sources are below, with detailed information including location of websites and sample search strategies presented in Appendix 3.

**List of Databases Searched for Review One and Two**

Medline via OVID SP

Embase via OVID SP

CINAHL via EBSCO

British Nursing Index via OVID SP

The Cochrane Library via Wiley

Science Citation Index via Thomson ISI

Social Science Citation Index via Thomson ISI

PsycINFO via OVID SP

Selected EPPI Centre Databases

**Additional Sources Searched for Review One and Two**

**Grey Literature**: British Library Integrated Catalogue, Conference Papers Index, Medical Research Council and Economic and Social Research Council.

**Websites**: Association of Public Health Observatories, NHS Evidence: National Library for Public Health, Joseph Rowntree Foundation, Diabetes UK

**Other sources**: Scopus (via Elsevier), Web of Science (via Thomson ISI), NHS Economic Evaluation Database (NHS EED via Wiley), EconLit (via Ovid SP),

The Public Health Interventions Cost Effectiveness Database (PHICED), Google Scholar

### 5.1 Methods for identification of evidence

A systematic review of the effectiveness of interventions, and barriers/facilitators to implementation of interventions for prevention of pre-diabetes was undertaken

according to the general principles recommended in the methods guide for development of NICE public health guidance (2009a). Methods followed the development of a review protocol and search protocol and are detailed below.

### 5.1.1 Search Strategy

The standard NICE Methods, as outlined in the Methods for the Development of NICE Public Health Guidance (2009a) were used to guide the development of the search methods. The aim of the search strategies was to retrieve a manageable number of relevant records to inform the review, views review, effectiveness and cost effectiveness reviews and the economic model.

An initial search strategy, limited to UK literature, was created to develop the mapping review and then the mapping review findings allowed further development of the search strategy for this review. It was clear from mapping review findings that effectiveness literature in this area was limited. The mapping review search was supplemented by additional searches for the views and effectiveness reviews as well as the economic model, in order to ensure that the review topic was fully explored as the reviews progressed. The search strategies were developed in conjunction with NICE Information Specialists.

A targeted approach to the identification of further UK-based evidence was taken. Instead of aiming to identify the relevant literature for a specific question using one search, we adopted an emergent approach which attempts to identify key literature. This literature was then explored in order to inform further retrieval by the identification of useful keywords/index terms.

The search strategy and key literature identified for the mapping review formed the basis of the search strategies for the review questions. An initial strategy was generated by identifying free text and MeSH terms from studies identified through the mapping review as being relevant to the review questions. Iterations were then repeated as new concepts were identified, within the time frame of the study.

The questions to be addressed in the reviews have differing existing evidence bases. Therefore, decisions on the type of evidence (e.g. RCTs, observational) to be used in the reviews were made through an iterative searching process that allows decisions to be made based on the available evidence. No studies were excluded on the basis of study design. Details of search terms and types of evidence used were made available to members of the Programme Development Group for comment and to

provide an opportunity to alert the assessment team to any additional key pieces or sources of evidence.

The searches were limited to English Language, 1990-2009 and human studies. A UK filter was applied to all the searches in order to limit the evidence to that which is directly applicable and therefore relevant; in particular to NHS services, the circumstances of low socioeconomic groups for the first review and UK BME groups for the present review. High risk groups resident in the UK differ in their cultural experiences from those in, for example, the US and Australia. As this guidance is concerned with accessing specific populations and the influences of their contextual backgrounds, UK based research was deemed more applicable.

A thorough audit trail of the search process was maintained; this includes all searches, number of results and number of relevant references identified. This process ensures that the search process is transparent, systematic and replicable.

In addition to the database searching, additional searches were undertaken in specialist websites and grey literature sources in order to identify evidence not indexed in the bibliographic databases. The information specialist at ScHARR worked in conjunction with the review team to identify key authors and search for them in selected databases.

### 5.2 Study selection

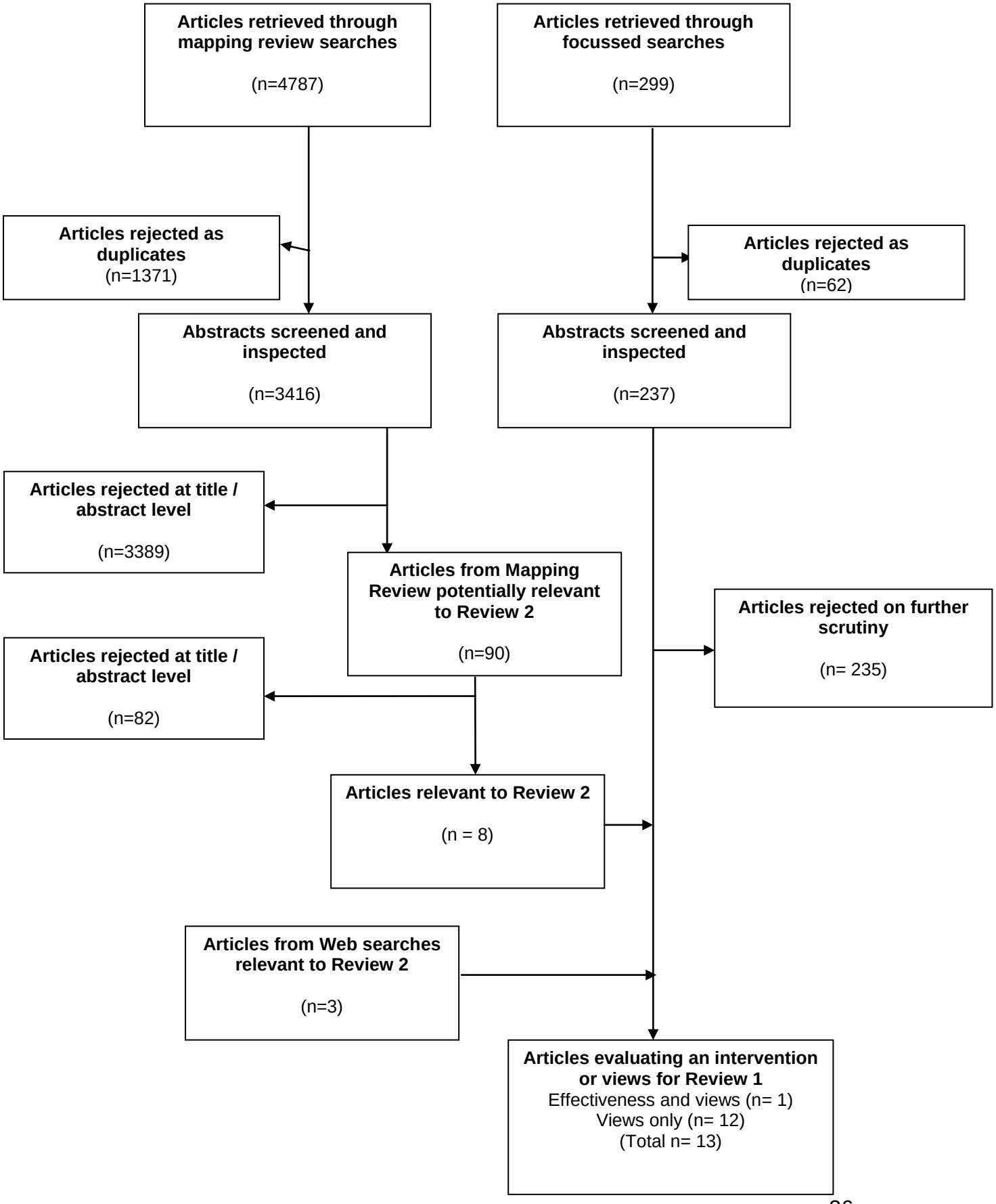
All of the retrieved UK based literature was screened by one of three reviewers (MJ, EEH, and RJ) and double-checked by one other reviewer at title and abstract level for relevance, and those relevant were taken through to full paper appraisal (see section 5.4 for full process details). This was an emergent, iterative process, involving the information specialist, systematic reviewer, modeller and topic specialist. Searching for evidence to inform both the qualitative and quantitative elements of the systematic review and the models was carried out concurrently.

In the case of identifying barriers and facilitators to programme success, priority was given to evidence which can be linked to programmes for which there is effectiveness data. This allows identified barriers and facilitators to be linked to actual success, rather than being speculative, thereby improving both the link between quantitative and qualitative research in the reviews, and providing greater validity for the findings.

However, such evidence also addresses more general cultural influences on lifestyle behaviour (i.e. not in the context of an intervention). In this case, given the potentially

large body of related but independent views studies, UK based studies that utilise qualitative methods, for example interviews or focus groups, were scrutinised to elicit relevant views relating to barriers and facilitators. Themes were identified from this literature, and synthesised. Quantitative data from, for example, survey studies that address barriers and facilitators were utilised in the absence of qualitative information for particular populations/activities. Figure 1 shows that from a large initial body of literature generated from the searches, a limited amount of UK papers fulfilled the inclusion criteria for review 2. Grey literature searches did not produce evaluations of the projects and programmes described.

**Figure 1: Flow chart of paper selection**



### 5.3 Data Extraction

Data were extracted with no blinding to authors or journal by one of two reviewers (MJ, EEH) using a standardised form. As highlighted in the Cochrane Collaboration guidelines for systematic reviews of health promotion and public health interventions, extraction forms should be developed for each review in order to make them relevant to the information that is required. The forms for extracting qualitative data were based on the example forms presented within the methods guide for development of NICE public health guidance (2009a). The forms were piloted on two randomly selected views studies in order to confirm appropriateness for use. Information relating to the review question, study design, outcomes and conclusions were collated. The data extracted for effectiveness evidence included information relating to the intervention under study, namely objectives, content, intervener, duration, adherence, mode of delivery and population. Data extracted for evidence of barriers and facilitators to effectiveness, or views of included activities included information relating to the activity under study, population, views on acceptability, accessibility, information given and retained, as well as any influences on these factors. Data extracted by each reviewer was checked by a second reviewer (MJ or SB) to ensure reliability. Any studies giving rise to uncertainty were reviewed independently by a third reviewer (in this case there were none), and discrepancies, for example where studies were not clearly reported, were resolved by discussion. Findings are presented in section 6, with related evidence tables in Appendix 6.

### 5.4 Quality assessment

The quality of included studies was assessed by one of two reviewers (MJ, EEH); all quality assessments were double checked by a reviewer not involved in the initial assessment (MJ, EEH, SB). Quality criteria were based on those developed for the methods guide for development of NICE public health guidance (2009a). The purpose of such quality assessment is to provide a narrative account of study quality for the reader, in order to inform judgements on the strength of the evidence presented. Within the methods guide (2009a), it is recommended that studies are categorised according to study type and methodological rigour and quality (categories ++, + or -) in order to provide a clear representation of type of evidence (See Table 1).

While it is noted that criteria may not be judged as having equal value in quality assessment, in the interests of consistency, a subjective cut-off score of 9 criteria fulfilled has been applied for studies rated as ++. Preliminary quality assessment ratings are presented. Quality assessment is confirmed by a second reviewer in order to minimise any potential bias.

**Table 1: Study quality**

| Grade | Criteria |
|---|---|
| ++ | All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions are thought very unlikely to alter. |
| + | Some of the criteria have been fulfilled. Those criteria that have not been fulfilled or adequately described are thought unlikely to alter the conclusions. |
| – | Few or no criteria have been fulfilled. The conclusions of the study are thought likely or very likely to alter. |

The checklist for quantitative studies contained the following items:

Is the source population or source area well described?
2. Is the eligible population or area representative of the source population or area?
3. Do the selected participants or areas represent the eligible population or area?
4. How was selection bias minimised?
5. Were interventions (and comparisons) well described and appropriate?
6. Was the allocation concealed?
7. Were participants and/or investigators blind to exposure and comparison?
8. Was the exposure to intervention and comparison adequate?
9. Was contamination acceptably low?
10. Where the other interventions similar in both groups?
11. Were all participants accounted for at study conclusion?
12. Did the setting reflect usual UK practice?
13 Did the intervention or control comparison reflect usual practice?
14. Were outcomes measures reliable?
15. Were all outcome measurements complete?
16. Were all the important outcomes assessed?
17. Were all outcomes relevant?

18. Were there similar follow up times in exposure and comparison groups?
19. Was follow-up time meaningful?
20. Were exposure and comparison groups similar at baseline?
21. Was intention to treat (ITT) analysis conducted?
22. Was the study sufficiently powered to detect an intervention effect (if one exists)?
23. Were the estimates of effect size given or calculable?
24. Were the analytical methods appropriate?
25. Was the precision of intervention effects given or calculable? Were they meaningful?
26. Are the study results internally valid (i.e. unbiased)?
27. Are the findings generalisable to the source population (i.e. externally valid)?

The checklist for qualitative studies contained the following items:

1. Is a qualitative approach appropriate?
2. Is the study clear in what it seeks to do?
3. How defensible/rigorous is the research methodology?
4. How well was the data collection carried out?
5. Is the role of the researcher clearly described?
6. Is the context clearly described?
7. Were the methods reliable?
8. Is the data analysis sufficiently rigorous?
9. Is the data 'rich'?
10. Is the analysis reliable?
11. Are the findings convincing?
12. Are the findings relevant to the aims of the study?
13. Conclusions:

a) How clear are the links between data, interpretation and conclusions?
b) Is there adequate discussion of any limitations encountered?

14. How clear and coherent is the reporting of ethics?

Each of these aspects was then considered and a rating of ++, + or – was assigned to each, with a summary rating for internal and external validity using the scale below.

### 5.5 Data analysis and synthesis

A synthesis of available evidence is presented in Section 6. Data synthesis was informed by the methods advocated by NICE public health guidance (2009a). Pre-

specified outcomes are tabulated in evidence tables and presented within a preliminary narrative synthesis. As only one study was identified examining the effectiveness of an intervention with the potential to prevent pre-diabetes or address the risk factors that put people at risk of developing pre-diabetes among BME groups, a basic narrative summary was undertaken of the effectiveness literature. Views literature was synthesised in terms of key themes reported in the literature.

# 6. RESULTS

The following section presents findings from available evidence that addresses the questions:

**What interventions encourage dietary and physical activity behaviour changes needed to prevent pre-diabetes in black and minority ethnic communities; what are the barriers and facilitators to their uptake?**

Only one study was found that examined the effectiveness of community interventions to encourage behaviour change (e.g. diet and/or physical activity) on outcomes that relate to the prevention of pre-diabetes among BME groups. Therefore, this review largely focuses on addressing the second review question.

## 6.1 Quality Assessment

The general quality of the thirteen included studies (three of which were evaluations) when assessed using criteria set out in the checklists and guidance provided in the NICE CPHE Methods Manual (National Institute for Health and Clinical Excellence 2009a), was good. Two qualitative studies were rated as ++, one study was rated – for effectiveness and + for views; ten qualitative studies were rated +. See Appendix 4 for table of quality assessments.

### 6.1.1 Limitations to quality

Main limitations to quality were lack of detail in the description of methods. Some papers had only partial relevance to the research question. There was generally a lack of reflexivity in terms of discussing how the research might have been affected by the researcher(s).

## 6.2 Findings

### 6.2.1 Effectiveness

Only one study was identified that examined the effectiveness on a community intervention to encourage behaviour change among BME groups; a case series rated as – for study quality for this review (Williams & Sultan 1999). This study investigated the effectiveness (and acceptability) of a 14-week Asian women's healthy eating and physical activity group in Trafford, Manchester. The group was set up following a health needs assessment with the local Asian community in Trafford. Women were

recruited into this intervention through a well-established local women's group (mainly attended by Asian women) dealing with health issues, held by a health visitor and link worker (with no detail recruitment reported). Overweight or obese Asian women were targeted for the intervention. Each session started with an opportunity for women to be weighed and discuss their individual progress and was then followed by 45 minutes of low-impact stretch and tone to music, led by a fitness instructor. Three main dietary changes were the focus of healthy eating advice to the women: increasing fruit and vegetable consumption; reducing the amount of oil and fat used in cooking; and reducing intake of fatty and foods high in sugar. The link worker (from the existing local well-established women's group dealing with health issues) was available at the group to interpret the range of Asian languages spoken and to give general support and encouragement to the women and reassure them that the group would be run in a culturally appropriate way.

The authors recorded the women's attendance at the group. Out of the 15 women who participated in the group, no women attended all 14 sessions. One attended 11, one attended 10, one attended seven sessions, three attended six sessions, one attended five sessions, two attended four sessions, one attended three sessions and three women attended two sessions. The mean number of sessions attended (calculated) was five sessions.

Data were reported for 13 of the 15 women attending the group. The two remaining women dropped out due to them both moving away from the area and not being available. Weight was measured by the dietitian. Body mass index (BMI) was also calculated but the authors did not report whether height was measured or self-reported. Data were collected at each woman's initial visit to the group, last visit to the group and at 17-month post-intervention follow-up.

The authors reported data by providing raw scores for each participant and reporting the numbers who lost weight. Ten of the 13 women lost weight during the intervention with a median weight loss of 2.6kg (range -0.7kg to -10.7kg). Eight women lost weight from their last visit to the group to the 17-month follow-up interview with a median of 2.4kg (range -0.4kg to -7.5kg). Eleven women had lost weight from their initial visit to the group to the 17-month follow-up interview with a median loss of 3.2kg (range -0.4kg, -8.2kg).

One of the reviewers (EEH) conducted statistical analysis on the raw data provided by the authors to determine any statistically significant change in weight and BMI

throughout the duration of the intervention (using analysis of variance [ANOVA]) and from the initial visit to the last visit and from the initial visit to 17-month follow-up (using paired t-tests). See Table 2 for mean weight and BMI across time. Repeated measures ANOVA revealed a significant reduction in weight across the three time periods ($F_{2,11}=6.00$, $p=0.017$, partial $eta^2=0.52$). Paired samples t-tests revealed a significant reduction in weight from the initial visit to the last visit to the group ($t=2.83$, $df=12$, $p=0.015$) and from the initial visit to 17-month follow-up ($t=2.68$, $df=12$, $p=0.020$). Similarly, repeated measures ANOVA revealed a significant reduction in BMI across the three time periods ($F_{2,11}=6.20$, $p=0.016$, partial $eta^2=0.53$). Paired samples t-tests revealed a significant reduction in BMI from the initial visit to the last visit to the group ($t=2.83$, $df=12$, $p=0.015$) and from the initial visit to 17-month follow-up ($t=2.80$, $df=12$, $p=0.016$).

**Table 2: Mean (SD) weight and BMI across the three time points**

| Time | Mean (SD) weight (kg) | Mean (SD) BMI |
|---|---|---|
| Initial visit to group | 77.31 (15.06) | 31.95 (4.81) |
| Last visit to group | 75.01 (16.10) | 30.98 (5.25) |
| 17-month follow-up | 74.69 (17.49) | 30.82 (5.84) |

These findings, however, must be interpreted with caution as the sample was small and there was no comparison group. Therefore, it is difficult to tell if these women's weight and BMI would have significantly decreased across the same time period without intervention. It is also difficult to ascertain how widely applicable these findings would be, since little detail on the recruitment of participants to the group was reported and recruitment appears to have been conducted largely using convenience sampling and the women sampled were already engaged in a well-established local women's group (mainly attended by Asian women) dealing with health issues.

**Evidence statement 2.1: Effectiveness of a healthy eating and physical activity group on body weight and body mass index (BMI)**

There is some evidence from one case series study to suggest that an Asian women's healthy eating and physical activity group meeting once weekly for 14 weeks was effective in reducing the body weight and BMI (mean drop in BMI of 1.13) of those attending the group both from the initial visit to the last visit and from the initial visit to 17 months post-intervention (Williams & Sultan 1999 case series-), although these findings must be interpreted with caution as there was no control group.

### 6.2.2 Views studies

The characteristics of the twelve included views studies are displayed in Table 3. Within the included studies, there was some variation in data collection and analysis, delivery setting, target population and research question that should be considered when interpreting the findings. Many studies aimed to investigate knowledge and perceptions surrounding prevention of illnesses, including coronary heart disease (CHD) (Darr *et al.* 2008; Farooqi *et al.* 2000; Netto *et al.* 2007) and diabetes (Grace *et al.* 2008), one of which was to inform the future development of interventions (Netto *et al.* 2007). A similar amount of studies examined views and beliefs surrounding healthy choices with relation to diet (Lawrence *et al.* 2007; McEwen *et al.* 2009; Pieroni *et al.* 2007; Bradby 1997) and physical activity (Rai & Finch, 1997; Khanam & Costarelli 2008). Four studies evaluated interventions, using the data from the studies to evaluate the interventions and suggesting ways to make interventions more suitable for the target population (Khanam & Costarelli 2008; Netto 2007; Williams & Sultan 1999; Carroll *et al.* 2002). The interventions examined included a gym-based GP physical activity-referral scheme in Tower Hamlets, London (Khanam & Costarelli 2008), community-level intervention to increase access to CHD prevention services in Edinburgh (Netto *et al.* 2007), a 14-week Asian women's healthy eating and physical activity group in Trafford, Manchester (Williams & Sultan 1999) as well as a range of Exercise on Prescription (EoP) schemes for south Asian Muslim women (Carroll *et al.* 2002). One study assessed the health needs of residents on a Gypsy Traveller site (Kopp 2009).

Target populations also varied considerably, as did delivery setting. Most studies included people of South Asian origin (Darr *et al.* 2008; Rai & Finch, 1997; Farooqi *et*

*al.* 2000; Grace *et al.* 2008; Khanam & Costarelli 2008; Netto *et al.* 2007; Pieroni *et al.* 2007; Williams & Sultan 1999; Carroll *et al.* 2002), with two studies examining people of African origin (Rai & Finch, 1997; McEwen *et al.* 2009), one study examining people of Caribbean origin (Rai & Finch, 1997) and one study examining people of South Asian and African origin (Lawrence *et al.* 2007). Within the studies examining South Asian origin populations, one study did not specify religion or country of origin (Williams & Sultan 1999) two studies specified examining Bangladeshi Muslims (Grace *et al.* 2008; Khanam & Costarelli 2008), one study specified examining South Asian people in general, of Muslim, Hindu and Sikh religion (Farooqi *et al.* 2000), two studies reported focusing on people of both Indian and Pakistani origin (Darr *et al.* 2008; Pieroni *et al.* 2007), one study focused on people of both Pakistani and Bangladeshi origin (Lawrence *et al.* 2007) and two studies focused on people of Indian, Pakistani and Bangladeshi origin (Rai & Finch, 1997; Netto *et al.* 2007). One study assessed the health needs of a Gypsy Traveller community (Kopp 2009).

Three studies were conducted in London (Grace *et al.* 2008; Khanam & Costarelli 2008; McEwen *et al.* 2009), one study was conducted in Leicester (Farooqi *et al.* 2000), one study was conducted in Manchester (Williams & Sultan, 1999) three studies were conducted in West Yorkshire (Darr *et al.* 2008; Pieroni *et al.* 2007; Kopp 2009), one study was conducted in Edinburgh (Netto *et al.* 2007), one study was conducted in Glasgow (Bradby 1997), one study was conducted in both Dundee and the south of England (Lawrence *et al.* 2007) and two studies were conducted in different locations in England (Rai & Finch, 1997; Carroll *et al.* 2002).

**Table 3: Summary of views studies characteristics**

| Study | Participants | Design | Delivery setting | Target population | Intervention / Control | Research question |
|---|---|---|---|---|---|---|
| **Bradby 1997 +** | N = 47<br>Age range: 20-30<br>All females. | Interviews and participant observation. | Glasgow, UK. | Punjabi women; majority born in Britain; 33% born on subcontinent. | None | Exploration of the ways in which young British Asian women understand food and health to be related. |
| **Carroll 2002 +** | 137 practices.<br>58 Leisure Centres.<br>5 EoP organisers.<br>10 GPs.<br>8 leisure centre staff.<br>35 South Asian Muslim women on the EoP schemes. | Questionnaire and interview evaluation. | UK | South Asian Muslim women. | None | To find out what schemes exist and what provision is made for South Asian Muslim women. To undertake case studies of schemes in which provision is made and to note good practice and issues arising. To undertake and evaluate a pilot intervention programme with special provision for South Asian Muslim women. |
| **Darr 2008 +** | n=65<br>(26 males, 19 females, aged 40-82 among BME groups; 10 males, 10 females, aged 42-83 among Europeans) | Interviews, framework analysis | West Yorkshire, UK | Pakistani Muslim, Indian Sikh, Indian Hindu (+ European) patients with CHD | None | To compare illness beliefs of South Asian and European patients with CHD about causal attributions and lifestyle change. |
| **Farooqi 2000 +** | n=111<br>(24 male, 20 female; aged | Focus groups (6), thematic/content analysis | Leicester, UK | South Asians aged over 40 years in Leicester, of Muslim, | None | To identify key issues relating to knowledge of and attitudes to lifestyle |

| Study | Participants | Design | Delivery setting | Target population | Intervention / Control | Research question |
|---|---|---|---|---|---|---|
| | 40-72) | | | Hindu and Sikh religion | | risk factors lifestyle risk factors for CHD among South Asians. |
| **Grace 2008 ++** | n=137 (54 males, 83 females; 80 lay people, 29 Islamic scholars/ religious leaders, 28 health professionals) | Focus groups (3 sequential phases), vignettes, thematic analysis, multilevel theoretical framework, critical fiction technique | Lay, religious and health service contexts within the Bangladeshi community in Tower Hamlets, London, UK | Lay people, Islamic scholars/ religious leaders and health professionals within the Bangladeshi community in Tower Hamlets, London. | None | To understand lay beliefs and attitudes, religious teachings and professional perceptions in relation to diabetes prevention in the Bangladeshi community. |
| **Khanam 2008 +** | n=25 (all female, aged 30-60) | Interview-guided questionnaire, no detail reported on analysis (looks like basic thematic analysis) | Physical activity referral scheme in London Borough of Tower Hamlets, UK | Overweight and obese UK Bangladeshi women | GP physical activity referral involving 40-minute prescribed physical activity sessions three times a week, supervised by professionally trained gym assistants. The gym assistants, whose role was to facilitate safe use of equipment and to help them meet targets set by the GP. | To investigate the attitudes and beliefs held by overweight and obese UK Bangladeshi women on health and physical activity, and explore possible ways of increasing physical activity levels in this group |
| **Kopp 2009 +** | 38 plots; all adults invited. 35 interviews. 31% Irish Travellers 69% English Gypsies | Needs Assessment | Council Gypsy Traveller site, Wakefield UK | Residents on Council Gypsy Traveller site | None | To understand the health and health care needs of the Gypsy and Traveller population on Heath Common Caravan Site. |

| Study | Participants | Design | Delivery setting | Target population | Intervention / Control | Research question |
|---|---|---|---|---|---|---|
| | 18-24 years 26%<br>25-34 years 26%<br>35-44 years 23%<br>>45 years 25%<br>Female 89% | | | | | |
| **Lawrence 2007 ++** | n=20 women (girls were included in the study but were excluded from this review; overall age of sample 10-35 years) | Focus groups (6), deductive content analysis | Community setting in Dundee, Scotland and south England / Hampshire | Young women (and girls – not reviewed) of African (Zimbabwean [and Somali – not reviewed due to age]) and South Asian (Pakistani and Bangladeshi) descent | None | To explore factors that might affect food choices of girls and young women of African and South Asian descent |
| **McEwen 2009 +** | n=62 (58 male, 12 female; 18% aged <30, 52% aged 30-39, 17% aged 40-49, 13% aged >50 years) | Focus groups (8 groups of 6-10) | Community organisation settings in North London, UK | Somali community | None | Understanding the dietary beliefs and eating behaviours of Somalis in the UK |
| **Netto 2007 +** | n=91 (39 men, 52 women; 32 Indian, 27 Pakistani, 32 Bangladeshi origin; aged | Action research – 2 stages of focus groups (55 participants in first round; 36 in second round) with Bangladeshi | Clinic and workshop community intervention setting in Edinburgh, UK | People from South Asian (Indian, Pakistani and Bangladeshi) communities in Edinburgh | Khush Dil ('happy heart') Edinburgh. Aim: to increase accessibility to CHD prevention services for people from South Asian communities. | How can service user perspectives be used to develop effective, culturally focused CHD prevention interventions for South Asian groups? |

| Study | Participants | Design | Delivery setting | Target population | Intervention / Control | Research question |
|---|---|---|---|---|---|---|
| | over 16 years) | men and women, Indian men and women and Pakistani men and women. | | | Nurse-led community CHD risk clinic; nutrition workshops; working with voluntary organisations to establish healthy lifestyles initiatives. | |
| **Pieroni 2007 +** | n=150 (19 in-depth interviews) (10 males, 140 females; 93 aged over 60 years) | Semi-structured interviews and questionnaires | Local Asian greengrocers in Bradford, UK | First- and second-generation Pakistani and Indian customers of greengrocers | None | To analyse in depth details of the traditional culinary use of vegetables and to assess the health perceptions of them |
| **Rai & Finch 1997 +** | n=175 (87 men, 88 women; aged 18-50) | Focus groups | Different locations in England | Origin:<br>Punjabi Sikh / Hindu<br>Gujerati Hindu<br>Sylheti Muslim<br>Urdu / Punjabi Muslim<br>Caribbean<br>African | None | To investigate attitudes towards, and barriers to, physical activity among South Asian and black communities in England. |
| **Williams & Sultan 1999 +** | N= 15 All female<br>All South Asian. | Semi-structured interviews. | Trafford, Manchester, UK. | South Asian women, overweight or obese. | Healthy eating and physical activity group; 14 weeks duration. | To conduct longer-term follow-up of the women who participated in the pilot group of the Asian women's healthy eating and physical activity group. |

### 6.2.3 Synthesis of views study findings

**Barriers to implementation of interventions**

An evaluation of the Exercise on Prescription programme for South Asian Muslim women identified structural and organisational barriers to implementing the programme. A survey of 137 general practices and interviews with co-ordinators and organisers highlighted a lack of communication between organisations as well as limited links between practitioners and the community. Limited financial resources were cited as one barrier to improving services to suit the needs of South Asian Women, including provision of childcare arrangements, and women-only sessions. Inconsistency of special provision was reported across a range of Exercise on Prescription schemes.

**Evidence statement 2.2: Structural barriers**

There was evidence from one qualitative evaluation of the Exercise on Prescription (EoP) programme (Carroll e*t al.* 2002 +) of structural barriers in the implementation of interventions for increasing access to physical activity with South Asian Muslim women. These include lack of communication between organisational agencies, and lack of financial resources with which to improve services in line with the special requirements of this group of users. There was evidence of reported inconsistent delivery of special facilities for South Asian Muslim women such as childcare and women only classes, across sites.

**Acceptability of interventions and sustaining motivation**

One included study is discussed above in terms of effectiveness data (Williams & Sultan 1999+). The qualitative data from this study showed social interaction to be an important aspect of attending a healthy eating and physical activity group for South Asian women. Some women also stated that they ate less when attending as they were not tempted to snack in the same way as when they stayed in the house.

*"Last couple of weeks I have been staying in and eating and cooking a lot – worry a lot. Every five minutes I find something to eat."*

Another study (Netto *et al.* 2007) evaluated an intervention named Khush Dil (happy heart) that was aimed at CHD prevention in the target ethnic groups. Indian, Pakistani and Bangladeshi men and women took part in discussions which were repeated a second time after 6 months. It was found that advice, information and encouragement was crucial to sustaining motivation to adopt a healthier lifestyle. In addition, acceptability of the intervention was increased by the flexibility of staff in terms of time; in particular the willingness to re-schedule at short notice. Cultural sensitivity was important in terms of access to interpreters and planning around religious events such as Ramadan. One-to-one advice had a positive impact on the willingness of participants to make changes.

Participants offered suggestions for improvement which included extending services to the wider community, and access to linguistically appropriate information that takes into account varying levels of literacy. Bilingual workers were seen as important, as was work with the community to raise awareness of services.

Separate physical activity sessions for men and women were suggested. In terms of dietary intervention, it was suggested that advice be available on preparing traditional foods in a healthier way.

Four studies included participants' suggestions for increasing acceptability of interventions. In a focus group study by Lawrence *et al.* (2007), some participants felt that an incentive such as free food might encourage people to attend nutrition educational classes. In addition, the venue should be easy to access, with a crèche if appropriate. Timing of classes should recognise childcare and other domestic responsibilities, and classes could even be held in the schools.

In a needs assessment study with a Gypsy Traveller community in Wakefield, Cook and Eat sessions and weight management classes were made freely available in the community hall on site (Kopp 2009 +). These classes were valued by women residents for their non-threatening environment and as a forum for discussion of health issues as well as a way to reduce social isolation. Local activities also reduced barriers to attendance at off-site venues in terms of child care, transport and expense.

In a study by Khanam & Costarelli (2008), suggestions were made by female participants that might increase the acceptability of gym attendance. These included the provision of women-only facilities, women-only sessions, swimming facilities for women, more walking physical activity facilities, fewer aerobic classes, Sylheti-

speaking assistants, better transport facilities and childcare facilities, less loud music, no inappropriate TV programmes and provocative music videos, and access to more local gyms.

An evaluation of the Exercise on Prescription (EoP) programme (Carroll *et al.* 2002) also identified lack of access to facilities, lack of childcare arrangements, as well as a limited choice of women-only sessions as barriers to attendance.

*"I only come on a Sunday because I know that it's women only. The rest of the week I don't bother because I am not really comfortable with men around the place. I don't really use my prescription properly, you know."*

**Evidence statement 2.3: Acceptability of interventions and sustaining motivation**

There was evidence from one focus group study (Netto *et al.* 2007+) that acceptability of lifestyle change interventions can be increased by raising the cultural sensitivity of delivery; for example the importance of avoiding Ramadan needs to be considered in the timing of delivery, and separate sessions for men and women need to be considered. There was evidence that flexibility around the timing of interventions as well as the bilingual abilities of staff were important. Learning to cook traditional foods in a more healthy way was one way to preserve cultural identity. In addition, advice (particularly one-to-one delivery), information that takes into account literacy levels and encouragement were crucial to sustaining motivation to adopt a healthier lifestyle.

Evidence from one focus group study that included suggestions from participants (Lawrence *et al.* 2007++), showed that acceptability of a nutritional education intervention might be increased by including free food, by timing classes to suit those with childcare responsibilities, and providing a crèche or possibly holding the classes in schools. Cook and eat sessions and weight management classes that were made freely available on a Gypsy Traveller site (Kopp 2009 +) were valued by women residents for their non-threatening environment and as a forum for discussion of health issues as well as a way to reduce social isolation. Lack of child care facilities, transport issues and costs were barriers to off-site activity.

Evidence from an interview-guided questionnaire study (Khanam & Costarelli 2008+) included suggestions to increase the acceptability for Muslim Bangladeshi women who may wish to access a gym. Suggestions included the provision of women-only facilities, women-only sessions, swimming facilities for women, more walking physical activity facilities, fewer aerobic classes, Sylheti-speaking assistants, better transport facilities and childcare facilities, less loud music, no inappropriate TV programmes and provocative music videos, and access to more local gyms. Evidence from one evaluation of the Exercise on Prescription (EoP) programme (Carroll *et al.* 2002) also identified lack of access to facilities, lack of childcare arrangements, as well as a limited choice of women-only sessions as barriers to attendance.

There was evidence from one mixed method study (Williams & Sultan 1999 +) that

social interaction was a motivator for South Asian women attending a healthy eating and physical activity group. Some women also stated that they ate less when attending as they were not tempted to snack in the same way as when they stayed in the house.

**Barriers and facilitators relating to health behaviour change**

**a) Lack of understanding of cultural issues in professionals**

One study reported potential conflicts between the understandings of health professionals and those of lay people relating to cultural issues. Grace *et al.* (2008) carried out focus groups with 80 lay people from the Bangladeshi community (37 males, and 43 females) without diabetes (half of whom had a family history of diabetes), 29 Islamic scholars and religious leaders, and 28 health professionals. It was found that there were certain cultural beliefs that professionals appeared to misinterpret. For example, there was a belief among professionals that South Asians consider a large body size to be healthy and fertile, and that they are also fatalistic in regard to disease. Religious leaders regarded fatalism as a misinterpretation of Islamic teachings and were keen to address this.

