

Depression: Summary table of the psychometric properties of screening tools

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Beck Depression Inventory (BDI)

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
Consultation				
Dutton 2004 Quality assessed: ++	BDI-21	DSM-IV	N=220, Age: 49 years Gender: 105 males, 115 females African American primary care patients <i>Prevalence of depression -</i> 63/220	Major Depression True Positive = 57 False Positive = 25 False Negative = 8 True Negative = 130
Laprise 1998 Quality assessed: +	BDI-21	DSM-III-R	N=66, age = 78 years, gender: 31 males, 35 females Nursing home residents, Canada (French) <i>Prevalence of depression -</i> 27/66	Major depression BDI: Cut-off 10 Sensitivity =0.963 Specificity = 0.462

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
Whooley 1997 Quality assessed: +	BDI-30 item	DSM-III- Diagnostic Interview Schedule (DIS)	N = 543 Patients visiting urgent care clinic Mean age = 53 (S.D. 14) Male = 97% USA, San Francisco <i>Prevalence of depression -</i> 97/536	Major depression Standard cut-off ≥ 10 - BDI-30 item AUC - 87% (82-91) Sensitivity -89% (81-95) Specificity -64% (59-68)
Yeung 2002 Quality assessed: +	BDI-21	DSM-III-R	N = 815; mean age = 50 years; 304 female, 199 male Chinese-American primary care patients; US <i>Prevalence of depression -</i> 53/180 <i>Only those who screened positive on the BDI & agreed to be interviewed for DSM and a selective sample of those who screened negative on the BDI were interviewed with a DSM</i>	Depression: major depressive disorder Cut-off ≥ 16 Sensitivity - 79% Specificity - 91% PPV - 79% NPV - 91%
Zich 1990 Quality assessed: +	BDI-21	DSM-III (Diagnostic Interview Schedule)	N = 31 primary care patients who completed both the BDI and DIS US, San Francisco [does not give demographic information specific to this sub-group of patients] <i>Prevalence of depression -</i> 3/31	Depressive disorders Cut-off ≥ 10 - BDI Sensitivity - 100% Specificity - 75% Cut-off ≥ 16 - BDI Sensitivity - 100% Specificity - 89%
Community				
Viinamaki 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55 Mean age: 48 years Participants recruited from a wood factory <i>Prevalence of depression -</i> 23/55	Depression Cut-off 8/9 Sensitivity - 61% Specificity- 78% PPV - 67% NPV- 74% Standard cut-off ≥ 10

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				Sensitivity - 45% Specificity- 84% PPV - 67% NPV- 68% Cut-off 10/11 Sensitivity - 39% Specificity- 88% PPV - 69% NPV- 67%

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Consultation				
Parker 2002 Quality assessed: +	Beck Depression Inventory for Primary Care (BDI-PC)	DSM-IV (CIDI)	N= 302 outpatients from cardiology (29.5%), respiratory (23.2%), gastroenterology (11.6%). Nephrology (14.9%), haematology (7.9%), rheumatology (5.0%), radiation oncology (4.6%), endocrinology (3.3%) Mean age = 46.5 (SD = 12.9); 63.2% male 111 (36.8%) patients had chronic physical illness; mean duration = 9 years Australia, Sydney <u>Prevalence of depression</u> - 14/160	Depression Cut-off ≥ 4 - BDI-PC AUC - 0.848 Sensitivity - 83.3% (62.2, 100) Specificity - 67.0% (57.4, 76.7) Optimal cut-off ≥ 5 - BDI-PC AUC - 0.848 Sensitivity - 83.3% (62.2, 100) Specificity - 75.8% (67.0, 84.6) Cut-off ≥ 6 - BDI-PC AUC - 0.848 Sensitivity - 66.7% (40.0, 90.3) Specificity - 82.4% (74.6, 90.2)
Scheinthal 2001 Quality assessed: ++	BDI-Fast Screen	DSM-IV	N=75, Age: 74 years, Gender: 33 males, 42 females US geriatric medical setting <u>Prevalence of depression</u> - 8/75	Depression Cut-off 4 Sensitivity 1 Specificity 0.84