In addition, professionals appeared uncertain about South Asian attitudes to physical activity and they found this a challenge within their health preventive role. For lay Muslim people, Namaz (prayer five times daily) was seen as providing sufficient daily physical activity, whereas for religious leaders this was not the case. Again, religious leaders were keen to address this issue in their teachings.

Misunderstandings could also occur due to communication difficulties; in particular there was a reported deficiency in health literacy for some Bangladeshi people which created problems in discussing lifestyle information. Translated consultations raised issues of interpretation which was compounded by professional's own limited understanding of cultural aspects of lifestyle.

**Evidence statement 2.4: Lack of understanding in professionals**

There was evidence from one focus group study (Grace *et al.* 2008++) of lack of understanding between professional and lay groups in terms of Islamic teaching and its relation to healthy lifestyle practices. There was also evidence from this study of communication difficulties arising from health literacy deficiencies in lay South Asian people and cultural sensitivity deficiencies in professionals which obstruct appropriate health promotion messages.

### b) Religious influences

South Asian participants in one interview study were more likely than their European counterparts to contextualise illness in relation to religious beliefs (Darr *et al.* 2008). Whilst not fatalistic, there were views expressed that God was responsible for their condition rather than the individual, particularly in Pakistani-Muslim people. Some however, were still willing to make changes to lifestyle as illness was seen as an indication from God that they had not previously looked after their health and needed to make changes. The idea of fatalism in some groups had been raised as a barrier to lifestyle change by health professionals and was one that religious leaders in a focus groups study (Grace *et al.* 2008) were committed to address in their teachings.

In terms of dietary practices, one focus group study highlighted that the need to eat Halal meat restricted Pakistani / Bangladeshi women from utilising fast food outlets (Lawrence *et al.* 2007).

One focus group study (Grace *et al.* 2008) found that lay participants regarded physical activity as important for sustaining mental wellbeing and caring for the body – two features of the Muslim way of life. However, physical activity practices in Western culture often included aspects (for example some activities and clothing) that were not in keeping with the religious practices of some Bangladeshis (Grace *et al.* 2008; Rai & Finch 1997; Carroll *et al.* 2002).

*"I don't think that religion prohibits Muslim women from exercising. Health is about well-being and we should all be interested in our health. The only religious factor for me would be that I wouldn't do certain exercises in a mixed class, especially swimming. It wouldn't be right to be going about in a swimming costume with men around. I know some young Muslim women*

*who do and I don't understand how they can. I don't think there's any need and it makes me wonder why they do it."* (Carroll *et al*. 2002)

Walking briskly or jogging was not regarded as acceptable for Muslim women in an interview study by Khanam & Costarelli (2008). Swimming without a religious dagger (karpaan) was reported to be a barrier for South Asian participants. Some Muslim participants saw Namaz (prayer five times daily) as sufficient physical activity (Rai & Finch 1997; Grace *et al.* 2008), whilst religious leaders did not (Grace *et al.* 2008).

**Evidence statement 2.5: Religious influences**

There was evidence from four focus group and two interview studies that religious customs can become barriers or facilitators to lifestyle change. Change was more likely where participants believed they had some degree of free will (Darr *et al.* 2008+). There was conflicting evidence regarding fatalism; in one study (Grace *et al.* 2008++) health professionals spoke of fatalism as a barrier to health prevention in some BME groups. However, evidence from one study (Darr *et al.* 2008+) suggests that whilst the occurrence of health conditions might be regarded as God's will, it is also, according to teachings, the responsibility of the individual to attempt to maintain good health and well being.

There was evidence from three focus groups, one interview study and one qualitative evaluation that healthy activities were acceptable provided they did not include aspects that were conflicting with religious teachings (Grace *et al.* 2008 ++; Khanam & Costarelli 2008 +; Farooqi *et al.* 2000 +; Rai & Finch 1997 +; Carroll *et al*. 2002 +). One focus group study showed evidence that some practices, such as eating Halal meat could be seen as limiting choices in fast food outlets (Lawrence *et al.* 2007 ++).

### c) Cultural Influences

For Somalians in a study by McEwen *et al.* (2009), a nomadic identity influenced dietary choices. Participants were descendants of nomadic camel herders who generally ate meat with rice or spaghetti and drank camel milk. This type of diet was still regarded as 'proper food' and an influence on diet following migration to the UK. Fruit and vegetables were cheap in Somalia and so they were not valued in the manner that they are in Western culture. They were also seen as healthier produce in Somalia, rather than contaminated with pesticides. For these reasons less fruit and

vegetables were consumed by Somalians in the UK. There was however, an interest in organically grown produce.

For South Asians, some vegetables are seen as preventing or curing diabetes and CHD, or as having healing properties. A study by Pieroni *et al*. (2007) identified five vegetables that were perceived as having properties that could treat diabetes as well as carrot, cassava and radish that were believed to prevent diabetes. Participants in this study believed that bitterness in taste counteracts 'sweetness in the blood'. Awareness of the way in which certain vegetables are appreciated and the role of specific foods within cultural identity might be a facilitator in providing dietary advice.

One interview study (Bradby 1997) highlighted South Asian women's views about foods and the explanations for daily food choice. Two models were identified, one that was derived from the Western medical perspective and relied upon certain elements of foodstuffs and the effect they have on particular parts of the body (reductionist). Food choices were made on the assumption that certain properties such as vitamin content were 'good', whilst a lack of such properties, and particularly in the presence of too much fat or sugar, was perceived as 'bad'. However, there was a lack of knowledge about the reasons for this.

A second model was derived from the authority of South Asian elders (systemic). It also follows the reasoning of ancient Ayurvedic and Unani healing systems. In this model effects of foods on the body were not static, rather they were dependent on factors such as the climate, and life stages of the consumer. The perceived heating and cooling properties of foodstuffs were an important factor in food choices; the aim was an equilibrium or balance of the two. Too much heating or cooling of the body was deemed 'bad' and may lead to particular symptoms. For example, too much cooling was believed to be associated with conditions that encourage the production of cattarh, such as colds.

The two models were not mutually exclusive, and women subscribed to both sets of thinking, often using one model to explain gaps in the other. For instance, both models placed solid fats as problematic to health compared to oily fats, though the reasons for this differed. The systemic model conveyed a message of solid fat as sticking and blocking the system. Butter 'jamming' was a problem said to be more likely to occur in Scotland because the weather is colder. Beliefs and eating behaviour of elders who ' *were raised just eating butter'* was not questioned, since on the sub-continent the ghee would not solidify.

*"I was told that it [Flora oil] is better than the ghee. The ghee, that's solid: it goes inside and sticks there, The liquids, that stays in a liquid. Even in winter the curry I make with Flora oil, it'll still be that I can spoon it out with something. If it's with ghee it'll go into a solid block and I can't separate it if I want a small potion out. So we've all changed to Flora oil…The ghee, that's solid, it goes inside and sticks there".* (Bradby 1997)

Both models also advised against over-consumption of meat.

"*Doctors say keep a balance; eat the right things. Eat vegetables too…go on eating meat but you should know about vegetables also"* (Bradby 1997)

Whilst both models were used to explain food choices, women recognised the distinction as 'your sort of foods' and 'our' foods. Traditional Asian explanations continued to be used to the extent that they had become an integral part of life, and had not been contradicted by the prevailing Western model.

A needs assessment with Gipsy Travellers (Kopp 2009 +) found that some fruit and vegetables were eaten daily, as they were seen as relatively cheap. In particular, vegetables were favoured as they could be incorporated into daily cooking. However, residents stated that they often followed the meal with a take-away in the evening.

Two qualitative studies found differences in how physical activity is viewed in the UK and 'back home' in South Asia, Africa and the Caribbean (Rai & Finch 1997; Carroll *et al.* 2002). In the UK, physical activity is 'separate' to daily routine, whilst 'back home', it is 'integral' to daily life; that is, activities fulfil a purpose other than for carrying out physical activity. Such activities were related to domestic or paid work, prayer, and sex. In addition, walking, cycling, swimming and dance were classed as part of everyday life.

Swimming was recalled as a pleasant activity that was part of everyday life in Bangladesh, where the river was close by and for women, there were no males present (Khanam & Costarelli 2008). This memory was contrasted with the perception of current facilities in the UK:

*"Facilities are provided, but there are very few sessions per week only for women. In Bangladesh it was possible to go swimming at any time of the day, as it was close by and the males were aware of us being in the river." (Khanam & Costarelli 2008)*

The integration of physical activity was also reported in a study that was designed to assess the needs of a Gypsy Traveller community in Wakefield (Kopp 2009). Cleaning the inside and outside of trailers was perceived as physical activity, as was walking to and from schools and shops.

By contrast, in Western culture, physical activity is 'separate' to daily routine, often requiring specialised facilities with paid attendance and booking (Rai & Finch 1997). Swimming was seen as a pleasant activity ('exercise' according to the author is an expression with no positively framed Sylheti equivalent), taking place in a locality often away from the home area in mixed company and requiring special clothing. In addition, attending a gym to increase physical activity had disincentives for Bangladeshi women who found the music too loud and images on the TV screens often inappropriate (Khanam & Costarelli 2008; Carroll *et al.* 2002). There may also be sanctioning from family members.

"*Some women think that you have to wear trainers and tights when you exercise but I know women who wear shalwar-kameez and dupattas when they exercise. I think that puts off a lot of women. I think that some husbands believe that women dress disrespectfully when they exercise, so they [the husbands] have to be told that it is not like that."* (Carroll *et al.* 2002)

Residents on a Gypsy Traveller site (Kopp 2009) had been offered physical activities such as line-dancing, salsa dancing and pilates on-site but there was a lack of space in the community hall as well as a lack of commitment by participants. Travelling outside the site to participate in activities was seen as too expensive, as well as incurring risk related to leaving plots unattended.

One study highlighted the belief that expending sweat is an important practice in improving and maintaining well-being. Sweating was believed to allow toxins and impurities to be eliminated from the body, reduce water retention as well as improve digestion and appetite. However in a cooler climate such as in the UK, opportunities for sweating were limited compared to hotter climates. Rigorous physical activity and the use of saunas were therefore popular ways to encourage sweating in the UK (Rai & Finch 1997).

Poor fluency in English was a barrier to accessing information (Netto *et al.* 2007; Khanam & Costarelli 2008) and willingness to travel outside the immediate neighbourhood to shop for more healthy foods. Travelling to participate in physical activities was limited as signs were not understood, and asking directions was difficult (Grace *et al.* 2008).

In addition to barriers specific to preventive behaviours there were reports of general health beliefs that limited behaviour change. A known family history of diabetes may discourage preventive behaviours in affected families as individuals believe that nothing they do can alter fate (Darr *et al.* 2008).

**Evidence statement 2.6: Cultural influences and differences**

There was evidence from nine qualitative studies that cultural influences and issues of identity can be barriers or facilitators to lifestyle change.

There is evidence from one focus group study (McEwen *et al.* 2009+) that a nomadic identity influenced dietary choices for Somalians. As descendants of camel herders, diet in the UK continued to be influenced by the staple meat with rice or spaghetti and a low consumption of fruit and vegetables which were less valued.

A needs assessment with Gipsy Travellers (Kopp 2009 +) found that some fruit and vegetables were eaten daily, as they were seen as relatively cheap. In particular, vegetables were favoured as they could be incorporated into daily cooking. However, whilst 60% of participants considered themselves as 'heavy', they also stated that the meal was often followed by a take-away in the evening.

Evidence from one interview study suggested that traditional South Asian beliefs regarding the preventive attributes of certain vegetables in terms of ill health are part of a cultural identity, and that this might be taken on board by professionals when discussing health promotion (Pieroni *et al*. 2007+). Dietary practices in the UK can involve experiences that are alien to traditional culture and identity (Khanam & Costarelli 2008+; McEwen *et al.* 2009+). However, one qualitative study (Bradby 1997 +) showed that food choices made by South Asian women can be informed by both traditional ('our' food) and Western ('your sort of foods') explanations in terms of 'good' and 'bad' effects upon the body so long as such explanations are complementary rather than in conflict.

Evidence was found in one guided interview study, one focus group study, one needs assessment and one qualitative evaluation for differences between UK culture and non-Western culture in terms of the perception of physical activity as either 'separate' or 'integral' to daily routine. Physical activity as separate incurred financial costs as well as often being organised in ways that are insensitive to different cultural values (Khanam & Costarelli 2008+; Rai & Finch 1997+; Kopp 2009 +; Carroll *et al*. 2002 +).

Evidence from one study highlighted the belief that expending sweat is important for increased well-being; this influenced the practices that might be taken up in the UK where a cold climate limits sweat production (Rai & Finch 1997+).

There was evidence from one guided interview study, two focus group studies and

one qualitative evaluation that a limited command of the English language is a barrier to accessing information (Netto *et al.* 2007+; Grace *et al.* 2008++; Khanam & Costarelli 2008+; Carroll *et al.* 2002 +), as well as accessing activities and shopping facilities outside the neighbourhood (Grace *et al.* 2008++).

There was evidence from one interview study that some South Asians consider that nothing can be done to prevent diabetes if there is already a family history (Darr *et al.* 2008+).

**Understanding of health, diet and physical activity issues**

**a) Knowledge**

Participants in the included studies were generally reported to have a high level of knowledge in regard to diabetes, CHD and healthy lifestyles. The exception to this was one Somali group (McEwen *et al.* 2009), who showed uncertainty about what constitutes a healthy diet. This group expressed a need to learn how to prepare and cook healthy food. Whilst level of knowledge and awareness appeared high in Pakistani / Bangladeshi groups, this was not always translated into practice (Lawrence *et al.* 2007, Netto *et al.* 2007). Knowledge about diabetes was mainly derived from experience with family and friends (Grace *et al.* 2008).

Education was viewed as a way to overcome barriers to adopting a healthy lifestyle, in particular for women. Independence was seen to be increased by encouraging a more liberal interpretation of religious teachings, so that appropriate resistance to restricting traditional cultural norms could occur (Grace *et al.* 2008).

**b) Information**

A need for more information on risk factors as well as advice and encouragement was reported to be crucial to sustaining and motivation change in lifestyle for South Asian participants (Netto *et al.* 2007). Key sources of information for South Asian, African and Caribbean participants in one study (Rai & Finch 1997) were:

1. The media, particularly among young people. TV and the press were the main influences, with visual images being particularly memorable.

2. Role models – mainly celebrities such as sportspersons, actors, fashion models, musicians and TV presenters. Role models were less prominent from South Asian communities than from black groups. Parents could also act as role models to their children.

3. Family and friends were a major source of influence on beliefs, encouragement and advice. They could also discourage from becoming involved in sports.

4. Medical establishments were sources of information and advice, with hospitals deemed more useful than GP practices.

5. Fitness campaigns were perceived to have short term effects due to the lack of reinforcement of messages.

**c) Language**

One interview study, two focus group studies and one qualitative evaluation reported that a limited command of the English language is a barrier to accessing information (Grace *et al.* 2008++; Khanam & Costarelli 2008+; Netto *et al.* 2007; Carroll *et al*. 2002 +), as well as activities and shopping facilities outside the neighbourhood (Grace *et al.* 2008++). Family were often used to interpret interactions with professionals / intervention organisers. Language barriers were more evident for older participants who acknowledged that a better command of English not only assists in understanding, but in asserting one's needs:

*"I think it is really bad for women like me who can't speak English. I can understand it most of the time but I can't reply or read or write it. Sometimes I think that white people don't understand our needs. They just think we don't want to be healthy and exercise – but we do. I think that the younger girls and women are better off and know how to stand up for themselves because they understand English. I'm glad my daughter understands my situation. She always stands up for my sister and me."*

**Evidence statement 2.7: Understanding**

**a) Knowledge**

There was evidence from three focus group studies that knowledge regarding risk factors is at a high level in South Asian communities (Grace *et al.* 2008++; Lawrence *et al.* 2007++; Netto *et al.* 2007+). However, evidence from one focus group study of predominantly male Somali participants suggested a low level of knowledge (McEwen *et al.* 2009+). When knowledge levels were high, there was evidence from two focus group studies that this does not always translate to practice in terms of healthy lifestyle (Lawrence *et al.* 2007++; Netto *et al.* 2007+). However, evidence from one focus group study suggested that one way to resist restrictive practices is through education (Grace *et al.* 2008 ++).

**b) Information**

Evidence from one focus group study suggested that South Asian people in the UK would appreciate increased information on risk factors, advice and encouragement in order to motivate and sustain behaviour change (Netto *et al.* 2007+).

There was evidence from one focus group study that information and advice regarding physical activity came mainly from the media, role models, family and friends, the medical establishment (mainly hospitals) and to a limited degree, fitness campaigns (Rai & Finch 1997+).

**c) Language**

There was evidence from one guided interview study, two focus group studies and one qualitative evaluation that a limited command of the English language is a barrier to accessing information (Grace *et al.* 2008++; Khanam & Costarelli 2008+; Netto *et al.* 2007; Carroll *et al*. 2002 +), empowerment (Carroll *et al.* 2002) as well as activities and shopping facilities outside the neighbourhood (Grace *et al.* 2008++).

**Access and Affordability**

Traditional Bangladeshi and African fruit and vegetables were seen as more expensive in the UK as they were not so readily available (Grace *et al.* 2008; Lawrence *et al.* 2007; McEwen *et al.* 2008). First generation South Asian migrants

were less familiar with UK alternatives to traditional fresh foods, and were less likely to travel any distance to shop due to language barriers and fears for their safety. Therefore they were more dependent upon local sources of food and physical activity facilities (Grace *et al.* 2008). Price affected all participants, with age being an influence (Lawrence *et al.* 2007). Fruit and vegetables had been so cheap in Somalia that they were associated with poverty and so undesirable (McEwen *et al.* 2008). Markets were often seen as untrustworthy sources of food (Lawrence *et al.* 2007).

Williams and Sultan (1999) found in their interviews with South Asian women that that lack of transport, not being able or willing to walk, having conflicting family commitments, ill health, cold weather and fear of walking alone were barriers to attending a healthy eating and physical activity group. Similarly, Carroll *et al*. (2002) found that transport was a barrier to carrying out organised physical activity due to the extra costs incurred as well as fears regarding safety.

**Evidence statement 2.8: Access and affordability**

For South Asian and African populations within the UK, and especially first generation migrants, there was evidence from three focus group studies that traditional fresh foods are not readily available locally and are expensive (Grace *et al.* 2008++; Lawrence *et al.* 2007++; McEwen *et al.* 2008+). There is therefore more reliance on local food provision and physical activity facilities.

Evidence from one focus group study showed that older people are less willing to travel beyond the immediate neighbourhood for food (Grace *et al.* 2008++) due to language barriers and fears for their safety. There is evidence from one focus group study that the price of food is more of an issue for older people (Lawrence *et al.* 2007++).

There was evidence from one mixed method evaluation and one qualitative evaluation that distance from physical activity facilities, lack of transport, fear of walking alone, having conflicting family commitments (Williams & Sultan 1999 +; Carroll *et al*. 2002 +), not being able or willing to walk, ill health and cold weather (Williams & Sultan 1999 +) were barriers to attending a healthy eating and physical activity group. Having to travel to venues incurred extra costs even if physical exercise was on prescription, as for some South Asian women even a small financial contribution was reported as a barrier (Carroll *et al.* 2002).

## Social norms, beliefs and traditions

### a) Diet

In some communities, maintaining a healthy lifestyle was not seen as a priority (Netto *et al.* 2007). Social norms varied according to background, though there were commonalities in the sense that food and its preparation was an important task. For South Asians, special occasions, which were frequent, meant that only the best food be served (Lawrence *et al.* 2007; Grace *et al.* 2008). Serving a curry with reduced oil was regarded as unattractive as well as inhospitable and shameful, therefore this practice was difficult to change (Grace *et al.* 2008; Netto *et al.* 2007), even when knowledge of healthy eating practices was high. If one member of the family was motivated to use less fat, they would continue to cook in the traditional way for other family members (Khanam & Costarelli 2008). In one study, two male participants had instructed their wives to continue using large amounts of oil as they did not like minimal oil in South Asian meals (Darr *et al.* 2008). However, in another study, Indian men found it difficult to control their diet in an environment where social events were common (Netto *et al.* 2007).

Takeaway meals were most commonly used by second generation South Asians (Grace *et al.* 2008), and use of fried foods and fatty snacks was common as a change from traditional food, though some Pakistani / Bangladeshi women reported making healthy changes (Lawrence *et al.* 2007). First generation migrants tended to cook in the traditional way (Pieroni *et al.* 2007; Bradby 1997), having learnt these skills from older female generations (Lawrence *et al.* 2007). There were beliefs that changing a diet that was seen as part of their identity in India was not necessary, that food was not the issue in developing heart disease (Farooqi *et al.* 2000), that taste would be compromised (Darr *et al.* 2008), or that change later in life would lead to physical weakness (Netto *et al.* 2007). It was suggested in one study that advice on preparing traditional food in more healthy ways would be one way to overcome this barrier to change (Netto *et al.* 2007).

Similarly, participants from Somalia knew only how to cook rice, pasta and meat, so that fruit and vegetables were rarely used (generally less than 2 portions per week). To Somalis, meat or rice constituted a ‘proper meal’ which was traditionally one main meal eaten at lunchtime or early afternoon (McEwen *et al.* 2009). Takeaway meals were most commonly used by males, particularly those living alone.

For Zimbabwean women, food had traditionally been cooked by a maid, and they found no time to cook for themselves in the UK (Lawrence *et al.* 2007).

**b) Physical activity**

Physical activity was seen as part of the normal day for South Asians and black communities either in the form of five times daily Namaz (Grace *et al.* 2008), or housework and childcare (Khanam & Costarelli 2008; Rai & Finch 1997), walking or cycling to work, or, 'back home', to find water (Rai & Finch 1997).There was a perceived lack of time to partake in formal or arranged physical activities due to family or work commitments (Darr *et al.* 2008; Grace *et al.* 2008; Netto *et al.* 2007; Farooqi *et al.* 2000).

Physical fitness was seen as a positive attribute, allowing participants to contribute more ably in family duties, though the Western idea of physical activity often conflicted with aspects of South Asian culture (Grace *et al.* 2008; Khanam & Costarelli 2008; Farooqi *et al.* 2000; Rai & Finch 1997). Sport was seen as inappropriate for women and older people and could be sanctioned by the community (Grace *et al.* 2008; Farooqi *et al.* 2000). There were concerns about maintaining modesty, even in the preferred women-only environment (Rai & Finch 1997; Carroll *et al.* 2002). As with the notion of perceived shame associated with choosing healthier dietary options such as using lower levels of fat, sanctions were seen as more important than the benefits of a healthy lifestyle. Barriers are therefore due to a 'complex value hierarchy'. Social support from family members, as in white communities, can be positive or conversely may pose barriers to changing health related behaviours. Women felt a strong pressure to conform to social norms and expectations such as staying at home; younger women often resisted these pressures, stating that remaining inside the home had a negative impact on mental health (Grace *et al.* 2008). Some young people however, associated 'going to the gym' with the current fashion scene, occupying their time and escaping existing social circumstances (Rai & Finch 1997). Older peoples perceived that vigorous physical activity was unnecessary in the context of advancing age and that keeping active and mobile was preferable (Darr *et al.* 2008 +).

More active South Asian and black participants had a higher threshold on an appropriate amount of physical activity, with some perceiving that a high level of intensity is necessary to benefit. However, others held the view that too much physical activity could lead to obsession and dehydration as well as physical injury

(Rai & Finch 1997). Physical activity could, for some South Asians, compensate for unhealthy eating or smoking (Rai & Finch 1997).

Physical activity for older people was believed to lead to weakness, and carrying out activities at home was limited by overcrowding, whilst travel was often difficult due to language barriers and fear for safety (Grace *et al.* 2008). There was little motivation to become active alone, leading to suggestions for a range of culturally sensitive activities (Netto *et al.* 2007).

Swimming and slow walking were preferred activities for South Asian participants, though swimming was again regarded as part of everyday life in Bangladesh (Khanam & Costarelli 2008; Rai & Finch 1997). Some Pakistani-Muslim women had established a regular walking routine and some males, but no females used the gym (Darr *et al.* 2008). Weather conditions also deterred some forms of physical activity (Darr *et al.* 2008).

**Evidence statement 2.9: Social norms and traditions**

**a) Diet**

There was evidence from four focus group studies that traditional South Asian cooking is associated with a high usage of fat, particularly during special occasions which occur frequently (Rai & Finch 1997+; Grace *et al.* 2008++; Lawrence *et al.* 2007++; Netto *et al.* 2007+) and that there is resistance to change such traditions. This was particularly difficult for Indian men who wished to control their diet within a close-knit community where social events were common (Netto *et al.* 2007+).

Evidence from one focus group study showed that Somali cooking is associated with high meat and low fruit and vegetable content (McEwen *et al.* 2009+) and again there is resistance to change. These traditions are part of cultural identity and symbolic of prosperity and hospitality.

Evidence from two focus group studies suggested that consumption of take-away food is common in second generation South Asian males and females as a change from traditional fare (Grace *et al.* 2008++). Similarly, takeaway meals were commonly used by Somalian males, particularly those living alone (McEwen *et al.* 2009+)

Some South Asian women are beginning to cook in more healthy ways. There were suggestions from one focus group study that learning to cook traditional food in healthy ways may be beneficial to South Asian groups (Netto *et al.* 2007+). Women from Zimbabwe were not used to cooking for themselves as in Africa maids had done the cooking; having to cook in the UK was seen as time consuming (Lawrence *et al.* 2007++).

**b) Physical activity**

There was evidence from two interview studies, four focus group studies and one qualitative evaluation that in South Asian groups, physical activity was perceived as a part of normal life and that there was little time for formal or 'separate' sessions, due to work or childcare commitments (Darr *et al.* 2008+; Rai & Finch 1997+; Farooqi *et al*. 2000+; Grace *et al.* 2008++; Khanam & Costarelli 2008+; Netto *et al.* 2007+; Carroll *et al*. 2002 +). In particular, women were expected to stay home and look after children rather than enrol the help of others (Grace *et al.* 2008++). Older participants perceived that vigorous physical activity was unnecessary in the context of advancing age and that keeping active and mobile was preferable (Darr *et al.*

2008+).

There was evidence from one focus group study of variation in views of South Asian and black participants regarding the appropriate level of physical activity required to obtain benefits (Rai & Finch 1997+), depending on own level of activity. There was evidence from the same focus group study of the view among South Asian participants that partaking in physical activity could compensate for unhealthy eating or smoking (Rai & Finch 1997+).

Evidence from two interview studies, three focus group studies and one qualitative evaluation suggests that vigorous activity such as aerobics was not acceptable to some South Asian participants, particularly females, for whom modesty and single sex classes were important considerations (Darr *et al.* 2008+; Rai & Finch 1997+; Grace *et al.* 2008++; Farooqi *et al.* 2000+; Khanam & Costarelli 2008+; Carroll *et al*. 2002 +). For some young people, however, going to the gym created a means of filling time, escape from social conditions and keeping up with fashion trends (Rai & Finch 1997+). There was evidence from one focus group study of the view among South Asian participants that partaking in physical activity could compensate for unhealthy eating or smoking (Rai & Finch 1997+).

There was also evidence from one focus group study that encouraging sweating was important to some South Asians (Rai & Finch 1997+). Evidence from one focus group study and one guided interview study suggested that swimming and slow walking were preferred ways to remain active (Rai & Finch 1997+; Khanam & Costarelli 2008+).

There is evidence from one focus group study of a 'complex value hierarchy' in that the notion of perceived shame associated with choosing healthier options such as low fat in cooking, and particular physical activities that involve certain dress codes were seen as more important than the benefits of a healthy lifestyle (Grace *et al.* 2008++). In addition, as in white communities, support from families can act as a facilitator (if the new behaviour is integrated with the sense of self and one's own values without the control of others) or a barrier to changing health related behaviours (Grace *et al.* 2008++).

**Body Image**

Contrary to the views of health professionals, Bangladeshi participants in a study by Grace *et al.* (2008) selected medium body size as most aesthetically pleasing and associated with good health. In contrast, Netto *et al.* (2007) found an association between overweight and prosperity in her study with Indian, Pakistani and Indian participants. The same sample viewed weight loss as unattractive and related to poor health and unattractiveness. This was reported to inhibit change in some groups. There were comments that increasing age, changing diet and doing more physical activity would lead to weakness.

One interview study with Bangladeshi women found that although all the women interviewed were classed as overweight (60%) or obese (40%), only 64% of the sample perceived themselves to be overweight (Khanam & Costarelli 2008).

In another study, the UK media was seen as shaping views of the 'normal' female body size as slim, whilst 'back home' in Africa and sometimes in the Caribbean, large women were perceived to be healthy and happy (Rai & Finch 1997). The pressure to be slim was felt more in the UK, and was potentially more motivating in terms of dietary change than the risk of ill-health (Lawrence *et al.* 2007).

However, views were changing, particularly in South Asian towns and cities. The typical Indian actress was becoming slimmer. Pakistani / Bangladeshi women in another study were found to be more weight conscious than Zimbabwean women who felt no pressure to be slim in their home land (Lawrence *et al.* 2007).

The views of males within a community could also shape the behaviour of women in terms of achieving an 'ideal' body size. In one study, having the right body shape was particularly important for young South Asian and black women as it improved confidence and the chances of attracting and maintaining the interest of a partner (Rai & Finch 1997). South Asian males in a study by Darr *et al.* (2008) were more aware of the need to lose weight than were women, whereas the opposite was true for Europeans. In one study body size was found to be a stronger motivator for healthy behaviour changes than health issues (Lawrence *et al.* 2007++).

**Evidence statement 2.10: Body image**

There was evidence from five good quality qualitative studies (three focus group and two interview studies) that body image expectations vary according to background culture and often differ from those currently popular within the UK (Darr *et al.* 2008+; Grace *et al.* 2008++; Lawrence *et al.* 2007++; Khanam & Costarelli 2008+; Netto *et al.* 2007+).

Body size can be positively or negatively associated with health and attractiveness, and attempting to reach an ideal body size can be a strong motivator for behaviour change (Lawrence *et al.* 2007++). Only 64% of overweight / obese Bangladeshi women classed themselves as overweight (Khanam & Costarelli 2008+). There was evidence from one interview study that weight management was more important for South Asian males than females (Darr *et al.* 2008+), and for young South Asian and black females in a focus group study (Rai & Finch 1997+).

Evidence was found for an association between overweight and prosperity in one focus group study with Indian, Pakistani and Indian participants. Changing dietary and physical activity patterns in old age was perceived as potentially weakening (Netto *et al.* 2007+).

Having the 'right' body size was influenced by the media as well as some male views, and was important for attracting a partner for young South Asian and black females in one focus group study (Rai & Finch 1997+).

In one focus group study body size was found to be a stronger motivator for healthy behaviour changes than health issues (Lawrence *et al.* 2007++).

# 7. DISCUSSION

Only one included paper showed evidence for the effectiveness of a lifestyle intervention. The study was a mixed method evaluation, which included weak case series data to suggest that an Asian women's healthy eating and physical activity group meeting once weekly for 14 weeks is effective in reducing the body weight and BMI of those attending the group both from the initial visit to the last visit and from the initial visit to 17 months post-intervention. However, these findings must be interpreted with caution. There was no evidence of cost-effectiveness in regard to interventions targeted at BME groups, suggesting that activities carried out within the UK in order to encourage behaviour change in these groups is fragmented and / or unreported.

Evidence from eleven qualitative studies and views from the effectiveness study of good to very good quality suggested that cultural beliefs and practices were often a barrier to lifestyle change in terms of dietary and physical activity practices. For example, even in the presence of knowledge and awareness, the most important factor in healthy lifestyle behaviours were social norms such as hospitality, modesty, and the maintenance or rejection of certain identities. Grace *et al.* (2008) describe this tendency as a 'complex value hierarchy'. Though there are commonalities, such beliefs and practices differ across groups. There were also commonalities between the barriers to behaviour change in these groups and low income groups, such as family preferences for traditional or non-healthy food, and a lack of knowledge regarding the preparation of healthy food.

For BME groups, identities were formed in the homeland and these remained a strong influence on lifestyle behaviours. This influence could be a facilitator, as traditional foods were often freshly prepared. They could also be a barrier, as high levels of fat were traditionally used in South Asian cuisine, and fresh fruit and vegetables were consumed less in Somali groups. Older generations of South Asian groups were limited in their healthy lifestyle choices by language barriers and fear of travelling. There appeared to be a change in beliefs and values with later generations, as younger groups assimilate the UK culture. This could lead to a higher consumption of fast foods and snacks, as younger generations were more resistant to cultural influences.

For a Gypsy traveller community, consumption of vegetables was part of every day cooking, yet take-away meals were consumed in addition to home cooking. Onsite

cooking activities delivered by the PCT were more successful than physical activities. Off site activities were perceived as less accessible and too costly.

Cultural influences often limited the extent and type of physical activity carried out, particularly in females. Vigorous physical activity, immodest clothing and mixed classes were regarded as conflicting with the Muslim way of life. Family commitments and work restricted time spent on formal physical activity, and were often perceived as contributing to physical activity levels. Religious teachings were sometimes misinterpreted, and religious leaders were keen to emphasise that in Islam, looking after one's mind and body is important.

There is an opportunity for community and religious leaders to disseminate health promotion messages that relate to particular groups and that are acceptable within religious teachings. There is scope for BME groups to maintain their identity whilst carrying out a healthy lifestyle, but because identities differ across groups, interventions will need to be sensitive to individual cultures. This includes the use of bilingual workers and staff that are knowledgeable regarding the culture of participants.

No relevant data for cost-effectiveness were found for the assessed interventions. Health economic issues will therefore be considered within the forthcoming Modelling Report. Further well-reported primary research is required that evaluates, with adequate follow-up, the outcomes of population-level preventive interventions in BME populations.

Some BME groups were well-covered by the evidence, in particular South Asian populations, including Muslims, Hindus and Sikhs of Pakistani, Bangladeshi and Indian origin. Other UK BME groups, such as people of African and Caribbean origin, and Gypsy Traveller communities were less well researched. This will have implications for the interpretation of the findings and their practical application.

There were some commonalities between the findings from this review and the previous review of interventions aimed at low SES populations. For example, one important factor facilitating access to and conveying appropriate and culturally sensitive information to both low-SES and BME groups was the presence of trusted, local knowledgeable individuals. This was usually a member of the community; for low-SES groups trained lay persons were valued for their role as educators and sources of support. For BME groups, religious leaders were seen as gatekeepers to accurate information that were aligned with religious teachings.

In terms of dietary interventions, the reduction of fat in traditionally cooked food was an issue that could be addressed in nutritional education. Traditional meals were preferred by older generations in both groups; methods of cooking the same meals could be altered to provide healthier alternatives whilst maintaining cultural identities and taste preferences. Younger generations were more likely to opt for convenience foods but were also more likely to be adventurous in the types of food eaten. Barriers to healthy options in both low-SES and BME groups included traditional preferences of family members. Living alone was a barrier to healthy eating mainly for male low-SES groups and younger BME groups as there is less motivation to cook 'properly'. Again, the provision of nutritional education and cooking skills could facilitate a move toward more healthy forms of both traditional and eclectic food tastes across different demographics.

There were language barriers in both groups when absorbing information; for BME groups workers who could convey messages in the languages of the audience were essential to increase understanding. For low-SES groups, often the language of nutrition and cooking needed to be less scientific, and accompanied by practical demonstrations to make messages more meaningful. Away from interventions, information was mainly gathered from the media, family and friends for both low-SES and BME groups. It is important therefore that media messages are accurate and facilitating; family and friends could be helpful in passing on newly learned skills and knowledge.

Accessing preferred fresh fruit and vegetables was difficult for some low-SES groups and older BME groups due to insufficient local provision and barriers to travelling. A similar barrier was evident in accessing formal physical activity sessions; this was compounded by religious and cultural objections to certain aspects of carrying out such activities, for example, the type of clothing required. For some BME women, clothing was often too revealing; for those in low-SES groups, certain clothing conveyed a negative image. Women only classes were preferred by some members of low-SES and BME groups due to embarrassment over body image and modesty respectively. In addition, physical activity classes were more acceptable when they were timed to fit in with work or family commitments.

From the findings of both reviews, there is evidence that some issues and therefore potential suggestions to increase acceptability of interventions are common to both groups. However, there are issues that are idiosyncratic to particular ages, gender, geographical areas, religions and ethnicity. A general message inherent in all of the

studies is that UK BME populations are diverse and thus there is a need to understand specific issues of importance to any particular community before implementing behaviour change interventions, in order to ensure the appropriateness and acceptability of interventions delivered.

Judging by the diversity also found among UK low-SES populations, as identified by the previous review, this same implication could be usefully applied to interventions delivered to low-SES communities. However it is interesting to note that the need to understand the issues of importance to each specific low-SES community with respect to designing appropriate and acceptable interventions was not highlighted in the same level of detail as it was among BME communities. Understanding the needs, issues and priorities of any specific sub-population to whom an intervention is targeted must surely be an important precursor to intervention with each sub-population.

### 7.1 Interpreting findings in the context of the wider evidence base relevant to diabetes prevention

The relatively limited findings of this review should be interpreted in the context of the very large volume and diversity of existing relevant evidence-based guidance and systematic reviews in the specific fields of physical activity, dietary change and weight management and in the broader field of behaviour change in general. This focused review, of a specific strand of the evidence-base, should be considered in the context of the much wider evidence-base in relation to the effectiveness of interventions at all levels (population, community and individual) and with a wide range of objectives including increasing physical activity, dietary change, prevention and management of obesity and overweight and prevention of both pre-diabetes and diabetes. Overall this review largely confirms that there remains limited evidence for the effectiveness of specific interventions implemented in BME communities and that there are a range of specific barriers to behaviour change that would need to be considered when developing or tailoring new interventions for diabetes prevention in UK BME populations.

A common approach to health behaviour change is attempting to increase knowledge or raise awareness about healthy behaviours, for example of what constitutes a healthy diet or a desirable level of physical activity to attain health benefits. Evidence examined within this review has highlighted that knowledge and awareness alone are not sufficient for a change to be made. Other factors, such as the influence of

religion, culture, tradition and language, and practical issues such as access and affordability, may also be important mediators of the relationship between increased knowledge or awareness and a change in behaviour.

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# 9. APPENDICES

## Appendix 1: Included studies

I

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## Appendix 2: Excluded studies

Studies excluded after review of full paper

| Author | Ref ID | Reason for exclusion |
|---|---|---|
| Active England 2007 | 4733 | Outcomes |
| Attree 2005 | 4800 | Review* |
| Baig *et al.* 2009 | 43 | Population outside criteria (age)† |
| Billingham 1994 | 1238 | Descriptive |
| Bush *et al.* 1998 | 4747 | Descriptive |
| Carroll *et al.* 2007 | 3545 | Population outside criteria (diagnosed with pre-diabetes) |
| Chambers *et al.* 2006 | 3254 / 3255 | Diabetes prevalence study |
| Charikar 2008 | 80 | Descriptive |
| Chowdhury *et al.* 2003 | 3580 | Population outside criteria (diagnosed with pre-diabetes) |
| Condon *et al* 2008 | | Population outside criteria |
| Cortis 2000 | 2367 | Topic not relevant |
| Dickinson 1994 | 2378 | General health views (not PA / Diet) |
| Davey *et al.* 2008 | 121 | Study design paper |
| Dion 2008 | 2964 | Descriptive |
| Dugdill *et al.* 2000 | 3083 | Population outside criteria (small business – health issues not relevant) |
| Farooqi & Bhavsar 2001 | 891 | Review 3 data |
| Gillies *et al.* 2008 | 3835 | Screening |
| Gokal *et al.* 2007 | 2460 | Population non-specific |
| Ghouri 2005 | 551 | Descriptive |
| Holmes 2008 | 106 | Review* |
| Hoskins & Lakey 1997 | 3107 | Commentary |
| Hussain-Gambles *et al.* 2004 | 650 | Topic not relevant |
| Hussain-Gambles *et al.* 2006 | 409 | Topic not relevant |
| Ingleby 2006 | 2320 | Commentary |
| Jeffery *et al.* 1995 | 4726 | Non-UK study |

| Author | Ref ID | Reason for exclusion |
|---|---|---|
| Kahn *et al.* 2002 | 4732 | Non-UK study |
| Kassam-Khamis *et al.* 2000 | 4896 | Descriptive |
| Kelleher & Islam 1994 | 1246 | Population outside criteria |
| Kennedy 2001 | 944 | Descriptive |
| Khalsa 2004 | 2690 | Review; not relevant |
| Khunti *et al.* 2008 | 177 | Population outside criteria (age) † |
| Kooiker & Christiansen 1995 | 2991 | Not relevant |
| Kousta *et al.* 2006 | 440 | Population outside criteria (diagnosed with pre-diabetes) |
| Lip *et al.* 1996 | 1146 | Population outside criteria (pregnancy) |
| Lip *et al.* 1995 | 4918 | Correlates study |
| Madden *et al.* 2008 | 4156 | Review* |
| McFarlane 2007 | 4194 | Population outside criteria (diagnosed with pre-diabetes) |
| Meyers *et al.* 1996 | 4725 | Non-UK study |
| Mobley & Mobley 2004 | 4226 | Review* |
| Moss *et al.* 2008 | 3133 | Descriptive |
| Narayan *et al.* 1998 | 4728 | Non-UK study |
| National Coordinating Centre for Health Technology Assessment 2006 | 3386 | Existing pre-diabetes |
| Oldroyd *et al.* 2008 | 3215 | Review* |
| Papadopoulos *et al.* 2003 | 739 | Migration as topic (background) |
| Patel 2001 | 2557 | Correlates study |
| Peters & Jackson 2005 | 506 | Topic not relevant |
| Pill *et al.* 1993 | 1272 | Correlates study |
| Pollard *et al.* 2003 | 749 | Correlates study |
| Polley *et al.* 1997 | 4727 | Non-UK study |
| Pritchard *et al.* 2006 | 340 | Descriptive |
| Radcliffe 2001 | 3068 | Descriptive |
| Rahman *et al.* 2008 | 4365 | Screening |
| Ramachandran *et al.* 2005 | 499 | Screening |
| Rankin & Bhopal 2001 | 910 | Survey (background) |
| Raynor & Lang 2004 | 2349 | Population non-specific |
| Reed 2004 | 2540 | Topic not relevant |
| Robinson *et al.* 2004 | 679 | Correlates study |
| Robinson & Gilmartin | 825 | Review* |
| Rudolf *et al.* 2006 | 377 | Population outside criteria (age) † |
| Simmons & Williams 1997 | 1126 | Correlates study |
| Singh 1994 | 4465 | Not relevant |
| Smith & Brunner 1997 | 1135 | Review* |
| Sooman *et al.* 1993 | 1263 | Correlates study |
| Sowden *et al.* 2008 | 117 | Correlates study |
| Spijkerman *et al.* 2004 | 4484 | Screening |
| Spijkerman *et al.* 2002 | 4485 | Screening |
| Sport England 2009 | 4734 | Descriptive |
| Uitenbroek *et al.* 1996 | 1162 | Correlates study |
| Vohr 2008 | 4595 | Review* |
| Von Wagner *et al.* 2007 | 209 | Correlates study |
| Wall *et al.* 2009 | 4719 | Study design paper |
| Wardle *et al.* 2002 | 3041 | Correlates study |
| Wardle & Griffith 2001 | 947 | Correlates study |
| Watt *et al.* 1993 | 1268 | Not ‘at risk’ population |
| Williams 2007 | 2318 | Health professionals (Review |

| Author | Ref ID | Reason for exclusion |
|---|---|---|
| | | 3) |
| Williams 2009 | 4731 | Study design paper |
| Williams & Shams 1998 | 1064 | Correlates study |
| Williams *et al.* 1993 | 1271 | Correlates study |
| Wills *et al.* 2006 | 452 | Population outside criteria (age) † |

* Reference lists of reviews were examined for relevant papers
† Studies were not excluded on the basis of age where the impact of an intervention for those aged under 18 years or over 74 years if the impact of the intervention on the outcomes of adults aged 18-74 years was reported

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## Appendix 3: Search Strategies and Details of Evidence Sources

### Mapping Review Search Strategies

### Sample Search Strategy Search One Mapping Review Medline (via OVID)

1 (prediabetes or pre?diabetes).ti,ab.

2 ((impaired glucose adj (level* or tolerance or regulation or metabolism)) or raised glucose tolerance or IGT or impaired fasting glucose or insulin resistance or metabolic syndrome or hyperinsulinaemia or non diabetic hyperglycaemia or abnormal blood glucose level* or dysglycaemia or intermediate hyperglycaemia).ti,ab.

3 (((type II or type 2) N1 diabetes) or T2D).ti,ab.

4 1 or 2 or 3

5 *prediabetic state/ or *diabetes mellitus, type 2/

6 (risk* or prevent* or reduce* or protect* or limit* or control*).ti,ab.

7 *risk reduction behaviour/ or *risk factors/

8 ((prediabetes or pre?diabetes or ((impaired glucose adj (level* or tolerance or regulation or metabolism)) or raised glucose tolerance or IGT or impaired fasting glucose or insulin resistance or metabolic syndrome or hyperinsulinaemia or non diabetic hyperglycaemia or abnormal blood glucose level* or dysglycaemia or intermediate hyperglycaemia) or (((type II or type 2) adj diabetes) or T2D)) adj5 (risk* or prevent* or reduce* or protect* or limit* or control*)).ti,ab.

9 4 and 7

10 6 and 5

11 8 or 10 or 9

12 great britain/ or england/ or scotland/ or wales/ or northern ireland/

13 (uk or united kingdom or britain or gb or england or scotland or wales or northern ireland).ti,ab.

14 13 or 12

15 11 and 14

16 limit 15 to (english language and humans and yr="1990 -Current")

17 from 16 keep 1-912

**Sample Search Strategy Search Two Mapping Review Medline (via OVID)**

1. (south asia* or black africa* or black caribbean* or pakistan* or bangladesh* or india* or (Ethnic adj1 minorit*)).ti,ab.
2. (blue collar or working class or underclass or low* class or low* income or poverty).ti,ab.
3. social* exclu*.ti,ab.
4. social* inclu*.ti,ab.
5. (depriv* or disadvantage* or inequalit* or underprivilege*).ti,ab.
6. *income/ or *poverty areas/ or *social class/ or *socioeconomic factors/
7. 1 or 2 or 3 or 4 or 5 or 6
8. *body mass index/ or *obesity/ or *food habits/
9. (obes* or waist circumference or BMI or nutrition or "bmi > 3?"or “bmi > 24” or diet or overweight).ti,ab.
10. (weight adj (gain or change or retention)).ti,ab.
11. *Motor Activity/ or *Physical activity/
12. (physical* inactiv* or physical* activ* or physical physical activity).ti,ab.
13. (sedentary lifestyle* or active lifestyle*).ti,ab.
14. *Physical exertion/ or *Physical fitness/
15. (blood pressure or cardiovascular disease or blood cholesterol).ti,ab.
16. (history adj5 diabet*).ti,ab.
17. gestational diabetes.ti,ab.
18. *Diabetes, gestational/ or *Genetic predisposition to disease/
19. (genetic* or hereditary).ti,ab.
20. (behaviour change or social marketing).ti,ab.
21. *social marketing/ or *health behaviour/ or *health knowledge, attitudes, practice/ or *health promotion/
22. (diabetes education or cultural sensitivity or culturally competent).ti,ab.
23. *cultural competency/ or *communication barriers/
24. 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25. great britain/ or england/ or scotland/ or wales/ or northern ireland/

26. (UK or United Kingdom or Britain or GB or England or Scotland or Wales or Northern Ireland).ti,ab.
27. 25 or 26
28. 7 and 24 and 27
29. limit 28 to (english language and humans and yr="1990 -Current")

**List of Databases Searched for Mapping Review**

Medline via OVID SP

Embase via OVID SP

CINAHL via EBSCO

British Nursing Index via OVID SP

The Cochrane Library via Wiley

Science Citation Index via Thomson ISI

Social Science Citation Index via Thomson ISI

PsycINFO via OVID SP

**Additional Websites Searched for Mapping Review**

Diabetes UK

http://www.diabetes.org.uk/

NHS Evidence specialist collection for Diabetes

http://www.library.nhs.uk/diabetes/

NHS Evidence specialist collection for Ethnicity and Health

http://www.library.nhs.uk/ethnicity/

**Sample Search Strategy for Review One and Two Grounded on Evidence Capture from the Mapping Review (Medline via OVID)**

1. (south asia* or black africa* or black caribbean* or pakistan* or bangladesh* or india* or (ethnic adj1 minorit*)).ti,ab.

2. (blue collar or working class or underclass or low* class or low* income or poverty).ti,ab.

3. social* exclu*.ti,ab.

4. social* inclu*.ti,ab.

5. (depriv* or disadvantage* or inequalit* or underprivilege*).ti,ab.

6. *income/ or *poverty areas/ or *social class/ or *socioeconomic factors/or *gypsies/or *vulnerable populations/

7. hard to reach or marginalised communit* or social cohesion or gypsy-travellers or romany or romani or roma or gipsy or seldom heard

8. OR 1-7

9. food skill* or food project* or cook* skill* or cook* project* or physical activity on prescription or healthy eating advice or physical activity intervention or nutritional education or physical activity referral scheme* or group based weight management or diet therapy or community dietetic service* or community cook* class* or cook* class* or food class* or cook* club* or food club*

10. *food services/ or *food habits/ or *food labelling/ or *swimming pools/ or *physical activity therapy/ or *diet therapy/

11 OR 9-10

12. population level or community health or retail intervention or non-health care intervention or peer education programme* or public awareness campaign* or family counselling or behaviour* counselling or mass education or health education or behaviour goal* or healthy living centre* or cultural collaboration or relaxation or partnership or holistic or ecological or ICT or new media or “men’s health clinic”

13. community adj2 (participation or project or approach or engagement or care or intervention or strategy)

14. *communications media/or *leisure activities/ or *social marketing/ or *program development/ or *health education/ or *behaviour therapy/ or *community health planning/ or *persuasive communication/ or *internet/ or *holistic health/ or *relaxation/ or *family therapy/

15 OR 12-14

16. dietary change or healthy eating or wellbeing or weight management

17 ((lifestyle or behaviour*) adj change)

18. physical activity/ or diet/ or nutritional physiological phenomena/

19. OR 16-18

20 15 AND 19

21. 11 OR 20

22. 8 AND 21

23. leisure provision or pool provision or language barrier* or access to care or food choice* or participation or nutritional knowledge or community level barrier* or dietary intake or motivation or eating behaviour or dietary belief* or dietary perception* or fatalistic outlook or cultural heritage or views or food related experience* or lifestyle health impact or food consumption patterns or awareness or food desert or illness belief* or religious leader* or questionnaire or interview or focus group or participant observation or delphi study or group meeting* or feedback or video-tape instruction or video tape instruction or role-play or role play or telephone survey

24. (gender) adj3 weight

25. ((environment* or cultur* or religious) adj factor)

26. (physical activity) adj2 (attitudes or behaviour or perception)

27. *religion/ or *multilingualism/ or *cultural diversity/ or *choice behavior/ *cookery/ or *culture/ or *cultural characteristics/ or *perception/ or *social support/ or *communication barriers/ or *self concept/ or *food preferences/ or *risk reduction behavior/ or *motivation/ or *social environment/ or *consumer participation/

28. OR 23-27

29 8 AND 28 AND 19

30. 22 OR 29

31. great britain/ or england/ or scotland/ or wales/ or northern ireland/

32. (UK or United Kingdom or Britain or GB or England or Scotland or Wales or Northern Ireland).ti,ab.

33. 31 OR 32

34. 30 AND 33

ADD DATE LIMIT 1990-2009, ENGLISH LANGUAGE, HUMANS

**List of Databases Searched for Review One and Two**

Medline via OVID SP

Embase via OVID SP

CINAHL via EBSCO

British Nursing Index via OVID SP

The Cochrane Library via Wiley

Science Citation Index via Thomson ISI

Social Science Citation Index via Thomson ISI

PsycINFO via OVID SP

EPPI Centre Databases – Bibliomap, Database of Promoting Health Effectiveness Reviews (DoPHER), Trials Register of Promoting Health Interventions (TRoPHI), The database on Obesity and Sedentary behaviour studies

http://eppi.ioe.ac.uk/cms/

**Additional Sources Searched for Review One and Two**

**Grey Literature**

British Library Integrated Catalogue

http://catalogue.bl.uk/F/?func=file&file_name=login-bl-list

Conference papers index (via CSA)

Medical Research Council

http://www.mrc.ac.uk/

Economic and Social Research Council.

www.esrc.ac.uk/

**Websites**

Association of Public Health Observatories

www.apho.org.uk/

NHS Evidence: National Library for Public Health

www.library.nhs.uk/publichealth/

The Joseph Rowntree Foundation

www.jrf.org.uk/

Diabetes UK

http://www.diabetes.org.uk/

**Other Sources**

Scopus (via Elsevier)

Web of Science (via Thomson ISI)

NHS Economic Evaluation Database (NHS EED via Wiley)

EconLit (via Ovid SP)

The Public Health Interventions Cost Effectiveness Database (PHICED)
www.yhpho.org.uk/nphl/nphlresults.asp

Google Scholar

http://scholar.google.co.uk/

## Appendix 4: Quality rating of included papers

### Effectiveness paper

| Study | Population | | | Intervention (& comparison) | | | | | | | | | | Outcomes | | | | Time | | Results | | | | | | Summary | | Summary quality rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
| Williams & Sultan 1999 | - | - | - | NA | + | NA | NA | - | NA | NA | + | ++ | + | + | + | + | ++ | NA | ++ | NA | - | - | + | + | + | - | + | - |

### Qualitative papers

| Study | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | 14 | Quality rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bradby 1997 | ++ | + | + | + | + | + | + | NR | + | NR | ++ | + | ++ | NR | NA | + |
| Carroll 2002 | ++ | ++ | + | + | + | ++ | + | + | ++ | + | + | ++ | + | + | NA | + |
| Darr 2008 | ++ | ++ | ++ | + | + | + | ++ | ++ | + | ++ | + | + | ++ | ++ | + | + |
| Farooqi 2000 | ++ | + | + | ++ | + | + | + | + | + | - | + | + | ++ | + | NR | + |
| Grace 2008 | ++ | ++ | ++ | ++ | + | + | ++ | ++ | ++ | ++ | ++ | ++ | + | - | + | ++ |
| Khanam 2008 | ++ | + | - | - | + | + | - | - | + | NR | + | ++ | + | - | + | + |
| Kopp 2009 | ++ | ++ | ++ | + | NR | ++ | NR | + | - | NR | + | + | ++ | NR | NA | + |
| Lawrence 2007 | ++ | + | + | ++ | + | - | + | ++ | ++ | ++ | ++ | ++ | ++ | + | ++ | ++ |
| McEwen 2009 | ++ | + | ++ | + | + | ++ | + | + | - | + | ++ | ++ | + | ++ | + | + |
| Netto 2007 | ++ | ++ | ++ | + | ++ | + | + | + | ++ | + | ++ | ++ | + | + | ++ | + |
| Pieroni 2007 | ++ | ++ | + | ++ | ++ | + | + | + | - | + | + | + | + | + | ++ | + |
| Rai & Finch 1997 | ++ | ++ | ++ | + | + | ++ | ++ | + | ++ | + | ++ | ++ | + | NR | NA | + |
| | | | | | | | | | | | | | | | | |

The following questions were used to assess the quality of each study (numbers correspond to the numbers in the table):

The checklist for quantitative studies contained the following items:

1. Is the source population or source area well described?
2. Is the eligible population or area representative of the source population or area?
3. Do the selected participants or areas represent the eligible population or area?
4. How was selection bias minimised?
5. Were interventions (and comparisons) well described and appropriate?
6. Was the allocation concealed?
7. Were participants and/or investigators blind to exposure and comparison?
8. Was the exposure to intervention and comparison adequate?
9. Was contamination acceptably low?
10. Where the other interventions similar in both groups?
11. Were all participants accounted for at study conclusion?
12. Did the setting reflect usual UK practice?
13 Did the intervention or control comparison reflect usual practice?
14. Were outcomes measures reliable?
15. Were all outcome measurements complete?
16. Were all the important outcomes assessed?
17. Were all outcomes relevant?
18. Were there similar follow up times in exposure and comparison groups?
19. Was follow-up time meaningful?
20. Were exposure and comparison groups similar at baseline?
21. Was intention to treat (ITT) analysis conducted?
22. Was the study sufficiently powered to detect an intervention effect (if one exists)?
23. Were the estimates of effect size given or calculable?
24. Were the analytical methods appropriate?
25. Was the precision of intervention effects given or calculable? Were they meaningful?
26. Are the study results internally valid (i.e. unbiased)?
27. Are the findings generalisable to the source population (i.e. externally valid)?

The checklist for qualitative studies contained the following items:

1. Is a qualitative approach appropriate?
2. Is the study clear in what it seeks to do?
3. How defensible/rigorous is the research methodology?
4. How well was the data collection carried out?
5. Is the role of the researcher clearly described?
6. Is the context clearly described?
7. Were the methods reliable?
8. Is the data analysis sufficiently rigorous?
9. Is the data ‘rich’?
10. Is the analysis reliable?
11. Are the findings convincing?
12. Are the findings relevant to the aims of the study?
13. Conclusions

    Is there adequate discussion of any limitations encountered?
14. How clear and coherent is the reporting of ethics?

## Appendix 5: Narrative description of included studies by intervention aim / lifestyle behaviour

### Bradby 1997 (Interview study)

Forty-seven Punjabi women aged 20-30, most of whom were in Britain (33% born on subcontinent) were interviewed in Glasgow in order to explore the ways in which young British Asian women understand food and health to be related. Women reported eating a large variety of foods and tended to divide them into 'our' foods (Asian') and 'your sort of foods' (Scottish or British). Daily food reflected Punjabi origins. Health was a powerful reason for explaining the rationale behind daily food choice. Dietary talk fell into two models:

1. Derived from the authority of Western medical view of the world (reductionist, as it relies on certain elements of foodstuffs to explain effects upon particular parts of the body).

2. Derived from the authority of South Asian elders (systemic, because health is considered in terms of the effect of the whole food on the whole body in a way that is contingent upon many other variables).

The first type of explanation stated that a food was good because of something it contained that was also intrinsically good. The good effect of the food was often related to its effect on a specific part of the body. Foods were described as either good or bad.

The second view referred to the effect of the whole food on the body, often relating this to the type of weather prevailing or the stage of life which the consumer had reached, in deducing whether or not the effect of the food was 'good'. This type was more complex than the first, more dependent on context and time, so that a particular food might be good in one time and place for a certain person, but this could change.

Thus one food could have several roles through time, and women were likely to talk of the maintenance of a balance of health, while taking other factors into consideration.

Reductionist model: 'good' and 'bad' constituents:

- Foods that were deemed good included fresh fruit and vegetables, dairy products, cereals and pulses. The reason for them being good was difficult to ascertain, some women stating that they were good because they were good for you. Some women referred to the goodness of the nutrients that these foods contained (e.g. vitamins, protein, fibre).

- Despite a lack of knowledge, the presence of vitamins in a food was a powerful reason for considering a food to have a beneficial effect on health and was used to explain the value of foods. Foods said not to contain vitamins were said to be bad on this basis alone. This model also identified foods whose effect was to compromise health, and the prime offenders in this respect were said to be fat and sugar.

- Foods that contained fat such as chips, or that were said to have a fattening effect such as a banana were classified as bad, and this became grounds for assuming that they lacked vitamins.

Fatty ('bad') foods came in 3 guises:

1. Foods to which a lot of fat was added to at preparation such as curries.

2. Foods which were cooked in oil including anything fried.

3. Meat, which was the only food identified as fat-containing that was also named as food that could be good for health. It was only felt to be healthy within limits, and if eaten every day would mean an intake of fat that was too high.

Fat was held to have effects on the body and led to vilification were its contribution to increased body weight and to 'heart trouble'.

Fat in the diet was perceived to lead to weight gain which was a problem in and of itself and was connected to the increased risk of heart trouble. Most participants said they were making an effort to eat less fatty food by avoiding fried items and using small amounts of oil.

This model is recognisable as a British / western health promotion model. Women attributed the authority for this model to professional figures such as teachers and doctors. There was an absence of expressions of disbelief in this model.

Systemic model: maintaining equilibrium:

Health viewed as an equilibrium that was dependent on many factors, only one of which was food consumed. The effect of each factor varied according to other factors in operation, such as the way food was cooked, stored, the climate, the bodily state and stage of life-cycle of consumers, as well as their emotional state.

Beliefs and practices were explained as common sense or knowledge passed on by relatives. There were connections between the explanations and Ayurvedic and Unani healing systems (which date back to 400BC).

Heating and cooling were reported as having significant effects on the general health equilibrium and particular symptoms. The effects were said to interact with the effects of the environment and the eater to influence health.

Although the accounts were remarkably constant, there were variations in the status accorded to accounts. Some women avoided certain foods out of habit, whilst others were intuitive about body sensations. Yet others had been given advice by their mothers.

Connections between systemic and reductionist accounts

The two accounts were not mutually exclusive; women subscribed to both ways of thinking and used one model to explain features of the other.

There was some evidence that reductionist accounts would only be followed if they did not contradict traditional accounts.

There was systemic belief that ghee or butter were good for lubrication but could also, when solidified, create blockages that might lead to heart attacks.

Butter ‘jamming’ was a problem said to be more likely to occur in Scotland because the weather is colder. Therefore the beliefs and eating behaviour of elders who ‘*were raised just eating butter’* was not in question, since on the sub-continent the ghee would not solidify.

There was advice against over-consumption of meat in both models, but for different reasons. The reductionist model gives meat diminishing returns in terms of health benefit because of its fat content. In the systemic model, over-heating and subsequent pimples and rashes, and even anger were the concern.

**Carroll *et al*. 2002 (Questionnaire and interview study +)**

A survey was carried out in 137 UK general practices and 58 leisure centres across 33 health authorities to identify which schemes exist and the extent of provision of physical activity interventions for Muslim women. Interviews were carried out with 5 Exercise on Prescription (EoP) organisers or co-ordinators, 10 general practitioners in their role as referrers to the programmes, and 8 leisure centre staff on their role in implementing the interventions. In addition, 35 South Asian women who were currently taking part in an EoP scheme were interviewed.

Exercise on Prescription (EoP) are the preferred course of treatment for a range of conditions including coronary heart disease; the schemes are based in primary care. The aim of the EoP scheme for this particular group was to reduce inequalities due to sexism, economic deprivation, racial discrimination and control of behaviour around physical activity emanating from the lay community. The aim of the research was to obtain information about actual circumstances and conditions of South Asian women in order that they may become more empowered.

The selected schemes had made some provisions for South Muslim women, and there were examples of good practice.

The five health authorities chosen, and the names of the schemes, were:

(a) West Pennine Health Authority: 'A Prescription for Exercise'

(b) Bradford Health Authority: 'Bradford Encouraging Exercising People' (BEEP)

(c) Leicester Health Authority: 'Active for Life'

(d) East Lancashire Health Authority: 'Fitness for Life'

(e) Birmingham Health Authority: 'Exercise on Prescription'.

The survey response rate was 55%, with less than 5% minority ethnic groups represented in 16 out of 32 leisure centres, and less than 20% in 3 leisure centres. Two centres reported over 31% representation whilst 11 centres did not know. In terms of referrals by general practitioners, less than 1% were for South Asian women at 15 centres, and at four centres referrals were ≤7%. The remaining centres did not know the answer to the question. Twelve centres reported having no South Asian

Muslim women registered on programmes, six had 1-4, one had 15 and one had 60. The remainder did not know the answer.

Seven centres (22%) reported having special provision for South Asian Muslim women, with one providing a range of support including women-only gyms, South Asian instructors, translators, counselling, transport services and special activities and promotions in ethnic minority languages. Others provided special activities for women such as swimming, saunas and aerobics. The duration of programmes ranged from 4 weeks to 8 months, with one centre responding that the programme was 'on-going'.

The GP survey showed that 33% of general practices were involved in EoP referrals across 15 health authorities. Practices varied in terms of the numbers of South Asian Muslim women registered, from less than 10 patients to 50% of the case list. Evaluation had taken place for 17 schemes; 29 general practices kept formal records whilst 20 did not and 8 were not aware of such records. Patients were reported to have often requested a referral, suggesting patient awareness of the schemes.

Qualitative data from interviews with South Asian women identified a number of barriers to women's acceptance of the schemes:

**Structural barriers**

*Access to facilities* – with one exception, sports facilities were located some distance away. The need for transport incurred extra costs.

*The cost of exercise* – There was a view that even on prescription, physical activity was expensive. Initial free sessions were followed up by charged sessions. This was not a priority for those on benefits with young children.

*Childcare facilities* – lack of crèche facilities for all women-only sessions.

*Women-only sessions* – One centre in particular only held one women only session per week. In another centre, many sessions were available but women seemed unaware of these facilities.

*Language* – Inability to understand what the staff were saying to them was a barrier to participation. Some women took family members along with them as translators / childminders.

**Attitudinal barriers**

*Culture* – there was a belief that Muslim people perform physical activity as part of daily life, particularly related to Nazam. Physical exercise in the UK was seen as different – apart from daily life and requiring attention to safety in terms of accessing facilities. The idea that males within the community dissuaded their partners from performing physical activity was contradicted.

*Religion* – Islam was not seen as a restriction to physical activity. However, a lack of awareness of male-female dynamics was reported as a barrier in terms of the perceived appropriateness of clothing required and of exercising alongside males.

*Racism and religious discrimination* – there was a perception that some white people do not understand Pakistani people; this was a barrier to interaction in certain places.

Interviews with community workers highlighted their role as a link between the health authority, leisure centres and local communities. Community centres were used *ad hoc*, mainly because of available facilities. Leicester was unique in that a women-only community centre was available with a range of services. It offered staff trained at Loughborough, and advertised services widely. However despite this, uptake was low. Only one general practice referred women, and there was reported lack of concern for the health of South Asian women.

Community workers validated women's accounts of poor access to facilities, and language barriers. In addition, lack of South Asian instructors and women-only sessions were identified as potential barriers. Women-only sessions were more often organised in community centres than leisure centres. A general lack of commitment to the schemes on the part of general practices and EoP organisers was also highlighted.

EoP organisers reported ad hoc commitment to overcoming barriers such as language; there were efforts in some centres to employ South Asian staff, whilst other organisers reflected that women generally cope by involving family. Some centres had already started to make provision for South Asian women prior to the development of EoP schemes.

There was a reported lack of promotional material available in appropriate languages; even when available this did not overcome literacy problems. There was a reported lack of links between the EoP co-ordinators and the South Asian community. Lack of financial resources was generally cited as the reason for such gaps in provision.

Poor communication between providers was also cited as a barrier; GPs were reported as being the least aware of available services. It was suggested that GPs may be deterred from involvement through a fear of litigation should any problems arise through referral. In one health authority links were being established between practice nurses and fitness advisers. Volunteers are being trained to act as fitness advisors. Community centres may also be deterred from involvement due to health and safety requirements. Co-ordinators were reported to have perceptions that physical activity is not that important to South Asian Muslim women, whose main concern is with their children.

General practitioners mainly validated the barriers to participation such as access to facilities. In some practices, the research highlighted an overall lack of understanding of the EoP referrals process. One practice nurse from Leicester pointed out that 'she didn't refer as she was unsure what the referral procedure was'.

**Darr *et al*. 2008 (In depth interviews +)**

Interviews were carried out to compare illness beliefs of South Asian and European (of white European descent) patients with CHD about causal attributions and lifestyle change. Participants were Pakistani-Muslim (10 males, 10 females; mean age 59), Indian-Sikh (7 males, 5 females; mean age 63), Indian-Hindu (9 males, 4 females; mean age 63), European (10 males, 10 females, Mean age 66).

Main themes:

- Family history was mentioned as a possible cause of CHD; if this was thought to be so in the participants' own case, there was a sense that nothing could be done to avoid the onset.
- Others who thought they had been at high risk could not identify specific aspects of their lifestyle that could have contributed to causing their CHD.
- On the whole, South Asian participants were more likely than Europeans to contextualise their CHD in relation to their religious beliefs.

- Lack of time and the presence of other co-morbidities prevented some participation in appropriate amount of physical activity.
- Others perceived that vigorous physical activity was unnecessary in the context of advancing age and that keeping active and mobile was preferable.
- Most, irrespective of ethnicity, reported walking as their preferred mode of physical activity.
- Barriers to walking outdoors included weather conditions. Co-morbidities and sensory impairments were also barriers to participation. Some had concerns over the recommended distances.
- Some Pakistani-Muslim women had established a regular walking routine. Males across ethnic groups had joined a gym or started to use physical activity machines within the home.
- European females were just as likely as males to use physical activity bikes. However, none of the South Asian females had ever used physical activity machines or a gym although some had started swimming.
- Few participants seemed to recognise the link between poor diet and the development of CHD. Despite this, a considerable number admitted they were overweight and needed to modify their diet.
- South Asian participants, particularly Pakistani-Muslims and Indian-Sikhs, were most likely to think that their dietary habits caused CHD and that the traditional South Asian diet had been detrimental to their health. However, they consumed an extremely varied diet and not all complied with strictly traditional diet.
- Preparation of food involved using a number of fats. Sunflower oil was used routinely in many households, and olive oil was seldom used. Some had cut down on the use of fat, but stated that this compromised taste. Not all were willing to compromise the taste to improve health.
- A number had reduced their intake of fried foods and were grilling as an alternative. Special occasions were a difficult time to modify fat intake.

Limitations of the study were the retrospective design and lack of information on clinical profiles. There was only a small sample representing each individual group,

limiting the generalisability of findings. The authors state that there was considerable variation in understanding of CHD and causation. Knowledge influenced decisions to make lifestyle changes. Some lacked motivation and support. Language has been reported as a barrier to information provision. South Asians were more likely to attribute their CHD to unhealthy eating habits than were Europeans. Uncertainty existed in the understanding of the significance of family history as a factor and this made it difficult for some to act on advice. Some may acknowledge the need to change, however it is not known how this transfers to real change. Practical problems were often barriers to behaviour change, particularly for Pakistani-Muslim women who found it hard to access appropriate facilities.

**Farooqi *et al*. 2000 (Focus Groups +)**

Focus groups were carried out with a total of 111 South Asian participants aged between 40 and 72 in Leicester. The aim of the study was to identify key issues relating to knowledge of and attitudes to lifestyle risk factors for CHD among South Asians.

Main themes:

*Diet:*

- Many identified diet as a cause of heart disease, with general awareness of what constitutes a healthy diet and Indian diets generally perceived as being unhealthy.
- Not all participants accepted diet as an issue in heart disease.

Other barriers:

- Lack of knowledge on how to cook differently
- Apathy to change due to age, or habit and tradition
- Perceived tastiness of fried food

Some participants reported changing their diet, including grilling rather than frying their food and their teenage children stopping them from cooking in too much ghee (clarified butter) or oil.