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Whooley 1997 Quality assessed: +	BDI-13	DSM-III- Diagnostic Interview Schedule (DIS)	N = 543 Patients visiting urgent care clinic Mean age = 53 (S.D. 14) Male = 97% USA, San Francisco <i>Prevalence of depression -</i> 97/536	Major depression Cut-off ≥ 5 BDI-13 item AUC - 86% (82-90) Sensitivity -92% (85-97) Specificity -61% (56-66)
Wilhelm 2004 Quality assessed: +	Beck Depression Inventory for Primary Care (BDI-PC)	DSM-IV	N= 212 medical out- and in- patients; 2.8% neurological disorders, 25.5% cardiopulmonary disease, 9.4% malignancy, 12.3% loss of mobility, 13.7% endocrine disorder, 3.8% infectious & inflammatory disorder, 12.3% renal disease, 20.2% other disease Age range = 16 - 91 y/o; 55.2% female <i>Prevalence of depression (major depression) -</i> 49/212	Major depression BDI AUC - 0.85 (79, 92) Sensitivity - 91% (73, 98) Specificity - 0.62 (0.55, 0.69) Any depression (major or minor) BDI AUC - 0.86 (80, 91) Sensitivity - 0.87 (0.75, 0.94) Specificity - 0.69 (0.62, 0.76) Affective disorder BDI AUC - 0.89 (84, 94) Sensitivity - 0.89 (0.77, 0.95) Specificity - 0.72 (0.64, 0.78)
Community				
Stukenberg1990 Quality assessed: +	BDI - SF	DSM-III-R (SCID)	N=177 community dwelling adults, over 55 years Mean age = 67.4 (SD=7.20yrs) Age range 56-88years 33% male <i>Prevalence of depression (any)-</i> 27/178	Any depression BDI AUC - 0.82(SE .06) Mild Depression Optimal cut-off≥ 5 - BDI-SF Sensitivity - 0.71 Specificity - 0.83 PPV - 74% Moderate Depression Optimal cut-off≥ 8 - BDI-SF Sensitivity - 0.59 Specificity - 0.93 PPV - 88%

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
				Severe Depression - Optimal cut-off ≥ 16 - BDI-SF Sensitivity - 0.29 Specificity - 0.99 PPV - 99%
Viinamaki 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55 Mean age: 48 years Participants recruited from a wood factory <u>Prevalence of depression - 23/55</u>	Depression Cut-off 8/9 Sensitivity - 61% Specificity- 78% PPV - 67% NPV- 74% Standard cut-off ≥ 10 Sensitivity - 45% Specificity- 84% PPV - 67% NPV- 68% Cut-off 10/11 Sensitivity - 39% Specificity- 88% PPV - 69% NPV- 67%

Center for Epidemiological Studies-Depression Scale (CES-D)

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
Consultation				
Blank2004 Quality assessed: +	CES-D	Diagnostic Interview Schedule	N = 360, participants were recruited from primary care (N=125), general hospitals (N=150) and nursing home (N=85) settings (analysis presented separately for each group). All participants were aged >60 years Mean age - 77 years Male = 37% <u>Prevalence of major depression - 9%</u> <u>Prevalence of any depression -</u>	Major depression Primary care sample CES-D Cut-off ≥ 16 Sensitivity - 79% (51-94) Specificity - 75% (71-77) AUC - 0.86 (0.77-0.95) Cut-off ≥ 20 - recommended Sensitivity - 79% (51-94) Specificity - 80% (77-82) Nursing Home sample