*Physical activity:*

Barriers:

- Mixed gender facilities
- Not being able to swim with a religious dagger (karpaan)
- Fear of people spreading gossip about them
- Not having the time due to a busy home life.
- Some participants saw physical activity as a formal activity rather than a lifestyle, talking about not being able to do vigorous physical activity due to muscle and joint pain and that Indians “don’t do” formal physical activity sessions.

One participant spoke of their daughter taking her children swimming, indicating a change among younger people.

Discussion / conclusions: A diversity of attitudes and practices was reported by the South Asians in this study and the authors caution against the danger of stereotyping and over-generalising. The authors suggest that health promotion advice should be tailored and culturally sensitive, e.g. cooking methods that are healthy but preserve traditional taste.

The authors suggest that physical activity interventions should be both individual and community-based, addressing both generic barriers such as time and motivation and cultural barriers e.g. mixed facilities and lack of provision for the elderly. Also, the perception of physical activity as a lifestyle rather than something formal may be an intervention issue for some South Asians, as may be the perception by some older people that it is too late to change their lifestyle.

Language can also be a key barrier in accessing health services. The authors suggest that the themes from the focus group study be explored in more depth in face-to-face interviews.

**Grace *et al*. 2008 (Focus Groups and interviews ++)**

A series of focus groups were carried out with 80 lay people (37 males, and 43 females) without diabetes, 29 Islamic scholars and religious leaders, and 28 health professionals. All the lay people, Islamic scholars and leaders were either first or second generation Bangladeshi. Of the lay people, 77.5% were first generation

Bangladeshi. Health professionals included community and secondary care nurses and dietitians, of whom 7 were Bangladeshi.

The aim of the study was to understand lay beliefs and attitudes, religious teachings and professional perceptions in relation to diabetes prevention in the Bangladeshi community. Photographs of Bangladeshi and Western meals were used to facilitate discussion in phase 1 focus groups. From these discussions, vignettes (or short fictional stories) were created to aid discussion in the second phase groups. In addition to the focus groups, interviews were carried out with 8 health professionals.

The main themes relevant to research question were:

*Lay understanding of diabetes*

- There was generally a high knowledge of diabetes; knowledge was gained through experience of diabetes in family and friends.
- There was high recognition of the importance of lifestyle choices in the development of diabetes.
- The condition was viewed as at least partially preventable; some believed that kerela (a traditional vegetable) and other bitter foods could prevent diabetes.
- Other perceived causes included heredity and stress, which were seen as linked to social isolation. It was widely believed that ‘staying at home’ played a part in poor mental well being and ill health, especially in women.
- A minority of lay participants thought a family history meant diabetes was inevitable, but most thought that risk could be modified through lifestyle change.

*Living a ‘healthy life’*

- Lay participants and religious leaders emphasised the resonance between Islamic teachings and healthy lifestyle messages such as eating a diet high in vegetables, fruit and fish, portion control, looking after one’s body and participating in physical activity.
- Rice was seen as an important component of the traditional diet but there was confusion over the optimum type and quality.

- Lay participants selected medium sized body images as aesthetically pleasing and associated with ‘good health’. Both underweight and obese body sizes were termed ‘weak’. Health professionals believed (incorrectly) that Bangladeshis associate obesity with health and fertility, and therefore significantly underestimated the willingness of this community to control weight.

- Lay participants saw physical activity as important for mental wellbeing and a way of caring for the body, a central feature of the Muslim way of life. Physical fitness was viewed as enhancing a person’s ability to contribute to family duties, as well as a good way to control weight. Walking was seen as a valuable physical activity, presenting no challenges to modesty, and was viewed by lay people and religious leaders as supported by Islamic teachings.

- Namaz (5x daily prayer required of a devout Muslim) was widely referred to as ‘physical activity’; lay participants saw Namaz as sufficient physical activity whilst leaders did not; they were more in favour of conventional forms of physical activity, especially walking.

*Responsibility for diabetes prevention*

- Some lay participants believed that fear of the devastating impact of diabetes would motivate preventive action across the Bangladeshi community. Others, including Islamic scholars, framed prevention as part of a healthy lifestyle that all Bangladeshis should follow.

- Many participants asked for more specific information on possible action

- ‘Control’ was a strong theme in relation to prevention in all groups (lay people, religious leaders/Islamic scholars and health professionals). People with diabetes were labelled ‘out of control’, whereas those without were ‘in control’ of food and activity choices, usually equated with having a routine or timetable.

- Seeking knowledge is an important aspect of Islamic way of life and both lay and religious participants believed that education about faith was one mechanism through which preventive messages could be conveyed.

- Religious leaders were seen as trusted sources of information and support; they had access to large sectors of the community and were keen to

incorporate messages on diabetes prevention in their teaching. They were enthusiastic about working in partnership with health professionals for mutual education and with a view to developing initiatives within the community for prevention.

*Fatalism*

- Many health professionals were reluctant to discuss lifestyle change in clinical settings, partly because of their own poor cultural and religious understanding, and also because they perceived Bangladeshis as fatalistic.
- Few lay participants expressed religious fatalism but many suggested that 'other people', particularly older generations, held such beliefs. Leaders saw religious fatalism as a misinterpretation of Islamic teachings and were keen to address this in their role as educators.

*Social roles and expectations*

- Several traditional social norms were described, especially the expectation for women to remain in the home, dress modestly, and prioritise family and community over independence and social freedom, for example, not to ask others to look after their children.
- Some women felt strong pressure to conform to traditional norms and expectations whilst younger women resisted them.
- The important social role of food was a prominent theme. Certain foods (plain rice, dhal, dry curries, one or two dishes for every meal) were considered 'everyday' items as distinct from 'special menu' foods (pilau rice, biriyani, 6 or 7 dishes for each meal). Serving curries with reduced oil and spices was considered inhospitable and would be shameful to the host.
- Physical activity in the Western sense (designated activities with special clothing, in special places such as the gym) was seen as alien to the culture and identity of many first and some second generation Bangladeshis.
- Sport was seen as inappropriate for women and older people and liable to meet with gossip and laughter (social sanction), though some participants thought that this should be ignored. Mixed sex physical activity classes were considered inappropriate for both women and men.

- Some saw classes for women only as acceptable, others thought these might still fail to preserve modesty or meet privacy needs. The best solution was seen as exercising at home or in a community centre, but this was a challenge for those living in overcrowded houses or who were unable / unwilling to travel

*Structural and practical constraints to healthy lifestyle choices*

- Many Bangladeshis cited structural constraints to increasing their activity levels, including lack of time, money, or childcare.
- Reluctance to travel beyond their immediate locality owing to fears related to language / safety created access problems in first generation participants.
- Practical constraints affected dietary choices. There was a heavy reliance of fast foods reported in male and female second generation. Traditional Bangladeshi fruit and vegetables were perceived as expensive and so consumed less frequently, though first generation participants in particular were unfamiliar with more readily available Western alternatives.

*Health literacy and English fluency*

- Lay participants identified poor fluency in English, especially in the first generation, as a major barrier to accessing and understanding basic health information.
- Education was viewed by all 3 groups as a route to independence for women.
- Many professionals reported substantial challenges in communicating basic lifestyle information to Bangladeshis with limited health literacy, attributing this to time pressure, difficulty of the interpreted consultation, or their own limited understanding of (and confidence to address) cultural aspects of lifestyle.

The authors conclude that the main barrier to positive lifestyle change in this community is not lack of knowledge but a complex value hierarchy in which what is accepted as healthy is seen as less important than the social norms of hospitality, modesty and the cultural rejection of a 'sporting' identity or dress, especially for older people and women. In addition, practical and structural barriers are evident. Such barriers may explain lower participation levels in formal physical activity programmes. Social support can also be problematic if it is not in line with one's own values and sense of self. Education and fluency in English was discussed in terms of

empowerment - providing the ability to make lifestyle choices as well as resist social pressure. Health professionals held several incorrect views and expressed a lack of confidence in their ability to deliver culturally sensitive and relevant advice.

**Khanam & Costarelli 2008 (Interviews +)**

Interviews were carried out with first generation overweight/obese Muslim Bangladeshi females aged 30-60, who had been referred to the Whitechapel Sports Centre in London. There was a main focus on physical activity with a small section on diet.

*General health issues: responses to specific questions*

32% believed it was very important for them to maintain good health, 52% believed it was fairly important and 16% thought it did not matter. While BMI was calculated from measured height and weight indicated that 40% were obese (BMI >30 kg/m2) and the remaining 60% were overweight (BMI 25-30 kg/m2), only 64% of the sample classified themselves as overweight. Of the remainder, 16% reported not knowing and 20% believed they were of average weight. Only 4% of women reported they would go to the gym on a voluntary basis if not referred by their GP. When asked to identify the main three factors associated with the causation of diabetes, 96% identified ‘too much sugar’, 32% identified ‘being overweight’ and 32% identified ‘genetics’ as a factor. When asked to identify the main three factors associated with the causation of obesity, 92% identified ‘overeating’, 4% identified ‘foods high in fat’ and 4% identified being ‘born with it’ as a factor (the latter of which the authors found worrying). When asked to identify the main three factors associated with the causation of heart disease, 90% identified ‘high blood pressure’, 6% identified ‘smoking’ and 5% identified ‘genetics’ as a factor.

*Attitudes towards physical activity*

- Women stated that they would not carry out physical activity voluntarily. A variety of barriers were reported, including cultural acceptability, dislike of the gym environment, time, perceived lack of importance, lack of convenience and cultural norm.
- *Cultural acceptability*
- *Dislike of the gym environment*

- *Time*
- *Perceived lack of importance*
- *Lack of convenience*
- *Cultural norm* – in Sylheti, the language spoken by the majority of the Bangldeshi people, there is no expression for 'physical activity'. The closest word is 'beyam' and 'bey' is associated with negative connotations, e.g. 'beyaram' ('no comfort'; illness), or 'beyamiz' ('no manners'; inappropriate behaviour).

*Preferred forms of physical activity*

- Swimming was the activity of preference (although this was not classified as physical activity; see above), as well as slow walking (but not brisk walking, for cultural reasons; see above).
- The gym and most forms of physical activity offered there were disliked, though group physical activity was preferred over exercising at home alone.

Suggestions reported by women on ways to make gym visits more appealing and pleasant:

The authors present a list of participants' suggestions, which included:

- Women-only facilities
- Women-only sessions
- Swimming facilities for women
- More walking physical activity facilities
- Fewer aerobic classes
- Sylheti-speaking assistants
- Better transport facilities and childcare facilities
- Less loud music
- No inappropriate TV programmes and provocative music videos
- More local gyms

*Cooking and eating behaviour*

- Most women reported following their GP's suggestion and tried to employ healthier cooking practices when cooking for themselves, but did not change the way they cooked for the rest of the family.

- For 56% of women a healthy diet involved a high intake of fruit and vegetables, and for 25% this was seen as a low intake of meat, fish and dairy. Most (24/25) reported using sunflower oil for frying, with only two reporting using ghee (clarified butter) on a daily basis; most said they used ghee (clarified butter) on special occasions.

In the discussion, the authors suggest that Islam's instruction and encouragement of Muslims to look after their health by eating moderately Borough of Tower Hamlets in order to improve their health.

**Kopp 2009 (Needs Assessment)**

Kopp carried out a needs assessment on one Gypsy and Traveller site in Wakefield. All adults were invited for interview. 92% of families were represented; those that did not participate were wary of information being shared with the authorities. The majority of interviewees (89%) were women. Length of occupation on the site averaged 9.7 years.

The aim of the assessment was to understand the health and health care needs of the Gypsy and Traveller population. Questions were around health issues of particular relevance to Gypsy and Traveller communities and that communities had identified as significant for them.

Main findings relevant to the review question:

- A significant number had difficulty accessing health care services; attributed to their limited literacy.

<u>Weight management</u>

- 60% were dissatisfied with their weight; 40% indicated they took some physical activity, but not 3 times a week as recommended.

- 84% felt downhearted and depressed some or all of the time.

- 100% felt they would like information or activities that would support their future health and well-being (63% healthier diet / cooking; 37% physical activity).

- The majority of respondents were aware of their approximate height, but very few knew their approximate weight. 60% felt they were too heavy.

Physical Activity

- Physical activity seen as daily cleaning, occasional walks to the local shops or schools.
- Recently some respondents had joined a gym, but hadn't continued for reasons of expense or lack of motivation.
- Physical activity was offered on site in the past, but the space available in the community house is limited, as is the commitment of local residents to regular participation.

Dietary behaviour

- For 80% of respondents, some fruit and vegetables were consumed daily, with vegetables the preferred choice. Many acknowledged that this was often followed by an additional late evening meal from local take-out shops.
- Work done by the PCT was well recognised and valued. Women found classes non-threatening and a forum where other health issues could be discussed and reduce social isolation.

Activities

Preferred location for activities was the community house on site. Reasons for this include:

- Prefer to be with known staff in known location
- Lack of child care off site
- Lack of transport
- Expense of off-site activity
- No-one to protect plot whilst off-site

Discussion:

PCT Recommendations:

Include Gypsies and Travellers in their ethnic monitoring systems to increase their limited knowledge base about the community.

Provide training around the community's culture to increase staff's cultural competence when relating to the community.

Consider the appointment of a specialist worker to complement the work of the Health Improvement Practitioner.

Explore ways of providing health information in an accessible format.

Explore ways to increase the community members opportunities for physical activity

Continue and consolidate work already done on site

**Lawrence *et al*. 2007 (Focus Groups ++)**

Six focus groups were carried out with women from 3 ethnic groups (Somalian, Zimbabwean, South Asian) to explore factors that might affect food choices of girls and young women of African and South Asian descent. Some researchers and facilitators were of the same ethnicity as the women in the groups. Only data relating to adult women was used for this review. Deductive content analysis was used to analyse transcripts. The main themes were:

- *Culture* - Pakistani / Bangladeshi women's cooking skills appeared to have been learnt from the older generation of females in their family, and they also took pride in their traditional cooking. The process was described as 'natural'.
- Use of Western foods was a commonality between groups, albeit at quite low levels. There appeared to be a tendency to adopt the less healthy aspects of a Western diet including fried fish, pizza, chops, and fatty snack foods.
- Pakistani / Bangladeshi women confirmed that they could only eat Halal meat which is not generally available in fast food outlets, but there were greater options for fish. Fish and chips might be bought 'outside' or cooked at home.

*Cost and availability:*

- Price as a factor affected everyone, though age was an influence. The Pakistani / Bangladeshi women were very concerned about costs in comparison to the young girls. Availability was related to cost.

- Foods used in Africa or S. Asia were often not widely available, so the cost was increased. All the communities used local supermarkets for basic shopping needs.

- Some Asian foods such as flour and chilli powder could also be purchased in western supermarkets. The Pakistani / Bangladeshi women and the Zimbabwe women mentioned trust being an issue of concern when choosing where to buy food. Markets were mentioned as being untrustworthy.

*Time:*

- Time was an issue that influenced food choice by the Zimbabwe women (in Zimbabwe maids were instructed to cook, but here the women have to cook themselves and they do not have time).

- Pakistani / Bangladeshi women also mentioned time as a factor. Preparation for lunch and dinner began after breakfast and could commence as early as 10am.

*Health:*

- Whilst some of the Pakistani / Bangladeshi women described making healthy changes in fats used in main dishes, it was felt harder in relation to dessert and cakes when the changes in taste and appearance would be more obvious, or on special occasions when food offered should be the best.

- Cultural background and knowledge influenced the link between food and health. Zimbabwean women placed value on freshness, regarding frozen foods as less healthy, whereas Pakistani / Bangladeshi women appeared to have quite a good understanding of foods and cooking methods that were most healthy. However, this knowledge did not consistently translate into dietary choices. When describing meals in a typical day, the same women were speaking of frying and the use of oil.

- Pakistani / Bangladeshi women were more conscious of weight gain than the Zimbabwean women and discussed how eating too much carbohydrates as well as frying could make them ‘fat’. This appeared to be important, though there was no indication that this significantly affected food choices.

- Concern about being overweight in relation to appearance seemed likely a stronger motivator in changing food habits than concern about heart health. The Zimbabwean women also noted that in Zimbabwe, no-one worried about being slim, but now that they were in the UK, there was a pressure to be slim.
- Pakistani / Bangladeshi women in group 2 expressed the opinion that their diet had become less healthy following the adoption of the worst of the British diet.

*Possible Interventions:*

- Learning to cook healthier traditional Asian foods with lower fat.
- Incentive such as free food
- Easy access to venues, with a crèche if appropriate.
- Timing should recognise childcare and other domestic responsibilities.

Limitations to the study were that participants were a convenient sample and not representative of the community at large.

The presence of researchers from ethnically similar backgrounds helped to break down cultural barriers and improve data collection. It was of interest that all the groups had assimilated the fast food aspect of the British diet into their eating habits. The original CookWell programme (Wreiden 2002; 2007) has been revised to include BME groups.

**McEwen *et al*. 2009 (Focus groups +)**

A mixed method study comprising 8 focus groups (total n=62) and a small survey (n=77). There was no reporting of original survey sample size, response rate or reasons for compliance. Interpreters were required to assist with the survey and focus groups. The aim was to examine the health behaviours (smoking, diet, physical activity) of a Somali population in London. The focus group sample was biased toward males (83%).

It was generally felt within the focus groups that the Somali diet was unhealthy, and that knowledge of what constitutes a healthy diet is poor and that this has an adverse effect on health. This was confirmed by the survey which showed that only 60%

agreed that they had a healthy diet. Fruit and vegetable consumption was not reported as a regular or significant component of the focus group participant's daily diet. A significant minority of survey respondents consumed less than 2 portions per week of fruit and vegetables (29% fruit; 24% vegetables). Virtually all (97%) consumed less than 2 pieces of fruit per day and 92% consumed less than 2 portions of vegetables per day.

- A typical diet comprised rice, pasta, and red meat. Meat was seen as a very important part of the diet.
- The pattern of eating was one main meal per day ('the proper meal') at lunchtime or early afternoon.
- 64% reported large gaps between meals, and 51% did not snack between meals.
- Takeaway meals were popular amongst men, particularly those living alone.
- A large amount of sugar (4-6 teaspoons) was taken in tea.
- Cost of fruit and vegetables in the UK was reported as prohibitive, whereas in Somalia, they were easily available and cheap in comparison to meat. Eating fruit and vegetables was therefore associated with poverty.
- The nomadic background for some of the Somali population was an influence on current eating behaviours because camel herders generally only ate meat and camel milk.
- Food grown in Somalia was seen as more healthy due to less pollutants than in the UK (pesticides etc.) therefore there was an interest in organically grown food.
- There was uncertainty about what constituted a healthy diet, including lack of knowledge about the nutritional value of fruit, vegetables, white meat, red meat, pasta and rice. There was an expressed need for education in this area plus help learning to cook and prepare healthy food.

Limitations of the study included a small opportunistic sample for the survey. A very small group of Somali people in the UK are covered by the study. This may not be representative of Somali groups in general. There were problems with people completing the questionnaire fully. There was no information available on response

rate, compliance in non-literate populations was calculated. The term ‘portion’ may have a cultural bias compared to UK understandings. There was a male bias in the sample which neglects the views of many women. Recruitment was through community groups, and this may neglect the views of people not affiliated to such groups.

Discussion: Consumption of fruit and vegetables in Somali population in the UK is less than optimum, possibly because of uncertainty of what makes up a healthy diet compounded by cultural associations between particular foodstuffs and social status.

**Netto *et al*. 2007 (Focus Groups +)**

A total of 12 focus groups (6 prior to and 6 at follow up) were held with Indian, Pakistani and Bangladeshi men and women. Indian participants were mainly Sikh, whilst the Pakistani / Bangladeshi participants were mainly Muslim participated in the initial discussions. Six discussions with a total of 24 males and 31 females were held prior to the intervention and 6 further discussions with 15 men and 21 women were held after 6 months. The aim was to evaluate a lifestyle change programme named Khush Dil (happy heart) that addressed CHD prevention in the target ethnic groups. The intervention consisted of three strands; nurse-led community CHD risk clinics, nutrition workshops; and working with voluntary organisations to establish healthy lifestyles initiatives.

Focus group discussions took place around knowledge and understanding, reduction of risk, barriers to taking steps to reduce risk, and feedback on the programme. There was a smaller sample the second time round, as some participants had dropped out.

Main themes:

*Knowledge of heart disease and risk factors:*

- Variation in awareness of heart disease, from “only God knows why heart disease occurs…” to descriptions of symptoms. There was awareness of the links with high cholesterol and diabetes. Others cited eating late in the evening, consuming non-organic food and convenience meals / snacking as detrimental.

*Knowledge of preventive measures and steps taken:*

- Many steps were identified by participants that they felt would enable them to improve their health, including involvement in physical activity and adopting a healthy diet. Some were already making changes such as cutting down on fat.

- Knowledge and attitudes to physical activity varied; some felt that the energy utilised for daily living was adequate (housework etc.). Others acknowledged the need for physical activity but did not prioritise this in their daily routine. Comments from one group indicated an increased understanding of the importance of a healthy diet and physical activity though in some cases attempts to make changes had not yet begun.

*Barriers to adopting a healthier lifestyle*

- *Occupational* – lack of time

- *Social* –cultural attitudes around what makes food look attractive

- *Body Image* - an association between overweight and health / prosperity.

Authors report that initial perceptions of the project were positive, with evidence of appreciation of support and encouragement to change. A small number reported changes already made regarding diet and physical activity, with subsequent weight loss. Some anticipated a knock on effect from their own success to motivating others. The second group observed that advice, information and encouragement was crucial to sustaining motivation to adopt a healthier lifestyle; others that increased knowledge and awareness of risk factors would help them adopt healthy lifestyles.

Positive aspects of the project:

- Flexibility of staff who rescheduled at short notice

- Use of interpreters and sensitivity in planning activities around religious events such as Ramadan.

- One-to-one advice from a dietitian and nutrition workshops had a significant effect on willingness to make changes.

- Those involved in the walking programme reported increases in physical activity, a reduction in walking difficulties and positive health improvements.

<u>Suggestions for improvement</u>:

- Need for information
- Sustaining changes and extending services to the wider community
- Need for linguistically appropriate information that takes account of varying literacy levels
- Bilingual workers
- Advice on healthier methods of preparing traditional food
- Work with community organisations to increase awareness of the service
- Separate physical activity for men and women
- An increased range of physical activity that take into account cultural and other tastes.

Other suggestions are made by the authors to address persistent barriers (deep structure): working patterns; caring responsibilities; deeply held cultural attitudes related to the preparation of food, body image and physical activity, and the lack of control over food served at social functions. They provide a list of possible recommendations to overcome specific barriers.

Limitations to the study include a fall in participation over time, resulting in smaller sample for second round of focus groups. This second group may have had more positive views about the programme than those that dropped out. The focus group was facilitated by a community worker, which may have introduced bias.

**Rai & Finch 1997 (Focus Groups +)**

A qualitative study was carried out in different locations around England to identify barriers and facilitators to carrying out physical activity in BME groups. Recruitment was carried out by knocking on doors in selected localities or approaching people in public places.

A total of 175 participants, of whom 109 were of South Asian origin, and 66 of Black origin, participated in the study. Fourteen discussions were carried out with South Asian groups in 4 different languages; Punjabi, Gujerati, Sylheti and Urdu / Punjabi. A total of 95 of these participants were physically inactive. Thirty three were born in the UK, whilst 11 were born in India, 20 in Pakistan, 20 in Bangladesh, 21 in east

Africa, 4 elsewhere. Of the South Asian groups, there were 53 men and 56 women with a range of ages from 18-50.

Eight discussions took place with Black groups, all in English. Forty six of the 66 participants were inactive. Twenty two were born in the UK, 14 were of Caribbean origin, 8 of African origin, 30 from the Caribbean Islands and 14 from West Africa. There were 34 men and 32 women in these groups aged 18-50.

Themes relevant to the review:

- Dichotomy between ideas around physical activity that uses the body, and effects on the body through physical activity
- Dichotomy between activity that involves daily activity (things that people do anyway) such as walking to work, work itself, housework (associated with physical activity 'back home'), and specific types of physical activity and sport (separate).
- Older participants admitted that they did not carry out physical activity that much, and this was validated by the younger participants, pointing to the influence on all ages of the Western separate notion of physical activity.
- Perceived benefits of physical activity were mainly associated with health, mind and body image.
- Benefits of sweating, the compensatory value for other health 'abuses' such as unhealthy eating or smoking and social value were also identified.
- Awareness of the link between physical activity and prevention of illness such as CHD as well as other conditions. Physical activity was seen as important to increase muscle tone and stamina. There was a perceived need to remain mobile as the culture was changing – daughter in laws were no longer serving their mothers in law as was the case traditionally.
- Physical activity as a preventive factor for stress and depression, which could increase self-esteem and confidence. It could also release tension. For young people having the 'right' body shape important for social acceptability and to attract and maintain relationships with a partner. Among some black men having a muscular body was identified with looking good.

- Concern among older people that there was a lack of natural sweating in a cold climate, whereas ‘back home’ this was possible.
- For some young people ‘going to the gym’ meant being part of the current fashion scene and for unemployed people a way of occupying their time. Involvement in specific types of physical activity was seen as a way of escaping existing social conditions for some black people.
- Parents could set an example to their children; involvement in physical activity was a deterrent to becoming involved in less desirable activities such as drug abuse.
- Some participants expressed fatalistic beliefs - that good health was there by the grace of God.
- Many perceived Asian diets as ‘unhealthy’ and ‘full of fat’. As a consequence, opinions on physical activity varied. Activity could compensate for a poor diet, or there was no need to be active as the benefits were outweighed by the effects of a poor diet.
- A minority thought the Asian diet was healthy and that this ought to be made more public. A small number of black people felt there was lack of health advice regarding their foods.
- Distinction between ‘health’ and ‘fitness’. Health was associated with lack of illnesses or disease, whilst fitness was linked with physical strength and stamina. For some, fitness could exist without health or slimness.
- Key sources of knowledge and beliefs relating to physical activity were the media, which was regarded as ‘available’; in particular, the press and TV (including video tapes) were mentioned. The visual impact was influential and inspiring. Men were more inclined to relate to sporting events in the media with an inspiring effect to take part.
- The media shaped views about ‘normal’ body size and images of what might not appear to be the norm. Some young women felt pressurised to conform to expected societal body shapes of women. The media were seen as portraying images that convey women should be slim. Although some women resented these images they were still influenced by them.

- Some images of acceptable body size in the UK were described by some women as differing from those in other countries. In W. Africa, S. Asia, and sometimes the Caribbean, a large woman was perceived as healthy and strong. Overweight in the UK would be regarded as normal weight in other countries. In S. Asia, largeness could also be associated with being happy. However, images back home were also changing, especially in towns and cities; the Indian actress was now slimmer rather than a woman with 'big hips'.

- Views of men in the communities about female body shape could also have an effect on acceptable female body sizes. Some men preferred women to be slim.

- In general younger women tended to be more aware of and influenced by the portrayal of slim bodies in the UK, whilst older women were less concerned.

- Men were influenced by what was portrayed in the media and seen within their own communities as an attractive male body shape. Some black men saw muscle building as conforming to this image.

- Role models were mentioned as a source of inspiration and encouragement. Among black communities, most role models mentioned were from their own communities. Black women felt that there were not enough women sports role models. Some Asian young women mentioned white fashion models / actresses while Asian men mentioned sports figures. Only one Asian sports person was mentioned. There was a feeling among Asian respondents that there were not enough role models from their own communities. Sometimes the role models were admired for achieving rather than as motivators for physical activity. Inspiration could also come from 'fit' people walking down the street. Older people were less likely to mention role models.

- For older participants, family and friends were one of the major sources of influence on beliefs relating to physical activity. Families were seen as extremely important in shaping views. Parents could be role models, with their values being adopted by children. Some respondents actively encouraged their children to do physical activity, e.g. walk in the park. However, families were also said to discourage children from getting seriously involved in sports in order to concentrate on their education.

- Some perceived hospitals as important sources, but GPs as less helpful, tending to give advice only when there was a health problem. The body size of the doctor may be off-putting and advice not taken seriously. Schools were occasionally mentioned as important first points of contact for information.

- Among some Asian Muslim people, religion played an important role in encouraging Muslim people to physical activity through prayers. Religious leaders were sometimes cited as persuasive figures. A few Asian males mentioned the concept of 'jihad', implying that Muslims were required to be physically fit to a level needed to fight in a war.

- A very few older Asian people believed that their health and fitness was a predetermined factor in their lives. A minority mentioned fitness campaigns, but they appeared to have short-term effects.

- Virtually everyone had been most active during their school years with physical activity compulsory component, whether in UK or abroad. A few had been more active when facilities had been available at work. Those born outside the UK recalled different lifestyles involving greater levels of physical activity than in this country.

- Walking was common as a means of getting about rather than driving or taking public transport.

- Opportunities to be physically active were reported as more commonplace 'back home' compared to UK. Mention was made of walking miles to collect water, and the tradition of dance in general lifestyle among black communities. Physical activity was integral to daily life; good weather and safer environments meant better opportunity to be outside. However, there was a view that living in the UK was more stressful and therefore there was a need to physical activity more.

- It was believed that novices should start slowly and build up levels and pace. Views varied in terms of appropriate amounts of activity. Active people tended to have higher thresholds. There was a common feeling that everyone should find their own level; some thought enjoyment was important. Some were concerned that enough energy was left over to do other things, e.g. housework. A few thought a medical check-up was necessary before becoming involved in physical activity.

- There was awareness that a certain level of intensity was necessary to benefit, though views were wide ranging. Opinions differed as to whether becoming breathless or feeling the heart beat was a good sign or not.

Barriers to physical activity:

- Lack of time; having busy lifestyles
- Religious activities such as namaz restricted time; other things had to be fitted around prayer times. 'Spare time' was precious; physical activity did not appeal as a form of enjoyment or relaxation for some, rather it was inconvenient and required effort. It was recognised that it might be possible to make time if motivation was higher.
- Many worked long hours reflecting circumstances such as financial pressures. There was limited time left to do other things. Tiredness from work could prevent involvement.
- Expenses associated with physical activity put some off, especially those unemployed. Some complained at the high cost of using facilities, or buying special equipment and clothing. Some older people found the concept of spending money on physical activity alien compared with 'back home' – 'wasting money'.
- Many older Asian women and some Asian Muslim men found facilities inappropriate. Some people felt there was a lack of facilities in their locality or that existing facilities were too busy or impersonal. Dress-code, mixed sex provision and the cultural environment imposed restrictions for some. Older Asian women and many of the Asian Muslim women of all ages felt unable to use facilities because of the perceived requirement to change into clothing unacceptable to them, sometimes for religious reasons Adapted clothing (tights, leggings) were not seen as the solution if perceived attitudes other people made wearing them feel uncomfortable.
- Cultural 'norms' found at the facilities conflicted with some practices (e.g. taking massage oil into the sauna – complaints from white women; men walk around naked in the changing rooms). For some women and some Asian Muslim men, mixed sex facilities were seen as inappropriate; for others, self-consciousness regarding body weight or male domination of physical activity equipment. Some places were perceived as unwelcoming and were

particularly intimidating if white-oriented. Language barriers may mean less quality service.

- Inadequate crèche facilities could affect women participating at certain times of the day. Issues of personal safety could deter use of public places either for physical activity or as a means of getting to facilities. Fears of being attacked were a concern. Some were restricted in using their own home because of lack of space or what other people in the house might think.

Attitudes and beliefs:

Lack of motivation, laziness and lack of willpower; lack of company; lack of enjoyment; life circumstances (feel dejected, especially unemployed, people who have suffered a loss); stress, depression; alternative activities such as going to the cinema or spending time with partners were seen as more appealing, more enjoyable or more important; TV is 'so available'; the weather if cold and / or wet.

Changing life stages: Physical activity was less important when passing through various life stages either because lower priority or lack of opportunity. (Going out with friends; responsibilities; marriage (views of in-laws). Old age was a 'time to rest', so there was less point in exercising, and one may experience pain.

Past efforts may not have had desired results; may feel already fit; may perceive that once in a secure relationship looking good was less important. In general, barriers for Asian and black people were not culture specific though some were community specific, e.g. racism.

Overcoming barriers: Key motivators were enjoyment, habit, especially if formed at a young age; looking good, particularly for women wishing to achieve a particular body shape; the challenge - a competitive element could be a driving factor; health, mainly to stave off an existing condition; example to children; convenient / appropriate facilities; sometimes a social dimension was important to maintain interest

Asian people were often of the view that people from their own communities were generally less physically active.

<u>Promotional Strategies as suggested by respondents</u>

- The need to encourage and remind (worth thinking about, doing, a good idea, for health reasons, to enjoy, everyone can do it, can do with friends / family

- Persuasive messages (long-running campaigns, repeat the message; scare tactics; precise information on health benefits; target promotional vehicle – general rather than community specific message but with community specific vehicles of promotion to which each community could relate (oral, radio, home visits, health professionals, music, visual, advertisements in films, TV programmes; printed literature)
- Use of role models
- Increased representation of Asian and black communities
- National and local promotion
- Increasing opportunities and access to facilities appropriate to community groups

**Pieroni *et al*. 2007 (Questionnaires and interviews +)**

150 female South Asian customers at Asian greengrocers in Bradford were questioned about their use of vegetables. Questionnaires were used, and in depth interviews were carried out with 19 of the women. The participants were older (over two-thirds of participants were over the age of 60 years), and most did not speak fluent English; instead, questions were in Urdu or Punjabi. Twenty-five vegetables were quoted; more than half of the vegetables were related to specific pathologies, and so represent real food-medicines or medicinal foods. Most were perceived as folk functional foods and many of the women stated that “all vegetables are good for general health”.

Informants were clearly very concerned about the prevalence of diabetes among their family members and neighbours. Diabetes was often associated with obesity, though cases were always confirmed as a result of diagnostic tests. Many felt that they needed to adapt their own healing strategies to be used in conjunction with prescribed medications. Most believed that the ‘healing’ properties ascribed to specific plants could also have a more general preventive effect on other (apparently healthy) family members.

Main themes:

- Carrots, cassava and radish were thought to prevent diabetes.

- Angular loofah, cluster beans, drumsticks, rat-tailed radish and especially bitter melon were quoted as being able to ‘treat’ diabetes.
- Vegetables thought to treat diabetes were all bitter to the taste.
- Older South Asian migrants tended to adopt a typically Asian diet whereas younger participants tended to adopt the British way of life more quickly.
- Older informants were able immediately to identify traditional methods of preparing vegetables which the second generation were unfamiliar with.

Limitations to the study were that there was no recording of the use of other foods than vegetables, or of frequency of consumption or absolute values / nutritional measurements for all the botanicals. There was a focus on women’s views only.

**Williams & Sultan 1999 (Evaluation and interviews)**

The authors report on an evaluation of an Asian women’s healthy eating and physical activity group. The group was set up following a health needs assessment with the local Asian community in Old Trafford, Manchester. Women were recruited into this 14 week intervention through a well-established local women’s group (mainly attended by Asian women) dealing with health issues, held by a health visitor and link worker. Overweight or obese Asian women were targeted; each group started with an opportunity for women to be weighed and discuss their individual progress followed by 45 min of low-impact stretch and tone physical activitys to music, led by a fitness instructor. Three main dietary changes were the focus of healthy eating advice to the women:

- Increasing fruit and vegetable consumption;
- Reducing the amount of oil and fat used in cooking;
- Reducing intake of fatty and foods high in sugar.

A link worker was available at the group to interpret the range of Asian languages spoken and to give general support and encouragement to the women and reassure them that the group would be run in a way appropriate to their culture.

No women attended all 14 sessions; one attended 11, one attended 10, one attended seven sessions, three attended six sessions, one attended five sessions, two

attended four sessions, one attended three sessions and three women attended two sessions. The mean number of sessions attended (calculated) was five sessions.

Weight and BMI were reported. Weight was measured by the dietitian.

The weight and BMI of each participant at each time point were reported as raw data, and change scores were calculated from baseline to last visit and from last visit to 17-month follow-up. Using these data, a systematic reviewer (ESEH) conducted a repeated measures analysis of variance (ANOVA) comparing participants across time, and followed this up with paired t-tests to detect differences in means between specific time points.

Findings:

Ten out of 13 women lost weight during the pilot group with a median weight loss of 2.6kg (range -0.7kg to -10.7kg). Eight out of 13 women lost weight from their last visit to the group to the 17-month follow-up interview with a median of 2.4kg (range -0.4kg to -7.5kg). Eleven out of 13 women had lost weight from their initial visit to the group to the 17-month follow-up interview with a median loss of 3.2kg (range -0.4kg, -8.2kg).

Interviews

Semi-structured interviews were conducted in the women's chosen language. Asian language interviews were led by the link worker and English language interviews by the dietitian. Interviews covered:

- How the women first heard about the group
- Why they no longer attended

Why they thought their weight had changed or stayed the same

Satisfaction with the group and how it could be improved

Findings

*Recruitment*

Recruitment was carried out through the link worker and also through posters and flyers distributed by local health professionals; however the link worker seemed the most frequent way the women found out about the group. Word of mouth was also an

important way of recruiting to the group; women told friends and relatives about it, some of whom subsequently attended.

*Benefits of the group*

Reported positive things about the group included:

- Enjoyment, diversions and social benefit.
- Receiving advice on diet and physical activity, doing physical activity, losing weight and the health benefits of exercising.
- Other Asian women attended, other overweight women attended, the physical activitys were not too fast, the group leaders were friendly and the price was reasonable.

Some women also related social benefits to weight loss. For example, three women had not going out of the house as a reason for weight gain and another woman gave going out a lot as a reason for weight loss, possibly through distraction or conversely boredom.

*Barriers to attending*

Reasons given for not continuing to go to the group included:

- Difficulty getting to the group venue due to lack of transport, not being able to walk or not wanting to walk, conflicting family commitments, their own ill health, visiting out of the area, moving house, work or college commitments and not feeling the need to continue attending due to physical activitys prescribed by a physiotherapist and having made dietary changes as a result of attending the group.
- Although most women lived within 2 miles of the group, according to the authors, they cited difficulties getting to the group as a barrier, in particular a reluctance to walk. Reasons given included not wanting to walk in winter months, taking too much time, fear of walking alone, illness, having no-one to go with and the distance from home:
- Most of the women citing the ‘needs of the family’ as a barrier were married with children and the needs of the family were felt to be a priority over their own needs.

*Suggested changes*

The physical activity sessions seemed to have been very popular and many suggestions for improvement are related to the physical activitys. In particular, the women said they wanted longer and more frequent sessions – although those who made these suggestions were not those who attended most often (possibly because it was only once a week).

*Reasons for weight change*

Reasons given for weight changing or staying the same were

- Changes to diet, increased physical activity, going out,  illness.
- Social factors were often cited as being important influences on weight, such as being unable or able to go out of the house.

## Appendix 6: Evidence Tables

### Effectiveness and views paper

<table>
<tr><th>Study details</th><th>Population and setting</th><th>Method of allocation to intervention/control</th><th>Outcomes and methods of analysis</th><th>Results</th><th>Notes</th></tr>
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<td>Authors: Williams & Sultan<br><br>Year: 1999<br><br>Citation: Evaluation of an Asian women's healthy eating and exercise group. Journal of Human Nutrition and Dietetics, 12(suppl. 1), 91-98.<br><br>Aim of study: To conduct longer-term follow-up of the women who participated in the pilot group of the Asian women's healthy eating and physical activity group.<br><br>Study design: Prospective non-comparative study<br><br>Quality score: Effectiveness – Views +</td>
<td>Source population/s: Urban metropolitan area with large BME communities.<br><br>Eligible population: Asian women's healthy eating and physical activity group set up following a health needs assessment with the local Asian community in Old Trafford, Manchester. Women were recruited into this intervention through a well-established local women's group (mainly attended by Asian women) dealing with health issues, held by a health visitor and link worker. No detail on how recruitment was conducted are reported. Overweight or obese Asian women were targeted.<br><br>Selected population: No recruitment or response rates reported.<br><br>Excluded</td>
<td>Method of allocation: N/A<br><br>Intervention/s description:<br>Asian women's healthy eating and physical activity group:<br>• In Trafford, Manchester<br>• 14 week duration<br>• Each group started with an opportunity for women to be weighed and discuss their individual progress<br>• This was followed by 45 min of low-impact stretch and tone physical activities to music, led by a fitness instructor<br>• 3 main dietary changes were the focus of healthy eating advice to the women:<br>o Increasing fruit and vegetable consumption;<br>o Reducing the amount of oil and fat used in cooking;<br>o Reducing intake of fatty and foods high in sugar.<br>• The link worker (from the existing local well-established women's group dealing with health issues) was available at the group to interpret the range of Asian languages spoken and to give general support and encouragement to the women and reassure them that the group would be run in a way appropriate to their culture.<br>• Attendance at the group was reported. No women attended all 14 sessions. One attended 11, one attended 10, one attended seven sessions, three attended</td>
<td>Primary outcomes:<br><br><u>Effectiveness outcomes</u><br><br>Weight and BMI were reported. Weight was measured by the dietitian. Method of height measurement for BMI calculation not reported.<br><br><u>Views methods and focus</u><br><br>Semi-structured interviews were conducted in the women's chosen language. Asian language interviews were led by the link worker and English language interviews by the dietitian. Interviews covered:<br>• How the women first heard about the group<br>• Why they no longer attended<br>• Why they thought their weight had changed or stayed the same<br>• Satisfaction with the group and how it could be improved<br><br>Women were given a £10 gift voucher for taking part,</td>
<td>Primary outcomes:<br><br><u>Effectiveness outcomes</u><br><br>10/13 women lost weight during the pilot group with a median weight loss of 2.6kg (range -0.7kg to -10.7kg). 8/13 women lost weight from their last visit to the group to the 17-month follow-up interview with a median of 2.4kg (range -0.4kg to -7.5kg). 11/13 women had lost weight from their initial visit to the group to the 17-month follow-up interview with a median loss of 3.2kg (range -0.4kg, -8.2kg).<br><br>Weight (kg):
<table>
<tr><th>P. No.</th><th>Initial visit to grp</th><th>Last visit to grp</th><th>17 mnths</th></tr>
<tr><td>2</td><td>76.4</td><td>76.8</td><td>73.2</td></tr>
<tr><td>3</td><td>85.0</td><td>82.5</td><td>80.0</td></tr>
<tr><td>4</td><td>63.2</td><td>63.6</td><td>63.2</td></tr>
<tr><td>5</td><td>58.2</td><td>55.0</td><td>55.5</td></tr>
<tr><td>6</td><td>107.3</td><td>103.6</td><td>113.2</td></tr>
<tr><td>7</td><td>72.7</td><td>71.8</td><td>69.5</td></tr>
<tr><td>8</td><td>80.9</td><td>78.9</td><td>80.5</td></tr>
<tr><td>9</td><td>68.2</td><td>67.5</td><td>60.0</td></tr>
<tr><td>10</td><td>79.5</td><td>76.6</td><td>78.6</td></tr>
<tr><td>11</td><td>60.0</td><td>49.3</td><td>54.1</td></tr>
<tr><td>12</td><td>79.5</td><td>76.8</td><td>74.5</td></tr>
<tr><td>14</td><td>104.1</td><td>105.0</td><td>103.6</td></tr>
<tr><td>15</td><td>70.0</td><td>67.7</td><td>65.5</td></tr>
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</td>
<td>Limitations identified by author:<br>• Small number of women involved in the study<br>• Link worker and dietitian who conducted the interviews were also those involved in running the group, which could have introduced bias into the interview responses as women may have been more reluctant to criticise the group (however using these familiar people also helped to ensure high rates o participation, according to the authors)</td>
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<td>population/s: No detail reported<br><br>Setting: Community<br><br>Year: April 1996 (for 14 weeks)</td>
<td>six sessions, one attended five sessions, two attended four sessions, one attended three sessions and three women attended two sessions. The mean number of sessions attended (calculated) was five sessions.<br><br>Control/comparison/s description: No comparison group.<br><br>Sample sizes:<br>Total n=15 (n=13 with data)<br>Intervention n=15 (n=13 with data)<br>Control n=N/A<br><br>NB. n=2 participants dropped out due to moving from the area and not being available.<br><br>Baseline comparisons: N/A (non-comparative study)<br><br>Study sufficiently powered? Not stated; probably not due to small sample size.</td>
<td>in appreciation for their time.<br><br>Interviews were taped and transcribed. Asian language interviews were translated into English.<br><br>Secondary outcomes: None<br><br>Follow-up periods: Each woman's initial visit to the group, each woman's last visit to the group and 17 month post-intervention follow-up<br><br>Methods of analysis:<br><br><u>Effectiveness outcomes</u><br><br>The weight and BMI of each participant at each time point were reported as raw data, and change scores were calculated from baseline to last visit and from last visit to 17-month follow-up.<br><br>Using these data, a systematic reviewer (ESEH) conducted a repeated measures analysis of variance (ANOVA) comparing participants across time, and followed this up with paired t-tests to detect differences in means between specific time</td>
<td>Weight change (kg):
<table>
<tr><th>P. No.</th><th>Change: initial-last visit</th><th>Change: last visit-17mth</th></tr>
<tr><td>2</td><td>+0.4</td><td>-3.6</td></tr>
<tr><td>3</td><td>-2.5</td><td>-2.5</td></tr>
<tr><td>4</td><td>+0.4</td><td>-0.4</td></tr>
<tr><td>5</td><td>-3.2</td><td>+0.5</td></tr>
<tr><td>6</td><td>-3.7</td><td>+9.6</td></tr>
<tr><td>7</td><td>-0.9</td><td>-2.3</td></tr>
<tr><td>8</td><td>-2.0</td><td>+1.6</td></tr>
<tr><td>9</td><td>-0.7</td><td>-7.5</td></tr>
<tr><td>10</td><td>-2.9</td><td>+2.0</td></tr>
<tr><td>11</td><td>-10.7</td><td>+4.8</td></tr>
<tr><td>12</td><td>-2.7</td><td>-2.8</td></tr>
<tr><td>14</td><td>+0.9</td><td>-1.4</td></tr>
<tr><td>15</td><td>-2.3</td><td>-2.2</td></tr>
</table>
BMI (kg/m$^2$):
<table>
<tr><th>P. No.</th><th>Initial visit to grp</th><th>Last visit to grp</th><th>17-mnths</th></tr>
<tr><td>2</td><td>30.6</td><td>30.7</td><td>29.3</td></tr>
<tr><td>3</td><td>32.2</td><td>31.3</td><td>30.3</td></tr>
<tr><td>4</td><td>26.4</td><td>26.7</td><td>26.4</td></tr>
<tr><td>5</td><td>28.8</td><td>27.2</td><td>27.5</td></tr>
<tr><td>6</td><td>42.4</td><td>40.9</td><td>44.7</td></tr>
<tr><td>7</td><td>29.3</td><td>29.0</td><td>28.0</td></tr>
<tr><td>8</td><td>33.7</td><td>32.9</td><td>33.5</td></tr>
<tr><td>9</td><td>30.3</td><td>30.0</td><td>26.7</td></tr>
<tr><td>10</td><td>33.3</td><td>32.1</td><td>32.8</td></tr>
<tr><td>11</td><td>25.3</td><td>20.8</td><td>22.8</td></tr>
<tr><td>12</td><td>32.3</td><td>31.2</td><td>30.3</td></tr>
<tr><td>14</td><td>40.0</td><td>40.2</td><td>39.7</td></tr>
<tr><td>15</td><td>30.7</td><td>29.7</td><td>28.7</td></tr>
</table>
Repeated measures ANOVA revealed a significant reduction in weight across the three time periods ($F_{2,11}$=6.00, p=0.017, partial eta$^2$=0.52).</td>
<td>• Translation of Asian language interviews may have affected the data as it is difficult to translate meaning exactly (although it was useful for respondents to be able to express opinions easily in their own language, and the link worker checked tapes for meaning)<br><br>Limitations identified by review team:<br>• No comparison group for quantitative data, therefore difficult to tell if the women's weight and BMI would have decreased over the same period without intervention<br>• No statistical analysis conducted on</td>
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<td>points.<br><br><u>Views analysis</u><br><br>The transcriptions were read and responses were gathered and summarised in a grid. This information was scrutinised for themes that emerged through the data. Results were presented as a summary and illustrated with quotes, identified by the respondent number.</td>
<td>Paired samples t-tests revealed a significant reduction in weight from the initial visit to the last visit to the group (t=2.83, df=12, p=0.015) and from the initial visit to 17-month follow-up (t=2.68, df=12, p=0.020).<br><br>Mean and SD weight over time:
<table>
<tr><th>Time</th><th>Mean</th><th>Standard deviation</th></tr>
<tr><td>Initial visit to group</td><td>77.31</td><td>15.06</td></tr>
<tr><td>Last visit to group</td><td>75.01</td><td>16.10</td></tr>
<tr><td>17-month follow-up</td><td>74.69</td><td>17.49</td></tr>
</table>
Repeated measures ANOVA revealed a significant reduction in BMI across the three time periods ($F_{2,11}$=6.20, p=0.016, partial $eta^2$=0.53).<br><br>Paired samples t-tests revealed a significant reduction in BMI from the initial visit to the last visit to the group (t=2.83, df=12, p=0.015) and from the initial visit to 17-month follow-up (t=2.80, df=12, p=0.016).<br><br>Mean and SD BMI over time:
<table>
<tr><th>Time</th><th>Mean</th><th>Standard deviation</th></tr>
<tr><td>Initial visit to group</td><td>31.95</td><td>4.81</td></tr>
<tr><td>Last visit to group</td><td>30.98</td><td>5.25</td></tr>
<tr><td>17-month follow-up</td><td>30.82</td><td>5.84</td></tr>
</table>
</td>
<td>quantitative data, although possible to calculate from raw data<br><br>Evidence gaps and/or recommendations for future research: Hold physical activity sessions more frequently (e.g. 2-3 times per week), be longer & possibly include a dance element, at least for a trial period. Dietary advice should include healthy eating for the whole family and during pregnancy and breastfeeding.<br><br>Source of funding: Trafford Healthcare NHS Trust and Trafford Metropolitan Borough Council</td>
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| | | | | Views findings<br><br>*RECRUITMENT TO GROUP*<br>Recruitment was done through the link worker and also through posters and flyers distributed by local health professionals; however the link worker seemed the most frequent way the women found out about the group. Word of mouth was also an important way of recruiting to the group; women told friends and relatives about it, some of whom subsequently attended: "*When I used to meet my friends and when the talks started I used to say 'oh, look, my weight's not going down, oh I am getting bigger.' And the other ladies would talk and I'd say look at the centre they are doing these sessions and you can find out more. Some of them who are interested: they started, several of them don't want to know*." (Respondent 4)<br><br>BENEFITS OF THE GROUP<br>Reported good things about the group included enjoyment, diversions and social benefit. The women also enjoyed receiving advice on diet and physical activity, doing physical activity, losing weight and the health benefits of exercising. Features of the group that the women enjoyed included the fact that other Asian women attended, that other overweight women attended, the physical activities were not too fast, the group leaders were friendly and the price was reasonable.<br><br>Many comments about the beneficial function of the group related to both **social** and **weight-related** benefits. For example: "*One, it was helpful, it helped you lose weight. Two, it was a good laugh with everyone*." (Respondent 14) | |

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| | | | | Some women also related social benefits to weight loss. For example, three women had not going out of the house as a reason for weight gain and another woman gave going out a lot as a reason for weight loss, possibly through distraction or conversely boredom:<br>*"Last couple of weeks I have been staying in and eating and cooking a lot – worry a lot. Every five minutes I find something to eat."* (Respondent 5)<br>"*It must be recently then though rushing around a lot. Because like, if I haven't been in the house picking, you know, if I've gone to the precinct or going out with friends, you don't think of food and sweets. I think that's what it is. Quite a lot of Asian people are at home, stuck at home, and they've got nothing to do, they don't have much activities for them, like English girls go out clubbing it. I wouldn't mind going out clubbing it*." (Respondent 3)<br><br>BARRIERS TO ATTENDING<br><br>Reasons given for not continuing to go to the group included difficulty getting to the group venue due to lack of transport, not being able to walk or not wanting to walk, conflicting family commitments, their own ill health, visiting out of the area, moving house, work or college commitments and not feeling the need to continue attending due to physical activity prescribed by a physiotherapist and having made dietary changes as a result of attending the group.<br><br>**Difficulties getting to the group** in terms of reluctance to walk and **the needs of the women vs. needs of their family** were pertinent barrier themes that the authors reported on more extensively. | |

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| | | | | Although most women lived within 2 miles of the group, according to the authors, they cited difficulties getting to the group as a barrier, in particular a reluctance to walk. Reasons given included not wanting to walk in winter months, taking too much time, fear of walking alone, illness, having no-one to go with and the distance from home:<br>"*Well, we liked everything about the group, the only thing was it was a bit far. It was alright as long as we had a few friends to come along, it was a bit difficult for us but everything else was okay*." (Respondent 11; lives 0.6 miles away)<br><br>Most of the women citing the 'needs of the family' as a barrier were married with children and the needs of the family were felt to be a priority over their own needs:<br>*"I could not find the time, I got busy in the family. It took time to walk to the group and my son used to come back from school for dinner at this time*." (Respondent 8, lives with husband and six children)<br><br>SUGGESTED CHANGES TO GROUP<br><br>The **physical activity sessions** seemed to have been very popular and many suggestions for improvement are related to the physical activity. In particular, the women said they wanted **longer and more frequent sessions** – although those who made these suggestions were not those who attended most often (possibly because it was only once a week):<br>"*I would love it if it was an hour, three times a week, or maybe one and a half hours if it was two times a week, something what you know you are going there then you've not* | |

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| | | | | *just to jump into your tracksuit for the odd 45 min, then you've got to go back home for the children. You want to make sure you're making an effort and I'm sure there is definitely women that will come more, you know when it's a few times a week."* (Respondent 3, attended group four times)<br><br>REASONS FOR WEIGHT CHANGE<br><br>Reasons given for weight changing or staying the same were changes to diet, increased physical activity, going out and illness.<br><br>**Diet and physical activity** were focused on particularly by the authors, since most women related their change to these factors:<br>"*I eat boiled vegetables and a lot of fruit, I eat little fat and if I could not come to the group I would try to exercise a little at home. I grill things for the whole family anyway and I do not fry food. I also add less fat to curries, but I boil vegetables separately for myself*." (Respondent 2, husband and three children)<br><br>One respondent reported gaining weight despite being careful about the food she ate and doing some physical activity at home, and seemed to see planned physical activity, in particular with the use of machines, although she had reduced her weight while attending the group, which she walked to, but stopped attending due to difficulty walking from painful varicose veins:<br>"*I do not lose weight by exercising or by dieting, I cannot lose weight because my body is like this, this is why I need to use some kind of exercise machines so I can* | |

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| | | | | *lose weight easily*." (Respondent 10)<br><br>Social factors were often cited as being important influences on weight, such as being unable or able to go out of the house.<br><br>**Secondary outcomes:** None<br><br>**Attrition details:** 2 participants dropped out due to moving house; their data are not reported. | |

## Qualitative papers

| Study details | Population and setting | Research question / Methods | Findings | Comments |
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| **Author:** Bradby<br><br>**Study design:** Interviews<br><br>**Setting:** Glasgow, UK<br><br>**Year:** 1997<br><br>**Funding:** Not stated<br><br>**QUALITY : +** | **Number of participants:** 47<br><br>**Age range:** 20-30<br><br>**Other Sample Characteristics**: Punjabi women; majority born in Britain; 33% born on subcontinent.<br><br>**Method of recruitment:** Random selection from GP list. | **QUALITATIVE:**<br>**Research Question:** Exploration of the ways in which young British Asian women understand food and health to be related.<br><br>**Methods used:** | **Main Themes relevant to research question:**<br><br>Women reported eating a large variety of foods and tended to divide them into 'our' foods (Asian') and 'your sort of foods' (Scottish or British). Daily food reflected Punjabi origins, consisting of chapatti or rot (unleavened round bread cooked on a griddle) accompanied by dishes of meat, vegetables or pulses cooked in a liquid of spices, onions, ginger, garlic and chillies known generally as saalan, dahl, subsee or ghosht. This was generally the main meal of the day, with non-Asian food such as pizza or fish and chips introduced for variety 2-3 times a week.<br>Health was a powerful reason for explaining the rationale behind daily food choice. Two models:<br>1. Derived from the authority of Western medical view of the world (reductionist, as it relies on certain elements of foodstuffs to explain effects upon particular parts of the body).<br>2. Derived from the authority of South Asian elders (systemic, because health is considered in terms of the effect of the whole food on the whole body in a way that is contingent upon many other variables).<br>The first type of explanation stated that a food was good because of something it contained that was also intrinsically good. The good effect of the food was often related to its effect on a specific part of the body. It relied on a dichotomous classification in which foods were either good | |

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| | | | or bad.<br><br>The second view referred to the effect of the whole food on the body, often relating this to the type of weather prevailing or the stage of life which the consumer had reached, in deducing whether or not the effect of the food was 'good'. This type was more complex than the first, more dependent on context and time, so that a particular food might be good in one time and place for a certain person, but this could change.<br><br>Thus one food could have several roles through time, and women were likely to talk of the maintenance of a balance of health, while taking other factors into consideration.<br><br><u>Reductionist model: 'good' and 'bad' constituents</u><br><br>Foods that were deemed good included fresh fruit and vegetables, dairy products, cereals and pulses. The reason for them being good was more difficult to ascertain, some women stating that they were good because they were good for you. Otherwise the answer was given in terms of the goodness of the nutrients that these foods contained (e.g. vitamins, protein, fibre). Eating a diet with enough 'good' foods was said to ensure the required amount of 'good' vitamins and minerals. Foods that were said to contain iron, calcium and vitamins were necessarily good, and the good effect of the vitamins and minerals was not explained any further. A woman explained why she liked her children to eat fruit:<br><br>"*I mean fruit has got a lot of calcium and iron and things as well, and vitamins. I mainly like to give them because I want them to have more vitamins".*<br><br>Despite a lack of knowledge, the presence of vitamins in a food was a powerful reason for considering a food to have a beneficial effect on health and was used to explain the value of foods ranging from Ribena to roti-salaan. Foods said not to contain vitamins, such as chips and waffles, were said to be bad on this basis alone. This model also identified foods whose effect was to compromise health, and the prime offenders in this respect were said to be fat and sugar. The foods that were identified as containing a lot of sugar and fat or 'cholesterol' were collectively referred to as 'junk food' and included ready-made items such as chocolate. Biscuits, acke, sweets, crisps, fried snacks such as burgers, pakoras and chips. | |

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| | | | *"Because they just fill you up with sugar and grease and fat you know. Sugar and carbohydrates are not really good for you…bad for your teeth and,,,make you put on weight".*<br><br>Although sugar was admitted as necessary in some small part in the diet, fat was talked of as an intrinsically bad food. This 'badness' meant that reduced quantities of fat rendered a food beneficial to health. The badness that fat imparted to food led one women to say that she thought that the only good food was fruit because of its lack of fat. She used the word 'cholesterol' as a synonym for fat:<br><br>"*In my knowledge I think the best thing is fruit…that's the best thing there is about, everything else is fattening and ooooh, it gives you nothing, innit, too much cholesterol, too much that…"*<br><br>Foods that contained fat such as chips, or that were said to have a fattening effect such as a banana were classified as bad, and this became grounds for assuming that they lacked vitamins. Thus 'contains vitamins' became a metaphor for 'good' and 'bad', being the opposite of good, implied a lack of vitamins.<br>Fatty ('bad') foods came in 3 guises:<br>1. Foods to which a lot of fat was added to at preparation such as curries .<br>2. Foods which were cooked in oil including anything fried.<br>3. Meat, which was the only food identified as fat-containing that was also named as food that could be good for health. It was only felt to be healthy within limits, and if eaten every day would mean an intake of fat that was too high.<br><br>The effects that fat was held to have on the body and led to vilification were its contribution to increased body weight and to 'heart trouble'. Fried foods were all identified as 'bad' or 'dangerous' for the heart by promoting or even causing heart disease. Some thought that this was brought about through 'cholesterol', though what 'cholesterol' was beyond being 'bad fat' was not made clear. It was suggested that vegetable oil had less fat and/or less cholesterol compared with butter or *ghee* and therefore represented a healthier option. This model did not offer an understanding of the causation of heart attacks. Most said they tried to use less ghee or butter, or substituted it with oil in order to reduce the risk of heart trouble.<br><br>The second hazard identified with fat in the diet was that it led to weight gain which was a problem in and of itself and was connected to the | |

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| | | | increased risk of heart trouble. Foods high in fat were said to be bad because they 'fill you up with grease and fat' and led to overweight. Putting on weight was reported as leading to heart attacks, yet the precise nature of these links was not clear. Cholesterol, calories and fat were associated and almost synonymous in that bad food was described as ' probably very high calorie, lots of fat, lots of cholesterol, a really bad diet'. A means of avoiding this was to substitute Flora oil in the cooking for butter. This was thought to reduce calories, cholesterol, and have a less fattening effect.<br><br>Almost all said they were making an effort to eat less fatty food by avoiding fried items and using small amounts of of oil. The exception was those women whose relationship with food was dominated by a medical diagnosed condition that they associated with thinness.<br><br>This model is recognisable as a British / western health promotion model. There are certain foods that are good and should be featured in the diet, and others which contain bad constituents that should be avoided or eaten in moderation. Women attributed the authority for this model to professional figures such as teachers and doctors. There was an absence of expressions of disbelief in this model.<br><br><u>Systemic model: maintaining equilibrium</u>:<br><br>Rather than health being a quantum that could be added to or subtracted from by good or bad foods, health was viewed as an equilibrium that was dependent on many factors, only one of which was food consumed. The effect of each factor varied according to other factors in operation, such as the way food was cooked, stored, the climate, the bodily state and stage of life-cycle of consumers, as well as their emotional state. These explanations relied on some properties of the food that are physical , e.g. accounts of positive effects of ghee on constipation and stiff joints were understood to be due to its greasy quality which lubricates the body. Unlike the reductionist model, the systemic model derived from lay figures, mostly older relatives, specially mothers and mothers-in-law. Knowledge was acquired while growing up, from 'everyday use'. It came not so much from what lay people said so much as what they did.<br><br>The beliefs and practices were explained as common sense or knowledge passed on by relatives. There were connections between the explanations and Ayurvedic and Unani healing systems (which date back to 400BC). According to this tradition, disease causation is | |

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| | | | understood to be related to imbalance of the biological humours or *dosas* of the body (air/wind; fire; phlegm/water) which determine life processes of growth and decay. An excess or deficiency of the humour can bring about pathological changes within the body. Treatment is based on a system of tastes that applies to foods, minerals and herbs. The aspect of this system most referred to was heating and cooling which is identified as the aspect of a humoral system most likely to persist when others are forgotten.<br>Heating and cooling were reported as having significant effects on the general health equilibrium and particular symptoms. The effects were said to interact with the effects of the environment and the eater to influence health.<br><br>Some foods were said to be particularly hot regardless of the context (karela or Chinese prickly pear; meat; fish; eggs; chicken; nuts and garlic). There was a connection between the way that foods are cooked and their healing effect. Cooling foods were reported to be milk, okra, turnips, carrots, yoghurt, water, rice, *maash dahl* (unpolished orange lentils), oranges and ice cream. The taste of some foods were said to reveal the heating (bitter) or cooling effect, but this was not totally reliable. Some heating foods were identified as such because they were rich in protein. Women who had grown up on the sub-continent were likely to claim that the associated body sensations automatically inclined one towards heating or cooling so as not to over-heat or over-cool. Certain foods were said to cause certain conditions (cooling foods exacerbated catarrhy conditions such as colds).Some foods could change from heating to cooling if the temperature and/or consistency changed, for example, during storage, or if the climate changed. Thus, in Scotland a different strategy would be required to maintain equilibrium than on the sub-continent.<br>Women were said to be more vulnerable to over heating and cooling at menstruation, and pregnancy. Children were also more vulnerable.<br><br>Although the accounts were remarkably constant, there were variations in the status accorded to accounts. Some women avoided certain foods out of habit, whilst others were intuitive about body sensations. Yet others had been given advice by their mothers. A minority expressed disbelief in this model:<br>"*That's a very Indiany thing to think about, you know*"<br>Despite a stated disbelief, these women often followed elder's recommendations. Yet others were sceptical and referred to the advice as old ladies tales and myths. | |

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| | | | Because of the contradiction between widespread knowledge of the systemic model on the one hand, and doubt on the other, the authors conclude that caution be taken in applying the model to health behaviours. They also state that disbelief does not necessary detract the women from following behaviour that they are very familiar with in the absence of strong evidence of ill effects:<br>"*It is better to be safe than sorry*"<br><br><u>Connections between systemic and reductionist accounts</u><br><br>The two accounts were not mutually exclusive; women subscribed to both ways of thinking and used one model to explain features of the other. There was some evidence that reductionist accounts would only be followed if they did not contradict traditional accounts. For example, eating fish as an alternative to too much meat (as advised in the medical model) would only be carried out in winter as fish is too warming in summer.<br><br>There was systemic belief that ghee or butter were good for lubrication but could also, when solidified, create blockages that might lead to heart attacks:<br><br>"*I was told that it [Flora oil] is better than the ghee. The ghee, that's solid: it goes inside and sticks there, The liquids, that stays in a liquid. Even in winter the curry I make with Flora oil, it'll still be that I can spoon it out with something. If it's with ghee it'll go into a solid block and I can't separate it if I want a small potion out. So we've all changed to Flora oil…The ghee, that's solid, it goes inside and sticks there".*<br><br>Butter 'jamming' was a problem said to be more likely to occur in Scotland because the weather is colder. Therefore the beliefs and eating behaviour of elders who ' *were raised just eating butter'* was not in question, since on the sub-continent the ghee would not solidify.<br><br>There was advice against over-consumption of meat in both models, but for different reasons. The reductionist model gives meat diminishing returns in terms of health benefit because of its fat content. In the systemic model, over-heating and subsequent pimples and rashes, and even anger were the concern. One woman explained the biomedical advice to increase the intake of fruit and vegetables without avoiding meat in terms of the balance crucial to Unani / Ayurvedic understandings of health: | |

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| | | | *"Doctors say keep a balance; eat the right things. Eat vegetables too…go on eating meat but you should know about vegetables also"*<br><br>The authors conclude that the 2 models can complement each other's weaknesses and together have considerable explanatory power to account for the connections between food and health that women encounter daily. | |
| **Author:** Carroll<br><br>**Study design:** Quantitative and qualitative evaluation<br><br>**Location**: Five EoP schemes in UK<br><br>**Year:** 2002<br><br>**Funding:** HTA<br><br>**QUALITY +** | **Number of participants:**<br>Survey:<br>137 GPs in 33 health authorities.<br>58 Leisure Centres<br><br>Case Study Interviews:<br>5 EoP coordinators or organisers<br>as providers<br>10 GPs as referrers<br>8 leisure centre staff as executors<br><br>35 South Asian Muslim women<br>who, at the time of the research,<br>were on the EoP schemes.<br><br>**Other sample characteristics:**<br><br>**Recruitment:**<br><br>**Underlying Framework / Theory:**<br>Exercise on Prescription (EoP) schemes are based in primary healthcare settings. General practitioners (GPs) prescribe exercise as the preferred course of treatment for a range of conditions, including those related to coronary heart | **Research Question:** To carry out a national survey of health<br>authority districts with large South Asian populations in order to find out what schemes exist and what provision is made for these women.<br>To undertake case studies of schemes in which provision is made for South Asian Muslim women and to note good practice and issues arising.<br>To undertake and evaluate a pilot intervention programme with special provision for South<br>Asian Muslim women.<br><br>**Methods used:**<br>A questionnaire was sent to health authorities with South Asian populations of at least 0.5% to determine the existence of EoP schemes, the agencies involved and the key contacts.<br><br>Questionnaires were sent to GPs and leisure centres in areas where such schemes existed.<br><br>In five selected areas, interviews were conducted<br>with GPs, EoP providers, leisure centres, South Asian<br>Muslim women participating in the schemes and community workers.<br><br>In one area, an EoP pilot intervention programme was introduced, and interviews were held with EoP providers | **Main Survey Results relevant to the research question:**<br>Leisure Centre Survey<br>32 (55%) of leisure centres responded<br>Percentages of patients from ethnic minority groups were less than 5% in 16 cases and less than 20% in three cases; two centres replied that there were over 31%, while 11 did not know or did not answer the question. Of the referrals, 15 centres responded that less than 1% were South Asian Muslim women, while at four centres the figures were 7% or less; the respondents from 13 centres did not know or did not answer the question. When asked how many South Asian Muslim women were currently registered on programmes, 12 centres had none, six had between one and four, one had 15 and another had 60; respondents for 12 centres did not know or did not answer.<br><br>At only seven centres (22%) was any special provision made within the scheme for South Asian Muslim women; the respondents at 17 centres (53%) stated there were no special provisions of any kind and at eight (25%) they either did not know or did not answer the question.<br><br>One centre catered specifically for South Asian Muslim women by providing women-only gyms, South Asian instructors, translators, special counselling, a transport service, specific activities and promotional material in ethnic minority languages, but this was an exception. At other centres they provided either women-only gyms or specific activities for women, such as swimming, saunas and aerobics.<br><br>A majority of the EoP programmes lasted for 10–13 weeks (19, 62%), three for less than 10 weeks with one as little as 4 weeks, while the remainder (5) lasted for 4–8 months; one response was that the programme was 'on-going' and, for four centres, no answers were given.<br><br>GP Survey<br>Of the 61 replies received, 57 (33%) from 15 health authorities were involved in referring patients on EoP schemes. Sizes of practices varied. The approximate numbers/percentages of South Asian Muslim | |

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| | disease (CHD).<br><br>In recent years, attention has been paid to the social exclusion of Muslim women. It has been argued that Muslim women suffer a double burden. Not only do they share with other disadvantaged groups the exclusions based in racial discrimination, economic deprivation and sexism, but they are also subject to the 'internal' disadvantage of being members of communities which often lay emphasis on exercising control over them. That is, fathers, brothers, husbands and (male) community (and religious) leaders may combine to prohibit Muslim women from actively participating in activities outside of the home.<br><br>The myth of the Muslim woman who lacks agency contributes to the social exclusion of Muslim women and their marginalisation from outside activities. This has implications for EoP schemes. These have the potential to raise participation levels but, in order to meet the needs of Muslim women, strategies have to be developed that overcome these difficulties and empower Muslim women to participate in EoP | and South Asian women.<br><br><u>Survey</u><br>There were two different detailed questionnaires –<br>one for GPs which related to referral patterns, including whether there were any special provisions for South Asian Muslim women, and monitoring and evaluation.<br><br>Another questionnaire was sent to 58 leisure centres and those operating the activity part of the schemes. The main questions related to the organisation of the scheme, the patients who were referred, special provisions for South Asian Muslim women, exercise programmes, monitoring and evaluation.<br><br><u>Case Studies</u><br>Qualitative research design was used to explore in depth the selected schemes within five health authorities as a way of understanding their actual<br>and potential value from the perspective of South Asian Muslim women and community workers, as well as from the viewpoint of the EoP service planners and providers. Interviews with key individuals in the EoP schemes gave valuable<br>insights into the running of the schemes and their perspectives of the barriers to exercise for South Asian Muslim women.<br><br>The schemes selected had made some provisions for South Asian Muslim women, although not necessarily all those that were possible, but they were all potentially able to give good examples of good practice and provide insights from both providers and recipients. | women registered in the practices were: less than ten patients (5); less than 5% (36); more than 5% (7), with the highest being 50%. Three respondents replied none and eight did not know.<br><br>**Main Themes relevant to research question:**<br><u>GP referrals</u><br>In all, 29 general practices kept a record of their referrals but 20 did not, while eight indicated that they did not know of any records. Responses from five practices said that patients often asked to be referred to EoP schemes while another 30 stated that patients sometimes asked. This suggests that many patients are aware of schemes from one source or another.<br><br><u>Views of Muslim Women</u><br>The key factors affecting South Asian Muslim women's acceptance and uptake of EoP schemes can be split into two main types: structural factors and attitudinal factors. These applied at all levels of EoP structure.<br><br>**Structural barriers**<br>***Access to facilities***<br>Access to facilities was one of the most often quoted structural barriers to exercise. With the exception of one centre in Birmingham and one in Blackburn, which were located in the heart of these South Asian Muslim communities, the remaining sports facilities were located some distance away. This constituted a significant problem and was a barrier to participation among South Asian Muslim women respondents:<br>*"I know it isn't really that far but it is, if you know what I mean, because it gets dark now and, when you hear about all these things that are happening*<br>*to women, I don't even want to go across the road these days. It's not worth it."*<br>Access became more of a problem if transport had to be used, as this was seen as adding to the overall cost of exercising.<br>***The cost of exercise***<br>Many South Asian Muslim women on all the EoP schemes felt that even with a prescription, exercise was expensive. Although many schemes did not charge for the initial prescription programme, the women had to pay for follow-up programmes. These women were those who had to make some contribution towards their prescriptions. Many South Asian Muslim women live on low incomes or are on income support, and even a minimum payment for exercise was seen as a waste of limited resources: | |

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| | schemes. To do this requires an investigation into the actual condition and circumstances of Muslim women. | The five health authorities chosen, and the names of their schemes, were:<br>(a) West Pennine Health Authority: 'A Prescription for Exercise'<br>(b) Bradford Health Authority: 'Bradford Encouraging Exercising People' (BEEP)<br>(c) Leicester Health Authority: 'Active for Life'<br>(d) East Lancashire Health Authority: 'Fitness for Life'<br>(e) Birmingham Health Authority: 'Exercise on Prescription'.<br><br>**Analysis:**<br>The methods of analysing the interview data were similar to those advocated by Jones (although full cognitive maps were not used) and Pope and Mays. The five stages of the framework approach – familiarisation, identifying, thematic framework, indexing, charting, mapping and interpretation – were basically followed. | *"I know that they don't ask us to pay for much but even that is too much for me. I have really young children and I have to look after them. Now that they are getting older, their needs are becoming more and more, so paying for exercise just doesn't feel good. Sometimes I think I might as well run around in the garden; at least it would be a lot cheaper. I think that people like me should be let off paying, because I really need it for better health."*<br><br>*"...they are compromising their children's needs."*<br>***Childcare facilities***<br>An additional issue were the problems caused by lack of crèche facilities. This was a recurring theme for women on the EoP scheme in Birmingham:<br>*"I know what's available and I want to get fitter but who will look after the children? I will probably have to wait until they start school."*<br><br>Referring to one centre, where there were special provisions for women such as women-only sessions on Wednesday and Thursday mornings, Mrs F said:<br>"*My friends go there and it's easy in a way because it's just over there; however, my children are not at school yet, so what can I do? I suppose my health will suffer for a while."*<br><br>*"I could come both days if I could get someone to help with my children."*<br><br>Although childcare facilities were available at the Leicester and the Audley Sports Centres, these were not available for all the women-only sessions. It was noted that many South Asian Muslim women had brought young children along with them. Young non-exercising female members of the family were looking after them outside the gym area. Even where childcare facilities were available, some women pointed to this as adding to the cost of exercising:<br>*"I have always loved doing this sort of thing but now that I am a mother I have to think of them. Facilities for children are OK but that just means more money that I haven't got. Unless I can find someone to look after them, I have a problem getting here."*<br>***Women-only sessions***<br>All South Asian Muslim respondents highlighted the problem of the limited number of women-only sessions. This was expressed most fervently in the case of access to the Oldham Sports Centre. This facility held one women-only session on Sunday afternoons:<br>*"I only come on a Sunday because I know that it's women only. The rest* | |

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| | | | *of the week I don't bother because I am not really comfortable with men around the place. I don't really use my prescription properly, you know."*<br><br>Although there were a variety of activities on offer, they were all offered on one occasion only, Sunday afternoon/evening. There were other facilities open to EoP patients in Oldham but the women commented that these were not accessible; to get to them would require transport, which would add to the overall cost of exercise. As with women in Oldham, many women elsewhere also expressed their wish to exercise in an all-women environment and to have more sessions available to them. One respondent on Leicester's 'Active for Life' scheme said:<br><br>*"Now that I have got used to exercising, I wish there was more that I could do. Just coming for on one day isn't enough really. It kills me but I know that it isn't really enough. One week you might be ill, or a friend or relative comes around, and you can't come; so then you miss everything for one week. I think there should definitely be more sessions for just women alone*."<br><br>In Blackburn, women on the 'Fitness for Life' scheme appeared to be unaware of all the sessions available to them:<br><br>"*If there were more sessions I would definitely try and come. I can't swim so I just come on Mondays and do everything."*<br><br>There were many women-only sessions available to EoP patients at the Audley Sports Centre in Blackburn. From the above comment, it appears that information on available facilities may not be filtering down to the EoP patients.<br><br>***Language***<br>Those women who were able to access facilities thought that language was a barrier to communicating their needs and understanding the range of services available to them at the facilities:<br><br>"*I turned back at the door because I knew I wouldn't be able to understand what the lady at the desk would say."*<br><br>*"I think it is really bad for women like me who can't speak English. I can understand it most of the time but I can't reply or read or write it. Sometimes I think that white people don't understand our needs. They just think we don't want to be healthy and exercise – but we do. I think that the younger girls and women are better off and know how to stand* | |

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| | | | *up for themselves because they understand English. I'm glad my daughter understands my situation. She always stands up for my sister and me."*<br><br>There was an attempt to deal with problems of communication by the women themselves, as one woman pointed out:<br><br>*"Sometimes the receptionist helps but sometimes I take my daughter along with me. She can speak and understand English really well. She goes to university*."<br><br>Language problems may be one of the problems in informing South Asian Muslim women patients of the facilities available to them:<br><br>*"I came here really excited but I was also worried that there would be no other Muslim women here, although I do know of women in our community who do this. Anyway, when I came I just thought there would be someone I could speak to here. I can speak a little English but I don't always understand it. So I just watched what everyone else was doing and did it like that. They did explain but I didn't really understand. I just moved my legs the way everyone else did. Then I asked this youngish Asian girl and she explained things*."<br><br>Another woman on the 'Fitness for Life' scheme explained:<br><br>"*I don't have any communication problems because my niece comes with me."*<br><br>On the Thursday session at the Audley Sports Centre, there were many non-exercising young South Asian Muslim women standing about outside the gym facility. These women were relatives or friends of the exercising South Asian Muslim women who were acting as translators or child-minders.<br><br>**Attitudinal barriers**<br>***Culture***<br>Culture has often been referenced as being a barrier to exercise. In popular writing and the media, the culture of Muslim settlers is seen as restrictive while Western culture is liberating. In many cases, culture has been conflated with religion so that the distinction between where culture ends and religion begins is blurred:<br><br>"*Our Muslim culture doesn't stop us exercising. We have always* | |

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| | | | *exercised. We perform Namaz five times a day and that's the best exercise; and everyone knows that you have to walk to places to stay well."*<br><br>When women articulated concern by their husbands and community, this was related to their general safety:<br><br>"*My husband drops me off and picks me up. I feel safer and he is happier."*<br><br>"*Our men and us, we just don't want a mixed environment*."<br><br>"*Our communities know we need to be healthy. However, exercise is so different here – back home we were fit but here we just don't know how to look after ourselves."*<br><br>One lady from Blackburn was adamant that the idea of men preventing women from exercise was, as she called it, ridiculous:<br><br>"*This is nonsense. If a man sees that his wife is getting some good from getting out and about, he won't prevent her from doing it. It is more to do with the idea that women might be doing exercise with men in the same room – that's not allowed."*<br><br>The importance of exercising in an all-female environment was referred to with reference to the aqua-aerobics sessions held at the Leicester Sports Centre. Although it was a women-only session, there were always men present – so the session was not really women-only:<br>.<br>*"There are always men about. If they are not there when you start, they are coming in afterwards. I have arthritis and I have been coming for a year. It doesn't bother me as much as some other women, who won't go swimming because of this."*<br><br>*"As you can see, there is more than one swimming pool and when we are in one of them, in the ladies only session, the other ones are being used by men; everyone can see everyone else."*<br><br>***Religion***<br>Islam was not seen as restricting exercise; indeed, as discussed above, many women pointed out that the concept of exercise and well-being through physical activity is inherent to Islam, as exemplified through the ritual aspects of the religion, that is, *Namaz* which involves kneeling and | |

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| | | | prostrating. South Asian Muslim respondents emphasised the importance religion places on the separation of the genders in certain environments. The lack of awareness of male–female dynamics within Islam and the basic requirement of segregated space was often referenced as a barrier to exercise.<br><br>*"I prefer to exercise in a women-only environment. It's simply because I feel more comfortable and you don't really have to worry about what you wear. But if there were mixed classes, with the exception of swimming, I think I would still go. If I didn't feel comfortable I would stop."*<br><br>*"I don't think that religion prohibits Muslim women from exercising. Health is about well-being and we should all be interested in our health. The only religious factor for me would be that I wouldn't do certain exercises in a mixed class, especially swimming. It wouldn't be right to be going about in a swimming costume with men around. I know some young Muslim women who do and I don't understand how they can. I don't think there's any need and it makes me wonder why they do it."*<br><br>*"I don't think there is anything in Islam that says that women can't exercise; but what we must do is dress properly, not showing parts of the body – that is not acceptable. It doesn't affect me since I wear shalwarkameez anyway. I think that younger people exercise in whatever condition they want. I don't agree with this. I think that girls and boys must exercise separately, and girls should wear appropriate clothes. I am a Muslim and would never dream of going out without my head covered, let alone exercise wearing hardly anything."*<br><br>"*Some women think that you have to wear trainers and tights when you exercise but I know women who wear shalwar-kameez and dupattas when they exercise. I think that puts off a lot of women. I think that some husbands believe that women dress disrespectfully when they exercise, so they [the husbands] have to be told that it is not like that."*<br><br>***Racism and religious discrimination***<br>Some South Asian Muslim respondents highlighted the way that they saw themselves being perceived by others as a potential barrier to exercise. Direct and indirect racism and religious discrimination appeared to dominate these conversations. The attitude of the majority white community was often referred to – for example:<br><br>"*I think that some white people don't understand Pakistani people. They think we are all stupid and uneducated but we are not. That really puts* | |

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| | | | *people off from going out to places. But there are a lot of white people like my doctor who are all right."*<br><br>"*If anyone did say or do something that was derogatory, I wouldn't put up with it. I ... know how not to tolerate racial abuse from anyone. If someone said to me I shouldn't wear leggings in a class then I would complain and make an issue of it, because as long as we dress with safety in our minds, I don't think it should be an issue. I think if a Muslim woman wants to wear the headscarf during aerobics or something, then she should be allowed to. There definitely needs to be tolerance."*<br><br>*"I come along but I wouldn't if there weren't so many of our women because I always feel that I am treated differently if I am on my own – sort of looked at. I always feel that they think 'Who are these people that want to cover up?'."*<br><br><u>Community workers' comments</u><br>Each case study area varied in terms of the relationship with community workers and community centres. 'A Prescription for Exercise' in Oldham was not running at any of the community centres, although some facilities were available and community centres were willing to participate in the scheme.There were better relationships with community workers, who acted as a link between the health authority, leisure centres and the local Pakistani and Bangladeshi communities. Their main role was to inform and organise exercise in the sports centres, as well as in the local community. In Birmingham, although Leisure Point and Birmingham City Council worked closely together, there appeared to be very few links between the leisure centres and local community centres. This was particularly unfortunate as, in the case of the Sparkhill Pool and Sports Centre, they are located on the same street separated only by the local library, which is equally underused. Community centres may be used on an *ad hoc* basis, sometimes because of the facilities available:<br><br>"*This tends to be because some of the leisure centres have not got rooms big enough to hold a keep-fit class or a meeting in. With Sparkhill and Aston-Newtown, the centres aren't so big, so community centres may be used a little more but not greatly. In Sparkhill, the leisure centre used the school – it used one of the rooms for an exercise class. This wasn't especially for EoP but patients did use it. All this is on a very infrequent basis."*<br><br>The Leicester 'Active for Life' scheme was unique of all the case studies | |

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| | | | in this research, as it was more inclined towards using community centre facilities. This partnership was confined to one Community Centre, the Bhagini Centre. This is a women-only community centre providing a range of services for women in the area. Approximately 95% of the women who use the centre are Asian and 20% of them are South Asian Muslim women. One of the things they focus on is better health for Asian women. In line with this, they offer a number of 'Get Active Sessions' that involve aerobics, step aerobics, body conditioning, yoga and 'bums, tums and thighs' sessions.<br><br>The Bhagini Centre's response to the 'Active for Life' referral scheme was to get involved and offer the above services to women being referred by GPs on to the scheme. After showing interest, the centre trained two members of staff through Loughborough University to act as health advisers to potential referral patients. The scheme was advertised in surgeries, schools, libraries and other community organisations around Leicester as offering opportunities to participate in physical activity under the guidance of trained advisers. Despite efforts, however, there was only a very low uptake rate. Only two or three women were ever referred to the centre and from only one GP surgery. Conversations with members of staff at one centre highlighted some of the structural and attitudinal barriers for South Asian Muslim women. Concern was expressed over what was described as the general lack of concern about Asian women's health among Leicestershire healthcare officials and, particularly, GPs.<br><br>**Structural barriers to exercise**<br>***Access to facilities***<br>Problems of travelling to facilities were seen as constituting a barrier to South Asian Muslim women participating in the EoP schemes:<br><br>*"It's all very well having these things up and running, but how do women who don't drive get to a gym? There are no special services for them and they may be uncomfortable taking the bus. Apart from the cost going up, they don't feel safe on dark nights on buses ... and that's only if the gym is on a bus route in the first place."*<br><br>It was suggested that this problem could be alleviated by a more inclusive approach towards community centres. One Bangladeshi community worker from Oldham made this point very succinctly:<br><br>"*Here we are in the heart of the community. It's literally just across the road from us and they all know we are here. There are no big roads or* | |

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| | | | *anything to cross, let alone the distance from their homes. These are Bangladeshi women and they are very traditional – they won't go anywhere far. They come to sewing classes here and they used to exercise when we did it. They would come again."*<br><br>***Availability of female instructors***<br>One of the common structural barriers mentioned in all the schemes was the availability of South Asian female instructors. In Oldham, women from the local community were encouraged to complete an instructor's course at Oldham College. Women did attend the course, specifically, one Afro-Indian woman, one Bangladeshi woman and one Pakistani woman. The intention was that once the course was completed, the qualified instructors would work in the community. Two women dropped out and only one qualified – a Bangladeshi woman:<br><br>*"I think that Asian women would like an Asian face because of the communication and who they can identify with. I don't think it is essential but it helps if they understand you. I act as a sort of social person when I'm in the pool. I just talk to them all the time. The number of women coming to the Sunday sessions has increased."*<br><br>One community worker in Oldham felt that the availability of an Asian instructor was less necessary. Talking about some low-impact exercise classes held at the community centre, she argued that:<br><br>"*Some women didn't warm to the Asian instructor. The lady we used to have went on maternity leave and an Asian lady came in – and they were not really that happy. I don't know if it was because they didn't like the way that she taught. The ladies who came here just wanted low-impact exercises, not the ones that she was doing."*<br><br>During the research no other South Asian exercise facilitators were identified. The Oldham Leisure Centre did employ a South Asian receptionist for the gym facilities and the Birmingham EoP scheme had employed a South Asian health and fitness adviser.<br><br>***Women-only sessions***<br>It was generally agreed that Muslim women, in particular, do not like being in a mixed environment and that any sessions run within the community centres would be exclusively for women. This was feasible since many of the community centres were already running women only sessions such as sewing and cookery classes. When facilities were available, there were possibilities of running a 'keep-fit' type of service. | |

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| | | | ***Language***<br>Language was seen as an important barrier to exercise by community workers:<br><br>"*Communication is a big problem. How do you tell people about the benefits of exercise and show them how to get the best results if you can't speak to them. I think this is one of the biggest problems."*<br><br>*"You know we get so many Bangladeshi women coming to the sewing classes because I can speak to them. I am here every week and they know that they can come to me if they have a problem with the machines or anything."*<br><br>**Attitudinal barriers to exercise**<br>***GPs attitude***<br><br>In Leicester it was suggested that the low rates of uptake were related to lack of interest by local GPs. All the patients referred were from one GP's surgery:<br><br>"*We even gave them free tickets to our events so that they could see what we were about but they never came. One GP rang us up and asked if he could have another ticket to our Vahsaki function. That's not what it was about."*<br><br>GP participation was seen as directly related to the poor uptake of the scheme in Leicester and, in particular, to referrals to the Bhagini Centre:<br><br>"*If you go to your GP and he says that exercise will help, you are going to listen to him because he is your GP. If a friend says, 'Come on, let's do some exercise', you won't go. You know our Asian community listens to their GPs, so if they said, 'Do it', they would."*<br><br>This highlights the general lack of commitment by GPs towards referral schemes. The narratives above suggest that GP participation and encouragement of patients to participate in physical activity is vital for the success of any EoP project. Subsequent sections of the report further highlight the lack of GP participation in EoP referrals.<br><br>***EoP provider attitudes***<br>Community workers considered that South Asian Muslim women's lack of interest in the 'Active for Life' referral scheme and towards exercise in general in the Leicester City area was attributal to EoP providers' | |

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| | | | stereotypical views' of South Asian Muslim women and to their lack of understanding. These views were specifically the idea that Asian woman did not exercise. As one community worker commented:<br><br>"*...Maybe they haven't got proper awareness. Maybe the nurses need to get more involved."*<br><br>The Leicester Bhagini Centre is still offering activities to patients on the scheme. Its continued commitment is reflected in the continued employment of the trained staff. In addition to GP attitude, there seemed to be a general lack of interest amongst health care professionals. The West End Forum meets every 3 months and there was a need to do more but:<br><br>"*...they just don't seem to be interested in Asian women*."<br><br>It appears that there is a need to have a more inclusive approach to community centres, as South Asian Muslim women see these as a comfortable, familiar environment where the women can enjoy full confidentiality.<br><br><u>Comments from EoP providers</u><br>The EoP providers who were interviewed included the coordinators of the project, the health promotion officers, and EoP advisors. In some cases, the titles of the EoP advisors varied but their roles were generally similar. Their comments on structural and attitudinal barriers to exercise for South Asian Muslim women are presented below.<br><br>**Structural barriers to exercise**<br>***Language***<br>Language was seen as a barrier to exercise by the EoP providers, although the importance they placed on this varied. It was pointed out that language was an important structural constraint on South Asian Muslim women:<br><br>"*We [Leisure Provision] have problems finding people who can speak community languages and who can take an aerobics class because they have the qualifications. There are no official translators. People tend to bring their own families. With the women-only sessions, women translate for each other as they get to know each other."*<br><br>The language barrier was overcome at the Sparkhill Sports Centre because the health and fitness adviser was of South Asian origin and | |

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| | | | able to communicate in the local community language. It was apparent from discussions, however, that the employment of a South Asian health and fitness adviser was coincidental and previous advisers at the Sparkhill Sports Centre had not been of South Asian origin. This was significant because it acknowledged that language is a barrier to South Asian Muslim women's participation, and also that there was no long-term policy to recruit EoP health and fitness advisers who may better serve South Asian Muslim women specifically and the local community in general. The employment of male health and fitness advisers was equally *ad hoc*, although there was clear acknowledgement that this could put South Asian Muslim women in an uncomfortable situation.<br><br>*"When the scheme was set up, it just happened that the person employed was Sikh man. You have to give them the option of a woman if they prefer, because it does involve touching them – you're measuring around the waist. They can have a female adviser. One of my colleagues will do it for you. In reality, people didn't seem to mind – a few did but it didn't seem to be a big issue."*<br><br>"*If South Asian Muslim women request an appraisal by a woman, another EoP health and fitness adviser will take over. However, all the other advisers are white and do not speak the local ethnic language. Language does become a barrier at that point. One way of getting over it is to explain the appraisal first and then let another person take over. We can overcome some barriers but we're not going to be able to overcome them all."*<br><br>In Blackburn the language barrier was acknowledged but again the coping strategies devised by South Asian Muslim women were mentioned as being sufficient to overcome any problems related to participation. All too often throughout the research, the EoP providers highlighted that 'they cope with it' or 'they translate for each other'. The referrals officer for the 'Active for Life' scheme in Leicester argued that language was not a barrier to the participation of South Asian Muslim women. She commented that these 'women are happy with English'. However, she later commented that South Asian Muslim women would prefer Asian instructors. Research in other case-study areas indicated that preferences for Asian instructors were not simply based on commonality of culture or religion but also on language.<br><br>Communication problems were acknowledged and attempts were being made to resolve them on the Oldham 'A Prescription for Exercise' scheme. This was taking place through leisure centre initiatives, for | |

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| | | | example, employment of South Asian receptionists and instructors. These initiatives are strongly supported by the health authority. With regards to South Asian instructors:<br><br>*"We tried to make special provisions. We tried to identify a group of women and send them on the RSA [Royal Society of Arts] training course [the music and dance/aerobics leader training course]. There were difficulties in identifying women who were prepared to do it, so there were problems with staffing."*<br><br>***Special provisions for South Asian Muslim women***<br><br>No special provisions were made for South Asian Muslim women in some areas and any provisions for women in general, such as women-only aerobics classes, gym work and swimming, had already been initiated prior to the EoP schemes:<br><br>*"These are not targeted just at Muslim women but at women in general. This wasn't a problem when the EoP scheme was set up because they were already available throughout the city. In areas of higher Asian population that provision is more important. There is no set rule that each gym should have one [women-only] session. It is flexible according to the community."*<br><br>The Leicester 'Active for Life' scheme was similar. The referrals officer said that there were no special provisions for South Asian Muslim women and that 'there are only the mainstream [courses] for women [generally] going on'. Other problems of provision that were highlighted were poorly scheduled and limited women's sessions at the sports centres used by South Asian Muslim women; for example, the Spence Street Sports Centre held women-only sessions on a Thursday afternoon.<br><br>***Lack of EoP scheme promotion***<br>Problems with promotion occurred at three levels.<br><br>**1. Poor communication with both patients and community**<br>All of the EoP schemes had promotional literature, usually in the form of a small booklet that provided basic information about the scheme. The booklets raised questions, such as: What is it? Who is it for? Where is it? How do I access the scheme? The information was generally not translated and, when it was, as in the Blackburn 'Fitness for Life' | |

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| | | | scheme, it was simply a list of the above questions. As Ms S from the Birmingham EoP scheme pointed out:<br><br>*"I don't think we have any promotional literature in community languages. That's not to say that we wouldn't do this. Some Birmingham City Council literature is put into community languages."*<br><br>"*If it would be beneficial, it is something that we could look into. It's just if it is more worthwhile than anything else. It is difficult to say if it is ... needed, as people are so used to getting someone to translate anyway. Would people look? Would we put the leaflets in the right places? I think we would have to work quite closely with the local community and say, 'If we do promote it, can we come to your group?'."*<br><br>Although some translated material was available, this was of little use to those South Asian Muslim women with literacy problems. There were no promotional videos. Links with women and with the community as a whole were also seen as barriers to South Asian Muslim women participating in exercise. Dr R, the coordinator of the Oldham scheme, pointed to some anecdotal evidence and said:<br><br>"*The uptake of South Asian Muslim women is low because we have no direct links with their community."*<br><br>Although there were some EoP promotional activities taking place that were dependent on individual initiative, there was no active policy in the case study areas to talk directly to South Asian Muslim women or to women's community groups to inform them specifically of the local EoP schemes. Ms S from the Birmingham EoP scheme highlighted some promotional activities:<br><br>"*What we tend to do is give promotional talks just about exercise at, say, a 50+ coffee morning. I've also been to a temple. You tend to talk about the scheme because it's local. Between 5% and 50% of those people might visit the surgery, so they could ask about it. So although that's not what you go to talk about, you do. That's quite good because you're going out of your environment and saying 'look what we've got on offer'. This is what we've put in place. We've got a 'passport to leisure' scheme, we have women-only sessions, with fully qualified staff, and they've got time to listen to you."*<br><br>"*We found that a lot of people found out about it [the scheme] from the* | |

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| | | | *radio; you then got a barrage of 'phone calls saying [that] 'this is exactly what I want'. The problem is that the answer [to many of these callers] is 'no', unless their GP's surgery is part of [the scheme]; otherwise it would be a self-referral thing, and anyone who wanted to could join. It's a shame, because you feel that you're being negative, but they may live in an area that's miles away from a surgery."*<br><br>The problems of promoting the schemes and the lack of quality of service for South Asian Muslim women were generally put down to limited financial resources.<br><br>**2. Poor communication between providers**<br>This appeared to be one of the central structural problems with all EoP schemes. The results suggest that there is limited communication between the various parties involved in the running of the schemes. The GPs seemed to be the least aware of what was available and the community centres felt 'left out in the cold'. This is surprising since, for most South Asian Muslim women, these were the first two ports of call if they needed to discuss any issue that concerned them:<br><br>"*We have found that it is quite difficult to promote it with the primary health groups within the health authority ... because they were changing from being fundholders to becoming primary health groups it wasn't an option."*<br><br>West Pennine Health Authority was particularly aware of this problem and is currently trying to establish links between fitness advisers and practice nurses. The coordinator has annual meetings on each site to foster better relations between practice nurses and leisure centre staff. She is also involved in developing the scheme with the charity, Age Concern. This new initiative involves an Age Concern volunteer being trained in all the different opportunities available on 'A Prescription for Exercise'. Once training is complete the volunteer can act in place of the fitness adviser at the leisure centre. In this way older patients can be directed to the Age Concern fitness adviser for a more specialised service.<br><br>**3. Poor GP participation**<br>Although lack of GP participation in the EoP schemes can be partly attributed to poor communication between the EoP providers, it could be suggested that it is also a reflection of the lack of commitment to exercise and EoP schemes 'because exercise is not at the forefront of their minds'. As mentioned earlier, the 'Active for Life' referral scheme in | |

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| | | | Leicester was piloted at the Bhagini Centre. The scheme coordinator considered that it had not been successful and her comments echoed the opinions of community workers when she pointed out that:<br><br>"*They got four or five people but it really didn't get off the ground. We had a problem, I would say, with many GPs in that area – the West End of Leicester where there is a high Asian population – they were not referring*."<br><br>Leicester's 'Active for Life' EoP referrals officer suggested one reason for this. She pointed to the problem of possible litigation against GPs as an increasing deterrent for GP involvement in the scheme. It was pointed out that doctors are still responsible and liable for any problems with patients and, as an example of their concerns, three GPs withdrew from the scheme because of an article in a medical journal. Problems of litigation as well as general health and safety measures were also seen as the cause of not bringing community centres into the scheme. It was, however, suggested that links with neighbourhood centres would be the best value partnership.<br><br>**Attitudinal barriers**<br>***South Asian Muslim women's attitudes***<br>The coordinator for the West Pennines Health Authority's 'Prescription for Exercise' scheme commented:<br><br>"*The general feedback is that exercise is not a high priority for South Asian Muslim women and it is not seen as something of particular value. Many of the concepts around investing in ... your health are not familiar to South Asian Muslim women."*<br><br>The referrals coordinator for the Leicester 'Active for Life' scheme pointed out that:<br><br>"*Many Muslim women who get on to the scheme don't stick to it."*<br><br>Children and religion were seen as a problem. For Ms A, the 'Fitness for Life' assistant in Blackburn, the problem was one of a stronger commitment to family, especially children. Ms B from the Birmingham EoP scheme saw the solution as one of more education about the overall benefits of exercise to health.<br><br>***GPs' attitudes***<br>Attitudinal barriers were seen as a problem for GPs as well as for South | |

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| | | | Asian Muslim women:<br><br>"*It could be their perception that people won't go. Maybe it's not high priority and they have other issues, which are more important. They know about the scheme [and] they want to be involved but they don't actually do anything ... We need GPs to promote healthy living.*"<br><br>Overall, there was awareness of the problems of the scheme, which was summarised as not being committed to community development and being financially driven. Since the research was carried out, this has been addressed with colleagues.<br><br><u>Comments from leisure centres</u><br>**Structural barriers**<br>***Access to facilities***<br>One of the structural barriers that was unique to the Oldham 'A Prescription for Exercise' scheme was that South Asian Muslim women were not eligible for an EoP prescription if they had previously used the facilities. Consequently, some of the women interviewed during the Sunday evening sessions at the Oldham Sports Centre complained that they were not being allowed to use their prescriptions. Exercise without a prescription was too expensive. This reiterates the problems of poor communication between EoP providers. Without realising that this was not scheme policy, GPs were issuing prescriptions to women who had previously used the facilities.<br><br>Access was not seen as a problem for South Asian Muslim women in either the Birmingham EoP scheme or the 'Fitness for Life' scheme in Blackburn, as the Sparkhill Sports Centre and the Audley Sports Centre, respectively, were located within walking distance of the South Asian Muslim women's homes. The Oldham Sports Centre acknowledged the women's transport problems and has applied for funds to purchase a minibus and employ a driver to bring South Asian Muslim women to their facilities.<br><br>***Childcare facilities***<br>It was suggested that lack of childcare facilities were an important barrier to South Asian Muslim women's use of facilities. Improvements to facilities would include the provision of a crèche, although it was acknowledged that space at the Sparkhill complex would be a problem.<br>***Women-only sessions***<br>Special provisions for South Asian Muslim women were highlighted as women-only sessions when using the gym and for swimming and the | |

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| | | | sauna. This was particularly important for South Asian Muslim women, because they do not like men being around. Muslim women are more orthodox that other South Asian non-Muslim women. There are generation differences as well.<br>***Language***<br>Other problems were lack of Asian staff, unfriendly staff, and problems with travelling to the facilities.<br><br>"*A lack of Asian people at the leisure centres means that if they [South Asian Muslim women] find that no-one understands them after all that effort and so, on their first visit, they do not obtain what they came for, then that throws them back ... too far."*<br><br>The exercise facilitator considered that if there were more Asians at the first point of contact, this would encourage women to return to the facilities. She also commented that the target group should be the middle-aged:<br><br>*"It works in two ways. They promote it in the community and with their youngsters. These older women are more respected in the community and in the home. All these things help to break down barriers."*<br><br>Asian staff would also mean that there would be fewer language problems:<br><br>"*It's about communication as well. You need language to make women feel at home*."<br><br>***Culture as a barrier***<br>Culture was not seen as a significant attitudinal barrier at the Sparkhill Sports Centre, as it is on the doorstep of the community. Women do not have to travel distances that may give their families cause for concern about safety. The health and fitness adviser was also aware of possible religious barriers, specifically the need for Muslim women to exercise in a men-free environment, thus respecting male–female dynamics within Islam. In addition, it was important not to hold women only sessions on Fridays (Jumma), the Muslim holy day.<br><br>**Attitudinal barriers**<br>The attitudes of South Asian Muslim women's families and the community were seen as a problem. For one respondent the solution was: | |

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| | | | "*Getting women to break down the barriers at the start; we need to have women in the community convincing other women, husbands and the community that this is what they should do."*<br><br>*"The NHS has to show them [South Asian Muslim women] how to use these prescriptions and show the sports centres how to receive them. If there are misunderstandings at the beginning, then women lose the confidence to access the facilities again."*<br><br><u>Comments from GPs and their staff</u><br>**Structural barriers**<br>The research suggested that GPs' interest in EoP depends to a large extent on personal interest in physical activity and its benefits. The opinions of GPs and their practice nurses/managers varied considerably across the schemes.<br><br>***Special provisions for South Asian Muslim women***<br>Special services for South Asian Muslim women in general practices were limited:<br>*"None really but we do have an Asian receptionist. She's only here part-time but we've had to use her to interpret. But usually the women bring along someone who can speak English."*<br><br>*"Actually we do have leaflets translated into the appropriate languages for women. We send out promotional material in different South Asian languages. For example, our leaflets on smear tests and asthma."*<br><br>However, there were no leaflets available on EoP in the appropriate languages. As one practice nurse in Blackburn pointed out:<br><br>"*Many of the women who come here just ... communicate, if you know what I mean. There don't seem to be too many problems and, anyway, they always bring someone who can speak a bit of English with them if they can't speak it themselves."*<br><br>On the whole, the general practices contacted considered that the services offered to South Asian Muslim women were satisfactory. For example, the practice manager of one surgery in Oldham considered that:<br><br>*"The services available to South Asian Muslim women are adequate and any requests for improvements or new services should come from the patients*." | |

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| | | | Many patients will find this difficult, as they may lack the confidence and support to ask for improvements in services.<br><br>***Transport***<br>In some general practices in Oldham, Bradford and Leicester, transport was seen as a problem for South Asian Muslim women. As one GP in Bradford pointed out:<br><br>*"...I think we need to address the problem of transport. A lot of women are unable to get ... to the centres."*<br><br>A GP in Leicester commented:<br><br>*"...Sometimes I think that if we had a bus service or something for these ladies – it is possible, because other groups in Leicester have them, like elderly people's groups – then these women would go, especially since security problems would have been overcome."*<br><br>***Communications with other EoP providers***<br>Communications between GPs and leisure centres were poor if they existed at all. Although GPs, practice nurses and managers knew about the EoP service, most were not aware of any special services available for South Asian Muslim women or women in general, such as, women-only sessions. This is surprising since, for example, in the cases of the Blackburn and the Birmingham EoP schemes, the referring surgeries were literally a few minutes from the leisure centres. The situation was better in Oldham, where the role of coordinator was clearly delineated within the Department of Health Promotion, and in Leicester, where this type of liaison was one of the roles of the referrals officer.<br><br>**Attitudinal barriers**<br>In Bradford, the general response from the GPs and practice nurses and managers interviewed was that they were in favour of the BEEP scheme. It was seen as an opportunity to improve the health of patients. It was not just a positive facilitator for physical health improvement but also a mental facilitator. The following comments highlighted this.<br><br>"*BEEP is a practical way in which patients can be taught the benefits of exercise in a safe environment with expert guidance."*<br><br>*"BEEP is far more likely to help than simply giving advice that, on its own, is too abstract to be of any use."* | |

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| | | | *"It is useful to be able to direct patients with unhealthy lifestyles towards an exercise programme that improves their general condition. This prevents unnecessary prescribing of medicines."*<br><br>*"In my opinion exercise in not just a physical thing, it's also a mental thing. It gives you a feel-good factor once you've done it – but sometimes you really need to push yourself. I consider that exercise is really important and I really enjoy it. I would rather take exercise than tablets."*<br><br>"*I think it's important because it tries to educate people about seeking alternative treatments to tablets. It's also a good way of encouraging disadvantaged people."*<br><br>GPs were not very happy when patients they referred to BEEP did not attend the initial session or when they withdrew from the programme after one or more sessions:<br><br>*"Sometimes the patients who are referred do not turn up for the programme when they say they will, and other times there's not a lot of involvement from Simon's team and this is important."*<br><br>Other surgeries that had referred patients to the Birmingham and Blackburn schemes were also positive about the GP referral scheme.<br><br>"*We can see the benefits to the patients and that's always a good thing."*<br>*"All women have access to information on exercise. We encourage them to take it up and we tell them about the benefits but it is up to them whether they do it or not."*<br><br>In the other case study areas, the research highlighted an overall lack of understanding of the EoP referrals process. One practice nurse from Leicester pointed out that 'she didn't refer as she was unsure what the referral procedure was'. This was unusual as the *Active Lifestyle: Referral Scheme Protocols* for Leicestershire primary healthcare teams should have been supplied to all GPs' surgeries. The practice manager at another surgery said that that she couldn't remember if anyone had asked about the scheme. She did not seem to know much about the scheme specifically and commented that, as far as she knew, patients had to take the initiative and ask to join the scheme:<br><br>"*They bring the form in and the doctor signs it. They find out about it* | |

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| | | | *themselves. If anyone comes and asks us about it, then we tell them where to get the forms. There are notices about exercise. I don't know if they are about the referral scheme but if they want information and want to know more about it, they can go to the receptionist and ask. There is publicity available about the different places where they can go [to exercise]. I can't remember anyone requesting it."*<br><br>Thus, for this practice manager, the onus was on the patients. This is difficult for South Asian Muslim women who may not be able to read the publicity material because of language and literacy problems. Lack of information from the GP or practice nurse/manager means that they are involuntarily excluded. | |
| **Author:** Darr<br><br>**Study design**: Interviews<br><br>**Location:** West Yorkshire, UK<br><br>**Year:** 2008<br><br>**Funding:** The Community Fund & The British Heart Foundation<br><br>**QUALITY: +** | **Number of participants:** 65<br><br>**Characteristics:**<br>Pakistani-Muslim:<br>10 males, 10 females<br>Mean age 59 (46-72)<br><br>Indian-Sikh:<br>7 males, 5 females<br>Mean age 63 (48-79)<br><br>Indian-Hindu:<br>9 males, 4 females<br>Mean age 63 (40-82)<br><br>European:<br>10 males, 10 females<br>Mean age 66 (42-83) | **Research Question:**<br>To compare illness beliefs of South Asian and European patients with CHD about causal attributions and lifestyle change<br><br>**Methods used:**<br>In-depth interviews conducted in participant's own language of choice. Experienced interviewer fluent in most of the languages.<br><br>Asked about experiences and beliefs including understanding of their condition, experience of information provision, lifestyle modifications and the role of family members in support.<br><br>Framework Analysis | **Main Themes relevant to research question:**<br><u>Family History</u>:<br>Mentioned as a possible cause of CHD; if this was thought to be so the participants' own case, there was a sense that nothing could be done toi avoid onset. One European was convinced that 'heart trouble' ran in his family and that lifestyle modification would not make any difference. As a result, he did not comply with advice from Health professionals to modify diet or alcohol intake.<br>"*Well I don't think you can do owt. I mean…if it's in your genes, it's in your genes..."*<br><br>An Indian-Hindu man had similar beliefs:<br>"*As far as I can see, if it's going to happen, it's going to happen no matter how careful you are…"*<br><br>Others who thought they had been at high risk could not identify specific aspects of their lifestyle that could have contributed to causing their CHD.<br><br><u>The role of fate</u><br>There was a strong belief that they had been fated to have CHD regardless of ethnicity, but particularly among older participants. On the whole, South Asian participants were more likely than Europeans to contextualise their CHD in relation to their religious beliefs. For South Asians it was God and not the individual who was responsible for the condition. This was especially common among Pakistani-Muslim people. (Authors state that this must not be confused with fatalism – the belief that life events are destined and that individuals are powerless against fate.) Some thought they had no personal control over the onset of illness but were still willing to make changes to their lifestyles, as this | |

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| | | | was an indication from God that they had not looked after their health and that they needed to make changes.<br>"*Allah will do whatever he wants to do…but Allah also says that you can do things for yourself so you should be aware of the causes of it"* Pakistani-Muslim woman. See further quotes.<br><br>Tobacco smoking and stress are also discussed as causation.<br><br><u>Physical activity</u><br>Lack of time and the presence of other co-morbidities prevented some participation in appropriate amount of physical activity. Others perceived that vigorous physical activity was unnecessary in the context of advancing age and that keeping active and mobile was preferable. Most, irrespective of ethnicity, reported walking as their preferred mode of physical activity. Barriers to walking outdoors:<br>• Variability in weather conditions<br>• Physical symptoms<br>• Co-morbidities and sensory impairments<br><br>Some had concerns over the recommended distances; more of an obstacle for South Asian participants who were less likely to walk as an outdoor pursuit and found it more difficult to think of places they could physical activity. One inner city elderly resident found it difficult to access open spaces that would enable her to walk uninterrupted without having to stop for traffic. She also found it uncomfortable to walk unaccompanied. This resulted in her being driven to places by car rather than walking. See quote.<br><br>Some Pakistani-Muslim women had established a regular walking routine. Males across ethnic groups had joined a gym or started to use physical activity machines within the home. European females were just as likely as males to use physical activity bikes. However, none of the South Asian females had ever used physical activity machines or a gym although some had started swimming.<br><br>Within each ethnic group there were a number who were physically inactive. This included those with co-morbidities and reduced mobility. Some who had resumed employment stated that they had little time, particularly if working in several jobs.<br><br><u>Dietary intake</u><br>Few seemed to recognise the link between poor diet and the development of CHD. Despite this, a considerable number admitted | |

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| | | | they were overweight and needed to modify their diet. Among South Asian groups, males were more aware of the need to lose weight, whereas the reverse was true for Europeans. However, many did not know how to lose weight and faced major obstacles in attempts to modify diet.<br><br>South Asian participants, particularly Pakistani-Muslims and Indian-Sikhs, were most likely to think that their dietary habits caused CHD and that the traditional South Asian diet had been detrimental to their health. However, they consumed an extremely varied diet and not all complied with strictly traditional diet. Most however consumed at least one traditional dish per day.<br><br>Preparation involved a number of fats. Sunflower oil was used routinely in many households, and olive oil was seldom used. Few cooked in 'ghee (clarified butter)', only one participant who regularly visited her son, whose household cooked in ghee (clarified butter) as the norm. some had cut down on the use of fat, but stated that this compromised taste. Not all were willing to compromise the taste to improve health. Two men did not like South Asian meals cooked in minimal oil and instructed their wives to continue preparing meals using large amounts of oil.<br><br>A number had reduced their intake of fried foods and were grilling as an alternative. Special occasions were a difficult time to modify fat intake; some older participants limited visiting so that they would not be expected to eat meals considered unhealthy. Only 1 South Asian (Pakistani-Muslim) talked about using low-fat food such as yoghurt, though some had switched to semi-skimmed milk, on the whole they still preferred full fat milk. Europeans were more likely to discuss introduction of low-fat food. South Asians were also less likely to cut down on their intake of sweet foods.<br><br>**Discussion**:<br>Considerable variation in understanding of CHD and causation. Knowledge influenced decisions to make lifestyle changes. Some lacked motivation and support. Language has been reported as a barrier to information provision. South Asians were more likely to attribute their CHD to unhealthy eating habits than were Europeans. Uncertainty existed in the understanding of the significance of family history as a factor and this made it difficult for some to act on advice. Some may acknowledge the need to change, however it is not known how this transfers to real change. | |

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| | | | Practical problems were often barriers to change, particularly for Pakistani-Muslim women who found it hard to access appropriate physical activity facilities. | |
| **Author:** Farooqi<br>**Study design:** Focus groups, thematic/content analysis<br><br>**Year:** 2000<br><br>**Funding:** Part of a project grant from the Department of Health<br><br>**QUALITY:** + | **Number of participants: 4**4 (24 male, 20 female; 11 Hindu, 11 Muslim & 22 Sikh)<br><br>**Mean Age:** between 46 and 59 (i.e. means for each focus group; age range = 40-72)<br><br>**Baseline comparability:** N/A<br>**Inclusion Criteria:** South Asians aged over 40 years in Leicester, UK. | **Aims:** To identify key issues relating to knowledge of and attitudes to lifestyle risk factors lifestyle risk factors for CHD among South Asians.<br><br>**QUALITATIVE:**<br>**Research Question:** To identify key issues relating to knowledge of and attitudes to lifestyle risk factors lifestyle risk factors for CHD among South Asians.<br><br>**Methods used:** Focus groups (6 groups of between 4 and 11 participants: 3 male-only, 2 female-only and 1 mixed male and female), analysed using thematic analysis, with content analysis and theory-building.<br><br>Questions and prompts used to lead focus group discussions:<br><br>• *Why do people suffer from or develop heart disease?*<br>• *Why do Asians develop heart disease?*<br>• *What part (in developing heart disease) is played by:*<br>  ○ *Smoking*<br>  ○ *Physical activity*<br>  ○ *Diet*<br>  ○ *Any other factors?*<br>• *What difficulties do you find in improving your lifestyle (with respect to risk factors)?*<br>• *Do you have any difficulties with the health service (South Asians)?* | **Main Themes relevant to research question:**<br><br><u>Diet</u><br><br>Many identified diet as a cause of heart disease, with general awareness of what constitutes a healthy diet and Indian diets generally perceived as being unhealthy:<br>*"We should eat less fried food and cut down on ghee (clarified butter) in our cooking"* (group A, male, no age or religion specified)<br><br><u>Barriers:</u> Not all participants accepted diet as an issue in heart disease:<br>*"The diets we have now are the same as we had when we were in India, why is diet a problem?"* (group A, male, no age or religion specified)<br>*"I cannot blame food, our forefathers have been eating this food, the only thing that has changed is the environment and the atmosphere."* (group B, no age, gender or religion specified)<br><br>Other barriers indicated include lack of knowledge on how to cook differently, apathy to change due to age (*"We are to old, what good (is change) going to do us?"* [group E, male, no age or religion specified]), the tastiness of fried food, apathy to change due to habit and tradition (*"I can't leave our food, this is what I have been eating since I was born and what I will eat until I die."* [group A, male, no age or religion specified]).<br><br><u>Changes made:</u> Some participants reported changing their diet, including grilling rather than frying their food and their teenage children stopping them from cooking in too much ghee (clarified butter) or oil.<br><br><u>Physical activity</u><br><br><u>Barriers:</u> Mixed gender facilities (*"The western community centres where they have a gym and swimming, but we don't feel comfortable when it is mixed. It would be more beneficial if we had separate facilities."* [group A, male, no age or religion specified]), not being able to swim with a religious dagger (karpaan), fear of people spreading gossip about them, and not having the time due to a busy home life. In addition, some participants saw physical activity as a formal activity rather than a lifestyle, talking about not being able to do vigorous | |

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| | | | physical activity due to muscle and joint pain and that Indians “don’t do” formal physical activity sessions.<br><br><u>Changes made in younger people:</u> One participant spoke of their daughter taking her children swimming, indicating a change among younger people.<br><br><u>Smoking</u><br><br>Smoking was not widely mentioned. It was seen as being damaging, although attitudes on the effects of paan (betel nut leaves that are chewed with tobacco) were mixed.<br><br><u>Alcohol</u><br><br>The link between alcohol and heart disease did not appear to be widely recognised and it was felt by some that the Asian community did not have a drinking problem.<br><br><u>Stress – barrier to behaviour change?</u><br><br>Stress (mainly due to living in western society, leading two separate lives/cultures, racial prejudice and the desire to succeed) was the most commonly identified cause of CHD by participants in al the focus groups, although this is a controversial idea scientifically. It could be that placing emphasis on stress as a risk factor means that other behaviour change (e.g. diet, physical activity) is seen as less important by South Asian populations.<br><br>**Subthemes:** Mentioned above.<br><br>**Discussion / conclusions:**<br><br>A diversity of attitudes and practices was reported by the South Asians in this study and the authors caution against the danger of stereotyping and over-generalising. The authors suggest that health promotion advice should be tailored and culturally sensitive, e.g. cooking methods that are healthy but preserve traditional taste.<br><br>The authors suggest that physical activity interventions should be both individual and community-based, addressing both generic barriers such as time and motivation and cultural barriers e.g. mixed facilities and lack of provision for the elderly. Also, the perception of physical activity as a | |

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| | | | lifestyle rather than something formal may be an intervention issue for some South Asians, as may be the perception by some older people that it is too late to change their lifestyle.<br><br>Stress may be an important factor not to be overlooked in this population, as it may explain different consultation patterns and presenting symptoms.<br><br>Language can also be a key barrier in accessing health services.<br><br>The authors suggest that the themes from the focus group study be explored in more depth in face-to-face interviews. | |
| **Author:** Grace<br><br>**Study design:** Focus groups and interviews<br><br>**Location:** Tower Hamlets, London, UK<br><br>**Year:** 2008<br><br>**Funding:** Diabetes UK<br><br>**QUALITY: ++** | **Number of participants:**<br>**Focus Groups:**<br>80 Lay people (37 males, mean age 35); 62 first generation immigrant, 18 second generation.<br>First degree relative with diabetes: 30<br>Mean BMI: 26.4 (SD 3.7)<br>Mean deprivation index: 51.5 (SD 10.1).<br><br>29 Islamic scholars and religious leaders (14 males mean age 35); 25 first generation immigrant, 4 second generation. First degree relative with diabetes: 15<br>All Bangladeshi.<br><br>20 Health professionals (1 male) that work with the Bangladeshi community on managing weight, lifestyle and diabetes (4 practice nurses, 2 DSNs; 2 community and 4 secondary | **Research Question:** To understand lay beliefs and attitudes, religious teachings and professional perceptions in relation to diabetes prevention in the Bangladeshi community.<br><br>**Methods used:**<br>17 focus groups run in 3 sequential phases:<br>1. Lay people<br>2. Islamic scholars and religious leaders<br>3. Health professionals<br>Photographs of Bangladeshi and Western meals discussed. Fictional vignettes (stories) discussed in later phases to explore tensions in preliminary data.<br>Thematic analysis<br>NVivo<br>PEN-3 multilevel theoretical framework (Airhihenbuwa, 1995)<br>Critical Fiction technique (Winter 1986) | **Main Themes relevant to research question:**<br><u>Lay understanding of diabetes</u><br>Knowledge of diabetes was generally high, mainly gleaned through experience of diabetes in a relative or friend. Most recognised the central role of personal lifestyle choices including diet, excess body weight and physical inactivity in the development of diabetes. They saw the condition as at least partially preventable through lifestyle change. Some believed that kerela (traditional vegetable) and other bitter foods could prevent diabetes.<br><br>Other perceived causes included heredity and stress, which were seen as linked to social isolation. It was widely believed that 'staying at home' played a part in poor mental well being and ill health, especially in women.<br><br>A minority of lay participants thought a family history meant diabetes was inevitable, but most thought that risk could be modified through lifestyle change. Some saw the onset as unpredictable, with the impact cataclysmic (" *We have much fear of this disease, once this disease is developed, there will be no way to save yourself").*<br><br><u>Living a 'healthy life'</u><br>Lay participants and religious leaders both emphasised the resonance between Islamic teachings and healthy lifestyle messages such as eating a diet high in vegetables, fruit and fish, portion control, looking after one's body and participating in physical activity. Rice was seen as an important component of the traditional diet but there was confusion over the optimum type and quality.<br><br>Lay participants selected medium sized body images as aesthetically | |

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| | care dieticians; 7 health advocates; mean age 41). 7 Bangladeshi, 1 other Asian, 17 white, 3 Black.<br><br>**Interviews:**<br>8 Health professionals (2 male)<br><br>**Other sample characteristics:**<br>Lay people: First and second generation British Bangladeshi without diabetes<br><br>**Recruitment:**<br>Lay people: Community centres, mosques, general practice. Information in written English or standard Bengali and audio Sylhetti. Islamic scholars and leaders: mosques, Islamic forums, Islamic schools. Health professionals: Departmental, professional forums, clinical meetings and individual invitation letters. | | pleasing and associated with 'good health'. Both underweight and obese body sizes were termed 'weak'; such people were seen as compromised in their family and religious duties as well as predisposed to ill health.<br><br>Health professionals believed (incorrectly) that Bangladeshis associate obesity with health and fertility, and hence significantly underestimated the willingness of this community to control weight.<br><br>Far from being alien to their religious identity, lay participants saw physical activity as important for mental wellbeing and a way of caring for the body, a central feature of the Muslim way of life. Physical fitness was viewed as enhancing a person's ability to contribute to family duties, as well as a good way to control weight. Walking was seen as a valuable physical activity, presenting no challenges to modesty, and was viewed by lay people and religious leaders as supported by Islamic teachings. Namaz (5x daily prayer required of a devout Muslim) was widely referred to as 'physical activity'; lay participants saw Namaz as sufficient physical activity whilst leaders did not; the latter were in favour of conventional form of physical activity, especially walking.<br><br><u>Responsibility for diabetes prevention</u><br>Some lay participants believed that fear of the devastating impact of diabetes would motivate preventive action across the Bangladeshi community. Others, including Islamic scholars, framed prevention in a more positive but less dramatic way as part of a healthy lifestyle that all Bangladeshis should follow. Many participants asked for more specific information on possible action when this theme was discussed.<br><br>'Control' was a strong theme in relation to prevention in all groups. People with diabetes were labelled 'out of control', whereas those without were 'in control' of food and activity choices, usually equated with having a routine or timetable. Control was generally viewed as internal though a few lay participants saw control as imposed and policed externally by the family:<br>("*The family should cook the food which is advisable for him and not to offer him any food meant for all other members of the family. They should not allow him to eat any food even though he asks for")*<br>Seeking knowledge is an important aspect of Islamic way of life and both lay and religious participants believed that education about faith was one mechanism through which preventive messages could be conveyed. Faith was seen as linked to individuals' confidence and motivation to change behaviour. Religious leaders were seen as trusted | |

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| | | | sources of information and support; they had access to large sectors of the community and were keen to incorporate messages on diabetes prevention in their teaching. They were enthusiastic about working in partnership with health professionals for mutual education and with a view to developing initiatives within the community for prevention.<br><br><u>Fatalism</u><br>Many health professionals were reluctant to discuss lifestyle change in clinical settings, partly because of their own poor cultural and religious understanding and because they perceived Bangladeshis as fatalistic – especially in relation to the 'wish of Allah', and hence resistant to education:<br>*("They have to believe it to change it")*<br>Few lay participants expressed religious fatalism but many suggested that 'other people', particularly older generations, held such beliefs. Leaders saw religious fatalism ads misinterpretation of Islamic teachings and were keen to address this in their role as educators.<br><br><u>Social roles and expectations</u><br>Several traditional social norms were described, especially the expectation for women to remain in the home, dress modestly, and prioritise family and community over independence and social freedom, e.g. not to ask others to look after their children. Such norms potentially conflicted with efforts to achieve lifestyle change. Some women felt strong pressure to conform to traditional norms and expectations whilst younger women resisted them.<br><br>The important social role of food in Bangladeshi culture was a prominent theme. Certain foods (plain rice, dhal, dry curries, 1-2 dishes for every meal) were considered 'everyday' items as distinct from 'special menu' foods (pilau rice, biriyani, 6-7 dishes for each meal). Serving curries with reduced oil and spices was considered inhospitable and would be shameful to the host.<br><br>Physical activity in western sense (designated activities with special clothing, in special places such as the gym) was seen as alien to the culture and identity of many first and some second generation Bangladeshis. Sport was seen as inappropriate for women and older people and liable to meet with gossip and laughter (social sanction), though some participants thought that this should be ignored.<br><br>Mixed sex physical activity classes were considered inappropriate for both women and men. Some saw classes for women only as | |

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| | | | acceptable, others thought these might still fail to preserve modesty or meet privacy needs. Running in public did not in itself meet with religious disapproval but posed challenges to modesty, particularly for women. The best solution was seen as exercising at home or in a community centre, but there were practical challenges for those living in overcrowded houses or who were unable / unwilling to travel. Most Health professionals were uncertain about attitudes to activity and found this a challenging topic.<br><br><u>Structural and practical constraints to healthy lifestyle choices</u><br>Many Bangladeshis cited structural constraints to increasing their activity levels, including lack of time, money, or childcare. Reluctance to travel beyond immediate locality owing to fears re language / safety created access problems in first generation participants.<br><br>Practical constraints affected dietary choices. There was a heavy reliance of fast foods reported in male and female second generation - convenient and affordable. Traditional Bangladeshi fruit and vegetables were perceived as expensive and so consumed less frequently, though first generation participants in particular were unfamiliar with more readily available Western alternatives.<br><br><u>Health literacy and English fluency</u><br>Lay participants identified poor fluency in English, especially in the first generation, as a major barrier to accessing and understanding basic health information. One of the consequences was a reliance on other people, often family members, to access and interpret health information on their behalf. Poor English limited the willingness to travel beyond the immediate neighbourhood (need to read signs or ask directions). This resulted in a total reliance on local provision of food and physical activity facilities.<br><br>Education was viewed by all 3 groups as a route to independence for women. There was recognition that education could lead to a more liberal interpretation of religious teachings and ability to resist traditional cultural norms. Many Health professionals reported substantial challenges in communicating basic lifestyle information to Bangladeshis with limited health literacy, attributing this to time pressure, difficulty of the interpreted consultation, or their own limited understanding of (and confidence to address) cultural aspects of lifestyle. | |
| **Author:** Khanam & | **Number of participants:** 25 | **Intervention:** GP physical activity | **Main Themes relevant to research question:** | |

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| Costarelli<br><br>**Study design:** Interview-guided questionnaire<br><br>**Year:** 2008<br><br>**Funding:** Not reported<br><br>**QUALITY: +** | **Mean Age*:*** 47.36<br><br>**Baseline comparability:** N/A<br>**Inclusion Criteria:** First generation overweight/obese Muslim Bangladeshi females aged 30-60, who had been referred to the Whitechapel Sports Centre in the London Borough of Tower Hamlets in order to improve their health, where physical activity sessions were taking place 3 times a week (a 40-minute gym workout tailored to their individual needs, preferences and abilities). Participants were recruited from the sports centre and from the local mosque.<br><br>**Exclusion Criteria:** Not reported – presumably those not meeting the inclusion criteria | referral (for reasons of obesity, metabolic syndrome, risk of type 2 diabetes [no further details provided], high blood pressure) involving 40-minute prescribed physical activity sessions three times a week, supervised by professionally trained gym assistants. The gym assistants' role was to facilitate safe use of equipment and to help them meet targets set by the GP. The effectiveness of this intervention is not reported on in this paper.<br><br>**Aims:** Broadly, the aim of the scheme was to improve the women's health, presumably in relation to specific reasons for referral (although this was not made explicit).<br><br>**Control:** No control reported.<br><br>**QUALITATIVE:**<br>**Research Question:** To investigate the attitudes and beliefs held by overweight and obese UK Bangladeshi women on health and physical activity, and explore possible ways of increasing physical activity levels in this group<br><br>**Methods used:** Interview-guided questionnaire:<br>• In 3 sections: (1) general participant information; (2) questions on health awareness; (3) questions on attitudes towards physical activity.<br>• Questionnaire piloted to ensure reliability and validity, using 5 Bangladeshi women from the general public<br>• A Bengali version of the questionnaire was produced for women who didn't understand English<br>• Each interview was conducted pre- | Main focus on physical activity with small section on diet<br><br><u>General health issues: responses to specific questions</u><br><br>32% believed it was very important for them to maintain good health, 52% believed it was fairly important and 16% thought it did not matter.<br><br>While BMI calculated from measured height and weight indicated that 40% were obese (BMI >30 $kg/m^2$) and the remaining 60% were overweight (BMI 25-30 $kg/m^2$), only 64% of the sample classified themselves as overweight. Of the remainder, 16% reported not knowing and 20% believed they were of average weight.<br><br>Only 4% of women reported they would go to the gym on a voluntary basis if not referred by their GP; see next theme.<br><br>When asked to identify the main three factors associated with the causation of diabetes, 96% identified 'too much sugar', 32% identified 'being overweight' and 32% identified 'genetics' as a factor.<br><br>When asked to identify the main three factors associated with the causation of obesity, 92% identified 'overeating', 4% identified 'foods high in fat' and 4% identified being 'born with it' as a factor (the latter of which the authors found worrying).<br><br>When asked to identify the main three factors associated with the causation of heart disease, 90% identified 'high blood pressure', 6% identified 'smoking' and 5% identified 'genetics' as a factor.<br><br><u>Attitudes towards physical activity</u><br><br>The women stated that they would not physical activity voluntarily, and a variety of barriers were reported, including cultural acceptability, dislike of the gym environment, time, perceived lack of importance, lack of convenience and cultural norm.<br><br><u>Cultural acceptability:</u> The women preferred slow to brisk walking as it was not acceptable for Muslim women to be walking fast outside in public. Likewise, jogging was not an option to them, they felt. They also reported a lack of motivation to increase physical activity levels from their family, as the men did not usually agree to their women going out alone during the evening. | |

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| | | workout in a private room in the gym premises and lasted 20-30 minutes<br>• Each question was first asked in English then translated into Sylheti (a Bengali dialect with no written form; 1st language of participants); most interviews were conducted in Sylheti.<br>• The authors believe the conduct of the interviews may have been facilitated by the main investigator and interviewer being a Muslim Bangladeshi female<br>• Prior to each interview, participants' height and weight were measured, to calculate BMI<br>• Descriptive statistics were analysed using SPSS as means, standard deviations and frequencies<br>• No information was reported on why these methods were used nor on why 25 participants were sampled | Dislike of the gym environment: Some women reported not liking the 'loud music' in the gym, which they didn't understand and gave them a headache and deterred them from exercising. Some women also complained about the inappropriate scenes shown on television. Many did not feel that the environment was suitable for them or their age. Language was also a problem; since many of the women had difficulties in speaking and understanding English, a number of them suggested that Sylheti-speaking gym assistants would make their gym experience less of a struggle.<br><br>Time: The main form of physical activity the women reported taking was housework, mainly cleaning and tidying the house, which occupied a lot of their time:<br>*"We are constantly on our feet cleaning after our children and keeping the house presentable."* (one participant, no details provided)<br><br>Perceived lack of importance: As reported above, only 3/25 women identified low physical activity as a risk-factor in obesity, and none of them had attempted to reduce their weight in thee past prior to their GP's suggestion, as they did not deem it necessary. The authors suggest that not perceiving it a problem to be overweight could be cultural, due to high levels of poverty in Bangladesh, where overweight is associated with wealth and wellbeing.<br><br>Lack of convenience: The preferred activity was swimming, which the women did not perceive as 'physical activity', rather as a pleasant daily activity in Bangladesh, where the climate was hot. There were few barriers to swimming in Bangladesh, as it was part of their lifestyle so they did not have to travel far or worry about suitable clothing or males being present, whereas in the UK these tend to be barriers:<br>*"Facilities are provided, but there are very few sessions per week only for women. In Bangladesh it was possible to go swimming at any time of the day, as it was close by and the males were aware of us being in the river."* (one participant, no details provided)<br><br>Cultural norm: In Sylheti, the language spoken by the majority of the Bangladeshi people, there is no expression for 'physical activity'. The closest word is 'beyam' and 'bey' is associated with negative connotations, e.g. 'beyaram' ('no comfort'; illness), or 'beyamiz' ('no manners'; inappropriate behaviour).<br><br>Preferred forms of physical activity | |

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| | | | Swimming was the activity of preference (although this was not classified as physical activity; see above), as well as slow walking (but not brisk walking, for cultural reasons; see above). They reported disliking the gym and most forms of physical activity offered there, and preferred group physical activity over exercising at home on their own. They had little interest in physical activity involving "dramatic movements" such as dance aerobics.<br><br><u>Suggestions reported by women on ways to make gym visits more appealing and pleasant:</u><br><br>The authors present a list of participants' suggestions, which included:<br>• Women-only facilities<br>• Women-only sessions<br>• Swimming facilities for women<br>• More walking physical activity facilities<br>• Fewer aerobic classes<br>• Sylheti-speaking assistants<br>• Better transport facilities and childcare facilities<br>• Less loud music<br>• No inappropriate TV programmes and provocative music videos<br>• More local gyms<br><br><u>Cooking and eating behaviour</u><br><br>Most women reported following their GP's suggestion and tried to employ healthier cooking practices when cooking for themselves, but did not change the way they cooked for the rest of the family.<br><br>In terms of perceptions of a healthy diet, for 56% of women this involved a high intake of fruit and vegetables, and for 25% this was seen as a low intake of meat, fish and dairy. Most (24/25) reported using sunflower oil for frying, with only two reporting using ghee (clarified butter) on a daily basis; most said they used ghee (clarified butter) on special occasions.<br><br>**Subthemes:** Reported within themes listed above.<br><br>**Discussion:**<br>In the discussion, the authors suggest that Islam's instruction and encouragement of Muslims to look after their health by eating moderately and staying physically fit could potentially be used in public health interventions to encourage Muslims to be more active and eat | |

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| | | | more healthily.<br><br>The authors conclude that the practical implications of the study are:<br>• Improved participation in physical activity could be promoted through in-depth discussion between Bangladeshi women and their GPs about what constitutes 'physical activity'<br>• Participation could also be improved by providing more culturally appropriate physical activity services, e.g. women-only swimming sessions, multilingual trainers and more appropriate music<br>• UK Bangladeshi women take little regular physical activity to improve their health, largely because of certain cultural beliefs and attitudes<br>• More needs to be done to encourage forms of physical activity that are appropriate for UK Bangladeshi women, e.g. swimming and walking<br>• Health services need to be aware of the specific needs of certain ethnic communities and where possible provide individually tailored health promotion. | |
| **Author:** Kopp<br><br>**Study design:** Needs Assessment<br><br>**Location:** Wakefield UK<br><br>**Year**: 2009<br><br>**Funding:** NHS Wakefield District<br><br>**QUALITY +** | English Gypsies in 1988 and Irish travellers in 2000 were accepted as being minority ethnic groups for the purposes of the Race Relations Act 1976 and subsequent amendments.<br><br>**Number of participants:** 38 plots; all adults invited 35 interviews (92% of families represented). The 8% who did not participate expressed concern whether information might be shared with perceived authority figures.<br><br>**Other sample characteristics:**<br>31% Irish Travellers<br>69% English Gypsies<br><br>18-24 years 26%<br>25-34 years 26% | **Research Question:** To understand the health and health care needs of the Gypsy and Traveller population on Heath Common Caravan Site.<br><br>**Methods used:** Qualitative and quantitative survey (open and closed questionnaire questions).<br><br>Included areas around health that were identified in the literature search as being of particular relevance to Gypsy and Traveller communities and issues that communities themselves had identified as significant for them.<br><br>Services accessed during past 12 months, how this was experienced and barriers to successful access.<br><br>**Underlying Framework / Theory:**<br>"the health and care needs of Gypsies and Travellers [on static sites] are every bit as bad as that of mobile Gypsies and Travellers". | **Main Themes relevant to research question:**<br><br>Significant numbers had difficulty accessing health care services; attributed to their limited literacy.<br><br>60% were dissatisfied with their weight<br>40% indicated they took some physical activity, but not 3 times a week as recommended.<br>84% felt downhearted and depressed some or all of the time.<br>100% felt they would like information or activities that would support their future health and well-being (63% healthier diet / cooking; 37% physical activity).<br><br>The majority of respondents were aware of their approximate height, but very few knew their approximate weight. 60% felt they were too heavy.<br><br>Physical activity seen as daily cleaning inside the trailers, occasional cleaning outside of trailers, occasional walks to the local shops or schools. Recently some respondents had joined a gym, but hadn't continued for reasons of expense or lack of motivation.<br><br>Physical activity offered on site in the past has included pilates, line dancing and salsa classes, but the space available in the community house is limited, as is commitment to regular participation | |

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| | 35-44 years 23%<br>>45 years 25%<br><br>Female 89%<br><br>Duration of occupation on site<br>Mean 9.69 years, median 8 years (range 2 weeks up to 26 years)<br><br>A common pattern was to spend early parts of life on site, leaving perhaps on marriage and returning at a later date.<br><br>All had members of immediate or extended family on site.<br><br>**Community characteristics:**<br>Whilst not a homogenous group, some commonalities of Gypsy and Traveller culture include:<br>• Nomadism<br>• Dominant position of the family and extended families<br>• Early and close kin marriages<br>• Work patterns<br>• Relationships with the dominant society<br>• Language<br>• Experience of discrimination<br>• Rituals surrounding death and marriages. | The purpose of the Framework is about "ensuring these communities can access the same high quality mainstream services as everyone else" | For 80% of respondents, some fruit and vegetables were consumed daily, with vegetables the preferred choice since they are regarded as cheaper and can be incorporated into traditional methods of cooking. Many acknowledged that this was often followed by an additional late evening meal from local take-out shops.<br><br>Work done by PCT is well recognised and valued, e.g. weekly sale of fruit and vegetables by the local Co-op, Cook and Eat sessions, and weight management classes. Women found classes non-threatening and a forum where other health issues could be discussed and reduce social isolation.<br><br>Preferred location for activities was the community house on site. Reasons for this include:<br>• Prefer to be with known staff in known location<br>• Lack of child care off site<br>• Lack of transport<br>• Expense of off site activity<br>• No-one to protect plot whilst off-site<br><br>**Discussion**:<br>PCT Recommendations:<br>• Include Gypsies and Travellers in their ethnic monitoring systems to increase their limited knowledge base about the community.<br>• Provide training around the community's culture to increase staff's cultural competence when relating to the community.<br>• Consider the appointment of a specialist worker to complement the work of the Health Improvement Practitioner.<br>• Explore ways of providing health information in an accessible format.<br>• Explore ways to increase the community members opportunities for physical activity<br>• Continue and consolidate work already done on site | |

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| | **Wakefield District:**<br>Raw prevalence of 9.1% obesity (BMI equal to or >30) national average 7.3%. Childhood obesity is exceptionally high at 16.9%.<br><br>Around 57% of people in the District state they take part in sports and physical activity.<br><br>19% eat the recommended 5-a-day fruit and vegetables. | | | |
| **Author:** Lawrence<br><br>**Study design**: Focus groups<br><br>**Location**: Dundee, Scotland, South England and Hampshire<br><br>**Year:** 2007<br><br>**Funding:** Food Standards Agency<br><br>**QUALITY: ++** | **Number of participants:**<br>6 groups of females age 12-35:<br>1. Pakistani / Bangladeshi women from a literacy group (5)<br>2. Pakistani / Bangladeshi women from a community group (6)<br>3. Zimbabwe girls [not included in review as 10-14 years old]<br>4. Zimbabwe women living in Hampshire (3)<br>5. Zimbabwe women (ages 24-34) living in S. England (6)<br>6. Somali girls [not included in review as teenagers]<br><br>**Ethnicity:**<br>Somalia<br>Zimbabwe<br>Pakistani / Bangladeshi<br>**Recruitment:**<br>Local networks drawn from target population | **Research Question:**<br>To explore factors that might affect food choices of girls and young women of African and South Asian descent.<br><br>**Methods used:**<br>Data collection:<br>6 Focus groups lasting 1.5 hours each. 2 researchers present at each meeting, one of whom facilitated whilst the other took notes. A translator was present for groups 1 and 6. A Zimbabwean researcher was involved in facilitating the Zimbabwean groups.<br><br>Incentives:<br>Food store voucher (amount not stated)<br><br>Analysis:<br>Deductive content analysis (Mayring 2000), which involves assigning categories or codes to passages of text. These are then based on theory and developed from existing literature. | **Main Themes relevant to research question:**<br><u>Culture:</u><br>The Pakistani / Bangladeshi women's cooking skills appeared to have been learnt from the older generation of females in their family, and they also took pride in their traditional cooking. The process was described as 'natural' by them: *("It's natural. Because you see the mums, aunties cooking")*<br>Use of Western foods was a commonality between groups, albeit at quite low levels. There appeared to be a tendency to adopt the less healthy aspects of a Western diet including fried fish, pizza, chops, and fatty snack foods. These were chosen mainly to give people a change, or when time was short.<br>The Pakistani / Bangladeshi women confirmed that they could only eat Halal meat which is not generally available in fast food outlets, but there were greater options for fish. Fish and chips might be bought 'outside' or cooked at home.<br><br><u>Cost and availability:</u><br>Price as a factor affected everyone, though age was an influence. The Pakistani / Bangladeshi women were very concerned about costs in comparison to the young girls. However they continued to buy foods that were a priority item on their budget. The issue of availability was related to cost. Foods used in Africa or S. Asia were often not widely available, so the cost was increased. All the communities used local supermarkets for basic shopping needs. Some Asian foods such as flour and chilli powder could also be purchased in western supermarkets.<br>The Pakistani / Bangladeshi women and the Zimbabwe women | |

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| | | | mentioned trust being an issue of concern when choosing where to buy food. Markets were mentioned as being untrustworthy.<br><br>Time:<br>Time was an issue that influenced food choice by the Zimbabwe women (in Zimbabwe maids were instructed to cook, so there was a cooked lunch and dinner, but here the women have to cook themselves and they do not have time). The Pakistani / Bangladeshi women also mentioned time as a factor. Preparation for lunch and dinner began after breakfast and could commence as early as 10am. It appeared that preparing and cooking was an important task every day. However the interpreter indicated that on days when she was working she had less time to prepare food but would try to balance preparation times across other days.<br><br>Health:<br>Health was discussed in relation to food choice. Whilst some of the Pakistani / Bangladeshi women described making healthy changes in fats used in main dishes, it was felt harder in relation to dessert and cakes when the changes in taste and appearance would be more obvious, or on special occasions when food offered should be the best. Cultural background and knowledge influenced the link between food and health. Zimbabwean women placed value on freshness, regarding frozen foods as less healthy, whereas Pakistani / Bangladeshi women appeared to have quite a good understanding of foods and cooking methods that were most healthy. They appreciated that certain methods such as frying, were bad for you.<br><br>However, this knowledge did not consistently translate into dietary choices. When describing meals in a typical day, the same women were speaking of frying and the use of oil.<br>Pakistani / Bangladeshi women were more conscious of weight gain than the Zimbabwean women and discussed how eating too much carbohydrates as well as frying could make them 'fat'. This appeared to be important, though there was no indication that this significantly affected food choices. Concern about being overweight in relation to appearance seemed likely a stronger motivator in changing food habits than concern about heart health. The Zimbabwean women also noted that in Zimbabwe, no-one worried about being slim, but now that they were in the UK, there was a pressure to be slim.<br>Pakistani / Bangladeshi women in group 2 expressed the opinion that their diet had become less healthy following the adoption of the worst of the British diet. | |

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| | | | Possible Interventions:<br>Cooking was an activity that appealed to most of the groups. When prompted, Pakistani / Bangladeshi women agreed that it would be interesting to explore cooking healthier traditional Asian foods with lower fat. Some participants felt that an incentive such as free food would be needed to encourage people to attend. Overall, the venue should be easy to access, with a crèche if appropriate. Timing should recognise childcare and other domestic responsibilities. There was a suggestion that classes could be held in the schools.<br>**Discussion**:<br>The presence of researchers from ethnically similar backgrounds helped to break down cultural barriers and improve data collection. Interesting that all the groups had assimilated the fast food aspect of the British diet into their eating habits. | |
| **Author**: McEwen<br><br>**Study design:** Focus Groups and questionnaire<br><br>**Location:** London, UK<br><br>**Year:** 2009<br><br>**Funding:** Islington PCT<br><br>**QUALITY +** | **Number of participants:** 62 (Focus Groups)<br>77 returned questionnaires (sample no. and response rate not known).<br><br>**Mean Age:** see below<br><br>**Other characteristics:**<br>**Ethnicity:** Somali<br>Male 83%<br>Female 17%<br><30 years 18%<br>30-39 52%<br>40-49 17%<br>>50 13%<br>Unemployed / FT student / other 54%<br>Paid employment 46%<br>Lived in UK:<br>>10 years 45%<br>5-10 years 31%<br><5 years 24% | **Research Question:**<br>To examine the health behaviours (smoking, diet, physical activity) of a Somali population in London.<br><br>**Methods used:**<br>Focus Groups (8: six male groups, 2 female) conducted in Somali and English<br><br>Questionnaire (40-item, modified from validated Dietary Instrument for Nutrition Education; Roe *et al* 1994) built on Focus Group themes (attitude to healthy diet, frequency of meals, fruit and veg intake). Likert scale from strongly agree to strongly disagree for attitudes. Portion numbers per day.<br><br>Interpretation was modified as there were issues of differences in dialect, and the formality of language on interpretation. | **Main Themes relevant to research question:**<br>Focus Groups: Generally felt that the Somali diet was unhealthy, that knowledge of what constitutes a healthy diet is poor and that this has an adverse effect on health.<br>Survey: 60% agreed that they had a healthy diet.<br>Fruit and vegetable consumption was not reported as a regular or significant component of the Focus Group participant's daily diet. A significant minority of survey respondents had < 2 portions per week (29% fruit; 24% vegetables). Virtually all (97%) had <2 pieces of fruit per day and 92% less than 2 portions of vegetables per day.<br><br>Typical diet<br>Rice, pasta, red meat. Meat was seen as a very important part of the diet: "*many only know how to cook rice and spaghetti with meat. So it becomes like our whole neighbourhood doesn't eat vegetables and fruits"*<br>*"Many Somalis believe that if they don't have meat or rice they haven't had lunch"*<br><br>Pattern of eating<br>One main meal per day ('the proper meal') at lunchtime or early afternoon. 64% reported large gaps between meals, and 51% did not snack between meals. Takeaway meals were popular amongst men in Focus Groups, particularly those living alone. A large amount of sugar (4-6 teaspoons) was taken in tea.<br><br>Cost | **Limitations:**<br>Small opportunistic sample for survey. Very small group of Somali people in UK covered – may not be representative. Problems with people completing the questionnaire fully. No information on response rate, compliance in nonliterate populations. The term 'portion' may have a cultural bias. Male bias which neglects the views of many women. Recruitment through community groups may neglect the views of people not affiliated. |

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| | | | It was mentioned that the cost of fruit and vegetables in the UK was prohibitive, whereas in Somalia, they were easily available and cheap in comparison to meat. Eating fruit and vegetables was therefore associated with poverty, whereas eating meat was considered to be for special occasions or for the wealthy:<br>"*In Somalia, there was the problem of availability, those on low incomes couldn't afford to buy fatty food. The well-to-dos ate meat every day and less fruit and vegetables"*<br><br><u>Identity</u><br>The nomadic background for some of the Somali population was an influence on current eating behaviours because camel herders generally only ate meat and camel milk. Participants would be unlikely to have had this experience for any length of time due to civil unrest, but the reference may relate to Somali identity. Many were from the North where nomadic background and the camel are very symbolic commercially. The diet of meat with rice or spaghetti was seen as the 'Somali diet' rather than just personal choice.<br><br>Food grown in Somalia was seen as more healthy due to less pollutants than in the UK (pesticides etc.) therefore there was an interest in organically grown food.<br><br>There was uncertainty about what constituted a healthy diet, including lack of knowledge about the nutritional value of fruit, vegetables, white meat, red meat, pasta and rice. There was an expressed need for education in this area plus help learning to cook and prepare healthy food.<br><br>**Discussion**:<br>Consumption of fruit and vegetables in Somali population in the UK is less than optimum, possibly because of uncertainty of what makes up a healthy diet compounded by cultural associations between particular foodstuffs and social status. | |
| **Author:** Netto<br><br>**Study design:** Action Research (Focus Groups)<br><br>**Location:** Edinburgh, UK | **Number of participants:**<br>**Focus Group 1:**<br>Indian men: 11<br>Indian women: 9<br>Pakistani men: 5<br>Pakistani women: 10<br>Bangladeshi men: 8<br>Bangladeshi women: 12 | **Intervention:** Khush Dil ('happy heart') Edinburgh. Aim: to increase accessibility to CHD prevention services for people from South Asian communities.<br><br>Nurse-led community CHD risk clinic; nutrition workshops; working with voluntary organisations to establish healthy lifestyles initiatives. | **Main Themes relevant to research question:**<br><u>Knowledge of heart disease and risk factors:</u><br>Participants in group 1 varied in awareness of heart disease, *from "only God knows why heart disease occurs…"* to descriptions of symptoms. Many showed an understanding of the risks, including obesity, unhealthy diet and lack of physical activity. They were also aware of the links with high cholesterol and diabetes. Others cited eating late in the evening, consuming non-organic food and convenience meals / snacking as detrimental. One view was that maintaining a healthy | |

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| **Year:** 2007<br><br>**Funding:** British Health Foundation; Ethnic Health Strategy Committee<br><br>**QUALITY: +** | **Focus Group 2:**<br>Indian men: 7<br>Indian women: 5<br>Pakistani men: 4<br>Pakistani women: 8<br>Bangladeshi men: 4<br>Bangladeshi women: 8<br><br>Focus groups took place 2002-3<br><br>**Mean Age:**<br><br>**Other characteristics:**<br>Varying levels of education, and a range of languages other than English.<br>Indian participants were mainly Sikh, whilst the Pakistani / Bangladeshi participants were mainly Muslim.<br><br>**Recruitment:**<br>Random, from lists of people using the Khush Dil Clinic.<br>Incentive: £15 postal order; transport by paid taxi | **Research Question:** How can service user perspectives be used to develop effective, culturally focused CHD prevention interventions for South Asian groups.<br><br>**Methods used:** Two phases of focus groups (6 groups in each); one prior to intervention and one at 6 months follow-up | lifestyle was not seen as a priority in some communities.<br><br><u>Knowledge of preventive measures and steps taken:</u><br>Participants identified many steps that they felt would enable them to improve their health, including involvement in physical activity and adopting a healthy diet. Some were already making changes such as cutting down on fat. Knowledge and attitudes to physical activity varied; some felt that the energy utilised for daily living was adequate (housework etc.). Others acknowledged the need for physical activity but did not prioritise this in their daily routine.<br>Comments from the second group indicated an increased understanding of the importance of a healthy diet and physical activity, though in some cases attempts to make changes had not yet begun.<br><br><u>Barriers to adopting a healthier lifestyle</u><br>In both groups, the difficulty of changing one's own behaviour as well as that of others was a recurrent theme. The barriers were:<br>*Occupational:*<br>Lack of time available to physical activity (many men were involved in retail / catering trade with associated long working hours; women spoke of their caring responsibilities and the need to put family first).<br>Others described themselves as 'lazy' and lacking initiative to physical activity on their own. Though aware of the need for physical activity, females made little time for it.<br>*Social:*<br>In relation to food preparation, many felt it was difficult to change unhealthy cooking habits such as use of a large amount of fat. This was linked to cultural attitudes on what makes food look attractive. Some women in the second group felt that if they reduced the amount of fat, they would have to cook other dishes to cater to the tastes of other family members. Indian men in both groups spoke of difficulty controlling their diet within a close-knit community where social events were common. (see quotes)<br>*Body Image*<br>This theme emerged in the second group; indicating an association between overweight and health / prosperity. Weight loss was associated with poor health and unattractiveness. This was reported to inhibit change in some groups. There were comments that increasing age, changing diet and doing more physical activity would lead to weakness.<br><br><u>Impact of the project: Needs for prevention and implications for service provision</u><br>Initial perceptions of the project were positive, with evidence of | |

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| | | | appreciation of support and encouragement to change. A small number reported changes already made re diet and physical activity, with subsequent weight loss. Some anticipated a knock on effect from their own success to motivating others. The second group observed that advice, information and encouragement was crucial to sustaining motivation to adopt a healthier lifestyle; others that increased knowledge and awareness of risk factors would help them adopt healthy lifestyles.<br><br>Positive aspects were flexibility of staff who rescheduled at short notice; the use of interpreters and sensitivity in planning activities around religious events such as Ramadan. Some commented that one-to-one advice from a dietician and nutrition workshops had a significant effect on willingness to make changes. Participants who had not benefited from this input expressed the need for advice. Those involved in the walking programme reported increases in physical activity, a reduction in walking difficulties and positive health improvements.<br><br>A number of suggestions for improvement were made. Need for information was discussed in the first group, whilst sustaining changes and extending services to the wider community were the focus in the second. Many suggestions were pragmatic (surface structure) such as the need for linguistically appropriate information that takes account of varying literacy levels; bilingual workers; advice on healthier methods of preparing traditional food; work with community organisations to increase awareness of the service; separate physical activity fort men and women and an increased range of physical activity that take into account cultural and other tastes.<br><br>Other suggestions are made by the authors to address persistent barriers (deep structure): working patterns; caring responsibilities; deeply held cultural attitudes related to the preparation of food, body image and physical activity, and the lack of control over food served at social functions. They provide a list of possible recommendations to overcome specific barriers. | |
| **Author:** Pieroni<br><br>**Study design:** Semi-structured Interviews<br>**Location:** Bradford, UK<br><br>**Year:** 2007 | **Number of participants:**<br>150 (19 in depth interviews)<br>**Age:**<br>Over 60: n=93<br>**Sex**:<br>140 / 150 participants were female<br><br>**Ethnicity:** | **Research Question:**<br>To analyse in depth details of the traditional culinary use of vegetables and to assess the health perceptions of them.<br><br>**Methods used:**<br>Semi-structured interviews (19) and questionnaires (150) with first and second generation Pakistani and Indian | 25 vegetables were recorded as quoted by South Asian women, the majority of which were perceived to hold medicinal properties. More than half were related to specific pathologies, and so represent real food-medicines or medicinal foods. Most were perceived as folk functional foods and many of the women stated that "*all vegetables are good for general health*"<br><br>**Main Themes relevant to research question:**<br>Informants were clearly very concerned about the prevalence of | |

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| **Funding:** Bradford School of Pharmacy; University of Bradford<br><br>**QUALITY: +** | First generation migrants (n=124)<br>Indian = 82<br>Pakistani = 68<br>Most unable to communicate in fluent English. | customers.<br>Interviews in Urdu / Punjabi then translated into English.<br><br>**Analysis**:<br>Setting: Local Asian greengrocers.<br>Duration: 10 weeks, 2005 | diabetes among their family members and neighbours. Diabetes was often associated with obesity, though cases were always confirmed as a result of diagnostic tests. Many felt that they needed to adopt their own healing strategies to be used in conjunction with prescribed medications. Most believed that the 'healing' properties ascribed to specific plants could also have a more general preventive effect on other (apparently healthy) family members.<br><br>Carrots, cassava and radish were thought to prevent diabetes. Angular loofah, cluster beans, drumsticks, rat-tailed radish and especially bitter melon were quoted as being able to 'treat' diabetes.<br><br>Vegetables thought to treat diabetes were all bitter to the taste. Informants often explained that the anti-diabetic properties of bitter vegetables are due to the fact that "*bitter foods counteract the sugars (sweet) in the blood*".<br><br>Older South Asian migrants tended to adapt a typically Asian diet whereas younger participants tended to adopt the British way of life more quickly. Older informants were able immediately to identify traditional methods of preparing vegetables which the second generation were unfamiliar with. One described how bitter melon was cut up and the inside scooped out, pulped, and drunk with salt in order to 'treat diabetes'. The frequency of consumption apparently depends on the individual's perceived level of need for diabetic control. | |
| **Author:** Rai & Finch<br><br>**Study design:** Interviews<br><br>**Location:** Different parts of England<br><br>**Year:** 1997<br><br>**Funding:** HEA<br><br>**QUALITY +** | **Number of participants:** 175<br><br>**South Asian:**<br>109<br>14 discussions<br>Physically active 14<br>Physically inactive 95<br><br><u>Language:</u><br>Punjabi Sikh/Hindu 16<br>Gujerati Hindu 16<br>Sylheti Muslim 17<br>Urdu / Punjabi Muslim 18<br><br><u>Born in:</u><br>UK 33 | **Research Question:** To investigate attitudes towards, and barriers to, physical activity among South Asian and black communities in England.<br><br>**Methods used:**<br><br>22 group discussions (7-8 people in each group).<br>Separate discussions were held for South Asian people and for black people.<br><br>Discussions with those from South Asian communities were held in English, Punjab, Urdu, Gujerati and Sylheti.<br><br>Discussions with those from black | **Main Themes relevant to research question:**<br><u>Thinking about physical activity; knowledge and beliefs</u><br><br>Association of physical activity with the body – involving bodily movement ('anything that uses the body') or effects on the body such as increased heartbeat, building up a sweat or increased body aches and pains. Physically active people tended to associate physical activity with effects on the body.<br><br>Types of physical activity described fell into 2 categories:<br>1. Things that people do anyway<br>Daily activities carried out for a purpose other than for 'doing' physical activity. For women this was domestic functions, though they felt that these were often not classified as physical activity. Work related physical activity, dancing and sex were also mentioned; some Asian Muslims mentioned religious practices such as namaz which involve repeated bodily movements for short periods of time. Some only | |

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| | India 11<br>Pakistan 20<br>Bangladesh 20<br>E. Africa 21<br>Other 4<br><br><u>Gender:</u><br>Men 53<br>Women 56<br><br><u>Age:</u><br>18-30 36<br>31-40 38<br>41-50 35<br><br>Children in household 59<br><br><u>Employment:</u><br>Employed 61<br>Unemployed 28<br>Student 12<br>Housewife 8<br><br><u>Education:</u><br>No qualification 24<br>Up to 'O' level 26<br>'A level or equiv 23<br>Degree or equiv 36<br><br>**Black respondents:**<br>66<br>8 discussions<br>Physically active 20<br>Physically inactive 46<br><br><u>Language:</u><br>All English<br><br><u>Born in:</u><br>UK 22<br>Caribbean origin 14<br>African origin 8<br>Caribbean Islands 30 | communities were held in English.<br><br>Group moderators used a topic guide that provided a loose framework of key areas to be covered.<br><br>**Analysis**: Themes noted from each discussion on charts (a set of charts for each discussion).<br>Themes were synthesised. | considered physical activity where a considerably amount of energy was expended; length of time and the amount of sweat generated. A common feature was that these types of activity did not involve a conscious consideration of 'doing' physical activity.<br>2. Specific types of physical activity and sport<br>Physical activity categorised as 'a work-out', 'training', and using a gym, as well as many types of sport. The common factor was the conscious consideration to get involved.<br><br>'Separate' vs 'Integral' activity<br>There was a fundamental difference emerging between physical activity carried out in this country, and that carried out 'back home'. In the UK, physical activity was perceived as 'separate' from 'normal' everyday activities. As such the idea has a separate identity, conveying the message that a special effort is required. The provision of separate facilities in which to carry out physical activity, involving booking and payments emphasises this 'separate' identity.<br><br>In contrast, back home, the idea of physical activity was embraced in daily lifestyle. An integral concept – a 'way of life'. It was not perceived as separate, for which time is set aside; it was built into other functions (walking, cycling, swimming, hard work). *See quotes* The integral concept was noticed by participants of all ages, but sometimes prominent in the way that older people (30s and 40s) believed they incorporated physical activity into their lifestyle. Older people noted that younger people in this country embrace the notion of 'separate' physical activity. They expressed ambivalence in their perceptions – stating that their own generation do not physical activity that much. Younger people also assessed older people from the point of view of the separate notion – that most Asian people do not physical activity.<br><br><u>Perceived benefits</u><br>Often inter-linked, benefits were identified to health, mind and body image. Benefits of sweating, compensatory value for other health 'abuses' and social value were also identified.<br>Health:<br>General well-being (weight control, feeling well, improved complexion, improved eating habits) Other areas identified were a better digestive system, healthy appetite and better eyesight. It was seen as important to 'keep going' (analogy with machinery). It was also an important way to improve stamina and tone up muscles.<br>Prevention. There was awareness of the link between physical activity and CHD. Avoiding high BP, cholesterol, and weight gain. The heart | |

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| | W. Africa 14<br><br><u>Gender:</u><br>Men 34<br>Women 32<br><br><u>Age:</u><br>18-31 24<br>31-40 29<br>41-50 14<br><br>Children in household 39<br><br><u>Employment:</u><br>Employed 38<br>Unemployed 17<br>Student 9<br>Other 2<br><br><u>Education:</u><br>No qualification 10<br>Up to 'O' level 24<br>'A level or equiv 13<br>Degree or equiv 18<br>Not answered 1<br><br>**Recruitment::**<br>Knocking on doors in selected localities or approaching people in public places. | | could be strengthened. Prevention of ailments such as colds, or relief from eczema, arthritis, neck pains, asthma. Benefits in old age - retain mobility (changing relationships with daughter in laws who in times past would be expected to serve elders; that doesn't happen now).<br>Mind:<br>Closely linked to health benefits. Addressed negative consequences of daily life such as stress. Positive effects – feeling good, increased confidence, improved self-esteem. Linked with looking good either in respect of weight management or a healthy body. Increases mental alertness and emotional strength. Mind/body connection extended to embrace spirituality and seen as a tradition (e.g. meditating or reflecting). Could release anger or sexual tensions.<br>Body Image:<br>Particularly for young people, having the 'right' body shape important for social acceptability. Weight management featured highly especially with young women. Body image closely linked with mind benefits as it improves self-confidence, and was important to attract and maintain the interest of a partner. Among some black men having a muscular body was identified with looking good.<br>Employment prospects could be affected by being overweight. physical activity beneficial to return to normal weight after childbirth.<br>The significance of sweat – there was concern among older people that there was a lack of natural sweating in a cold climate, whereas 'back home' this was possible. physical activity to generate sweat important for maintaining good health through removal of toxins and impurities from the body, reducing water retention, improving digestive system, controlling appetite, breakdown of body fat, and receiving energy (from the sun) to the body. Therefore it was more important to physical activity in the UK as people did not sweat so easily. Use of saunas for this purpose.<br>Compensatory value:<br>Physical activity compensates for unhealthy eating or smoking, though some thought it was counterproductive to smoke, so no point in doing physical activity.<br>Social benefits:<br>Occasionally cited for becoming involved; for some young people 'going to the gym' meant being part of the *current fashion scene* and for unemployed people a way of *occupying their time*. Involvement in specific types of physical activity was seen as a way of *escaping existing social conditions* for some black people. Parents could set an example to their children; involvement in physical activity was a deterrent to becoming involved in less desirable activities such as drug abuse. | |

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| | | | Perceived lack of importance of physical activity<br>Some scepticism based upon the view that there was insufficient scientific evidence to support assertions of links between physical activity and CHD. There were examples cited of potential dangers. Some perceived that physical activity could increase weight gain. Others were ambivalent – fatalistic beliefs – good health was there by the grace of God so there was ambivalence about the need for physical activity (important but bestowed by Allah) p.23<br><br>Comparisons with other measures<br>Some ranked non-smoking higher in the ranks of important health behaviour; a healthy diet was seen as having similar importance by some, though not South Asian people. For some, physical activity meant that one could eat unhealthily, or that eating healthily could reduce the need for physical activity. Diet was perceived as easier to control in older age than physical activity.<br><br>Many perceived Asian diets as 'unhealthy' and 'full of fat'. As a consequence, opinions on physical activity varied – physical activity could compensate for it, or there was no need as benefits outweighed by diet. A minority thought the Asian diet was healthy and that this ought to be made more public. A small number of black people felt there was lack of health advice regarding their foods.<br><br>For many there was a distinction between 'health' and 'fitness'. Health was associated with lack of illnesses or disease, whilst fitness was linked with physical strength and stamina. For some, fitness could exist without health or slimness. Generally, physically active people tended to assess fitness in terms of what was achievable, whereas inactive people more inclined to measure against what was not possible to achieve. Among older South Asian people, the use of the term 'fit' in a cultural context could refer to a state of general well-being.<br><br><u>Key sources of knowledge and beliefs relating to physical activity</u><br>Main sources:<br>1. The media<br>One of most powerful sources of information and inspiration, particularly among young people, as it is 'so available'. Two types of media, the press and TV (including video tapes), were mentioned. The visual media in particular appeared more influential. Women mentioned the media more in terms of physical activity and health programmes. Sometimes specific videos or programmes (e.g. Jane Fonda) were | |

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| | | | valued for advice. Some Asian women watched health and physical activity related programmes on TV Asia. The visual impact had the effect of inspiring people in a motivational sense 'you feel that you should also do it'. Men were more inclined to relate to sporting events in the media with an inspiring effect to take part.<br><br>The media also shaped views about 'normal' body size and images of what might not appear to be the norm. Some, particularly young women felt pressurised to conform to expected societal body shapes of women. The media were seen as portraying images that convey women should be slim. Although some women resented these images they were still influenced by them.<br>Some imaged of acceptable body size in the UK were described by some women as differing from those in other countries. In W. Africa, S. Asia, and sometimes the Caribbean, a large woman was perceived as healthy and strong. Overweight in the UK would be regarded as normal weight in other countries. In S. Asia, largeness could also be associated with being happy. However, images back home were also changing, especially in towns and cities; the Indian actress was now slimmer rather than a woman with 'big hips'.<br>The views of men in their communities about female body shape could also have an effect on acceptable female body sizes. Some men preferred women to be slim. In general the younger women tended to be more aware of and influenced by the portrayal of slim bodies in the UK, whilst older women were less concerned. Men were also influenced by what was portrayed in the media and seen within their own communities as an attractive male body shape. Some black men saw muscle building as conforming to this image.<br><br>2. Role Models<br>Role models were mentioned as a source of inspiration and encouragement (a list of such role models is given for black men (e.g. Linford Christie, Denzel Washington. Schwarzenegger etc.), black women (Naomi Campbell, Oprah Winfrey, Mr Motivator etc.), Asian man (Schwarzenegger, Bruce Lee, Imran Khan etc.), and Asian women (Cindy Crawford, Cher, Fonda, Indian film actresses).<br>Among black communities, most role models mentioned were from their own communities (sports / film for men; models/ singers / TV personalities for women). Black women felt that there were not enough women sports role models. Some Asian young women mentioned white fashion models / actresses while Asian men mentioned sports figures. Only one Asian sports person was mentioned. There was a feeling among Asian respondents that there were not enough role models from | |

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| | | | their own communities. Sometimes the role models were admired for achieving rather than as motivators for physical activity. Inspiration could also come from 'fit' people walking down the street. Older people were less likely to mention role models.<br><br>3. Family and friends<br>For older participants, family and friends were one of the major sources of influence on beliefs relating to physical activity. These were people with whom information could be shared and ideas discussed. They tended to be sources of encouragement and advice. Families were seen as extremely important in shaping views. Parents could be role models, with their values being adopted by children. Some respondents actively encouraged their children to do physical activity, e.g. walk in the park. However, families were also said to discourage children from getting seriously involved in sports in order to concentrate on their education. Some said they had not received active encouragement to become involved in sport and had been encouraged in other directions. Some Asian women mentioned that children / young people in the family, especially daughters, could provide information on health and physical activity-related issues e.g. by describing events at school.<br><br>4. Other<br>Medical establishment: Some perceived hospitals as important sources, but GPs as less helpful, tending to give advice only when there was a health problem. The body size of the doctor may be off-putting and advice not taken seriously (" *Doctor says do exercise. He is big yet he says do exercise…how about taking a leaf out of your own book, fatty*?") Asian male 20s.<br>Schools: Occasionally mentioned as important first points of contact for information.<br>Religious influences: Among some Asian Muslim people, religion played an important role in encouraging Muslim people to physical activity through prayers. Religious leaders were sometimes cited as persuasive figures. A few Asian males mentioned the concept of 'jihad', implying that Muslims were required to be physically fit to a level needed to fight in a war.<br>Fatalism: A very few older Asian people believed that their health and fitness was a predetermined factor in their lives ("*God has made me like this. I don't get tired"*) Asian Sikh female, 49.<br>Fitness campaigns: A minority mentioned these, but they appeared to have short-term effects *("it will die out and everyone will have forgotten about the health issue")* Black female 18-50 active. | |

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| | | | <u>Being physically active: present activities, past experiences and perceived acceptable levels</u><br><br>Present levels among inactive respondents:<br>All ages tended to think in terms of 'doing physical activity or sport'; a few mentioned walking and work, or walking up and down stairs. Frequency was irregular unless related to work or travelling home. Range from once / twice a week to once a fortnight, once a month, once every three months or 'whenever time permitted'. Generally a lack of regularity, though sometimes short 'spurts'. (see list of specific activities from questionnaire p.35).<br><br>Present levels among active respondents:<br>Definition of active was energetic activity at least once a week combined with less strenuous bouts. 3-4 times a week was a regular pattern, sometimes daily. (again, see list)<br><br>Past levels and experiences:<br>School days: Virtually everyone had been most active during their school years with physical activity compulsory component, whether in UK or abroad. A few had been more active when facilities had been available at work.<br><br>UK and 'back home':<br>Those born outside the UK recalled different lifestyles involving greater levels of physical activity than in this country.<br><br>Walking was common as a means of getting about rather than driving or taking public transport. Opportunities to be physically active were more commonplace 'back home' compared to UK. (e.g. having to walk 3 miles to get water in Jamaica p. 36). Mention was made of the tradition of dance in general lifestyle among black communities. Physical activity was, as described earlier, integral to daily life; good weather and safer environments meant better opportunity to be outside. However, there was a view that living in the UK was more stressful and therefore there was a need to physical activity more.<br><br>Is physical activity a Western concept?<br>This idea was dismissed. Apart from the physical activity lifestyle 'back home' there were different types of physical activity identified as physical activity or sport in those countries. However it might be perceived as a Western concept from the perspective of some particular activities. In the UK, physical activity was marketed, analysed and | |

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| | | | institutionalised, which was a deterrent.<br><br>Levels of physical activity considered appropriate:<br>There was an awareness of the importance of physical activity and the need for regularity to obtain benefits. It was believed that novices should start slowly and build up levels and pace. Opinions on type of physical activity varied according to aims and fitness / body shape expectations. Active people were more aware of particular benefits than inactive.<br><br>Amount of physical activity considered appropriate:<br>Views varied; active people tended to have higher thresholds. There was a common feeling that everyone should find their own level; some thought enjoyment was important. Some were concerned that enough energy was left over to do other things, e.g. housework. A few thought a medical check-up was necessary before becoming involved in physical activity.<br><br>Level of intensity considered appropriate:<br>There was awareness that a certain level of intensity was necessary to benefit, though views were wide ranging. Opinions differed as to whether becoming breathless or feeling the heart beat was a good sign or not. Generally breathlessness was associated with exertion, a good thing as long as no difficulties were experienced. Some believed the point at which breathlessness starts is dependent on stamina and body weight. Similarly, heart beating faster was good but on the other hand could put at risk of MI.<br>Widely believed that 'sweating' necessary and indicator of benefits.<br><br>There was a common belief that excessive amounts of physical activity could lead to obsession and result in damage to the body (dehydration, collapse; pulling of hamstrings, damage to muscle joints, OA, excessive weight loss).<br><br><u>Barriers to physical activity</u><br>Practical:<br>• Lack of time<br>Busy lifestyles; combination of work and home responsibilities, childcare. Religious activities such as namaz restricted time; other things had to be fitted around prayer times. 'Spare time' was precious; physical activity did not appeal as a form of enjoyment or relaxation for some, rather it was inconvenient and required effort. It was recognised that it might be possible to make time if motivation was higher.<br>• Work-related | |

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| | | | Many worked long hours reflecting circumstances such as financial pressures. Limited time left to do other things. Less significant for older and unemployed. Tiredness from work could prevent involvement.<br>• Cost<br>Expenses associated with physical activity put some off, especially those unemployed. Some complained at the high cost of using facilities, or buying special equipment and clothing. Some older people found the concept of spending money on physical activity alien compared with 'back home' – 'wasting money'. Money was seen as better invested in, say, jewellery for Asian women.<br>• Facilities-related<br>Many older Asian women and some Asian Muslim men found facilities inappropriate. Some people felt there was a lack of facilities in their locality or that existing facilities were too busy or impersonal. Dress-code, mixed sex provision and the cultural environment imposed restrictions for some. Older Asian women and many of the Asian Muslim women of all ages felt unable to use facilities because of the perceived requirement to change into clothing unacceptable to them, sometimes for religious reasons ("*Muslim women are restricted from showing their legs…the swim suit is a problem for them*"). Adapted clothing (tights, leggings) were not seen as the solution if perceived attitudes other people made wearing them feel uncomfortable. Cultural 'norms' found at the facilities conflicted with some practices (e.g. taking massage oil into the sauna – complaints from white women; men walk around naked in the changing rooms). For some women and some Asian Muslim men, mixed sex facilities were seen as inappropriate (Islam – women are not supposed to mix in with men); for others, self-consciousness regarding body weight or male domination of physical activity equipment. Some places were perceived as unwelcoming and were particularly intimidating if white-oriented. Language barriers may mean less quality service.<br>Inadequate crèche facilities could affect women participating at certain times of the day. Issues of personal safety could deter use of public places either for physical activity or as a means of getting to facilities. Fears of being attacked were a concern. Some were restricted in using their own home because of lack of space or what other people in the house might think.<br><br>Attitudes and beliefs:<br>• Lack of motivation<br>Laziness and lack of willpower; lack of company; lack of enjoyment; life circumstances (feel dejected, especially unemployed, people who have suffered a loss); stress, depression; alternative activities such as going | |

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| | | | to the cinema or spending time with partners were seen as more appealing, more enjoyable or more important; TV is 'so available'; the weather if cold and / or wet.<br>• Changing life stages<br>physical activity less important when passing through various life stages either because lower priority or lack of opportunity. (Going out with friends; responsibilities; marriage (views of in-laws).<br>• Beliefs related to old age<br>Old age as 'time to rest', less point in exercising, may experience pain.<br>• Perceived lack of importance<br>Past efforts may not have had desired results; may feel already fit; may perceive that once in a secure relationship looking good was less important.<br><br>In general, barriers for Asian and black people were not culture specific though some were community specific, e.g. racism.<br><u>Overcoming barriers</u><br>Key motivators:<br>• Enjoyment<br>• Habit<br>Especially if formed at a young age<br>• Looking good<br>Particularly for women wishing to achieve a particular body shape<br>• Challenge<br>A competitive element could be a driving factor<br>• Health<br>Mainly to stave off an existing condition<br>• Example to children<br>• Convenient / appropriate facilities<br>Sometimes a social dimension was important to maintain interest<br><br>Physically inactive people cited two motivators in active people:<br>1. They were seen as self-motivated<br>2. They had friends to go with<br>Asian people were often of the view that people from their own communities were generally less physically active.<br><br><u>Development of strategies</u><br>Conceptual issues:<br>• General association of physical activity with physical activity gyms / sport<br>May be useful to make public the benefits of 'things people do anyway'<br>• Looking good | |

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| | | | While awareness of health benefits high, there was an association of physical activity with looking good or losing weight.<br>• physical activity as 'free time' or 'leisure time' pursuit<br>May be useful to make public the benefits of 'work purpose' activities such as gardening<br>• Older people's reluctance to pay<br>Promotion of non-payment activities, and more positive view of payment promoted.<br>• Conflict of interest when growing old<br>Promotion of activities that are not tiring<br><br><u>Motivational issues</u><br>• Social dimension<br>• The concept of sweat<br>• Relief from stress<br><u>Structural barriers</u><br>• Facilities<br>• Stereotypes of Asian and black people (limit choices – see p.67-8)<br><br><u>Promotional Strategies as suggested by respondents</u><br>• The need to encourage and remind (worth thinking about, doing, a good idea, for health reasons, to enjoy, everyone can do it, can do with friends / family<br>• Persuasive messages (long-running campaigns, repeat the message; scare tactics; precise information on health benefits; target promotional vehicle – general rather than community specific message but with community specific vehicles of promotion to which each community could relate (oral, radio, home visits, Health professionals, music, visual, advertisements in films, TV programmes; printed literature)<br>• Use of role models<br>• Increased representation of Asian and black communities<br>• National and local promotion<br>• Increasing opportunities and access to facilities appropriate to community groups | |
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