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			<p>16%</p> <p><u>Prevalence of major depression in primary care – 11%</u></p> <p><u>Prevalence of major depression in hospital – 8%</u></p> <p><u>Prevalence of major depression in nursing homes – 9%</u></p>	<p>CES-D Cut-off ≥16 Sensitivity - 71% (32-95) Specificity - 85% (81-87)</p> <p>AUC - 0.82 (0.60- 1.03)</p> <p>Cut-off ≥14 - recommended Sensitivity - 86% (44-99) Specificity - 78% (74-79)</p> <p>Hospital sample</p> <p>CES-D Cut-off ≥16 Sensitivity - 75% (44-93) Specificity - 76% (73-78)</p> <p>AUC - 0.91 (0.84- 0.98)</p> <p>Cut-off ≥14 - recommended Sensitivity - 100% (70-100) Specificity - 70% (62-78)</p>
Klinkman 1997	CES-D	DSM-III-R	<p>N=425 weighted sub-sample of 1580 people attending primary care.</p> <p>Mean age - 39.6 years</p> <p>Male - 23.3%</p> <p><u>Prevalence of depression - 57/425</u></p>	<p>Depression</p> <p>Cut-off ≥ 16 - CES-D Sensitivity - 0.807 Specificity - 0.717 PPV - 0.307</p> <p>Cut-off ≥ 22 - CES-D Sensitivity - 0.614 Specificity - 0.848 PPV - 0.385</p>
Robison 2002	CES-D	CIDI	<p>N=303, Primary care, Hispanic population in US</p> <p>Mean Age = 61 years</p> <p>gender: 88 males, 215 females</p> <p><u>Prevalence of depression - 67/303</u></p>	<p>Depression</p> <p>Standard cut-off - CES-D Sensitivity - 0.73 Specificity - 0.72</p>
Schein 1997	CES-D	DSM-III-R	<p>N=76, Age = 70 years Gender= 41 males, 35 females</p> <p>US, Medically ill inpatients</p> <p><u>Prevalence of depression -:</u></p>	<p>Depression Sensitivity 0.73 Specificity 0.84</p> <p>Major Depression Sensitivity 0.90</p>

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			26/76	Specificity 0.84
Thomas 2001 Quality assessed: +	CES-D	DSM-IV	N= 179 women Mean age: 44 years Participants were all low income women attending primary care clinics <u>Prevalence of depression</u> - 9/179	Major depressive disorder AUC - 0.89 (SE = .209) Cut-off ≥ 16 Sensitivity -95% Specificity -70% PPV - 28.4% NPV - 99.1% AUC - Cut-off ≥ 34 Sensitivity -45% Specificity -95% PPV - 52.9% NPV - 93.2%
Watson 2004 Quality assessed: +	CES-D	DSM-IV	N = 84 Age over 70 and residing in two Continuing Care Retirement Communities in US. 26% male, mean age 82 <u>Prevalence of depression</u> - 10/78	Major Depression CES-D Standard cut-off ≥ 16 Sensitivity -60% (50, 70) Specificity -89% (82, 96) PPV - 43% NPV - 94% AUC - 0.0.88 GDS-30 Alternative cut-offs Cut-off ≥ 6 Sensitivity - 100% Specificity - 54% Cut-off ≥ 7 Sensitivity - 90% Specificity - 60% Cut-off ≥ 8 Sensitivity - 90% Specificity - 68% Cut-off ≥ 9 Sensitivity - 90% Specificity - 69% Cut-off ≥ 10 Sensitivity - 90% Specificity - 72% Cut-off ≥ 11

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				<p>Sensitivity - 80% Specificity - 77%</p> <p>Cut-off ≥ 12 Sensitivity - 80% Specificity - 78% ROC analysis - captured 80% of cases</p> <p>Cut-off ≥ 13 Sensitivity - 70% Specificity - 81%</p> <p>Cut-off ≥ 14 Sensitivity - 70% Specificity - 86%</p> <p>Cut-off ≥ 15 Sensitivity - 70% Specificity - 88%</p> <p>Cut-off ≥ 16 Sensitivity - 60% Specificity - 89%</p> <p>Cut-off ≥ 17 Sensitivity - 60% Specificity - 93%</p> <p>Cut-off ≥ 18 Sensitivity - 50% Specificity - 97%</p> <p>Cut-off ≥ 21 Sensitivity - 40% Specificity - 99%</p> <p>Minor depression CES-D Standard cut-off ≥ 16 Sensitivity -50% (39, 61) Specificity -86% (79.93) PPV - 21% NPV - 96% AUC - 0.72</p>
Whooley 1997 Quality assessed: +	CES-D	DSM-III- Diagnostic Interview Schedule (DIS)	N = 543 Patients visiting urgent care clinic Mean age = 53 (S.D. 14)	<p>Major depression</p> <p>Standard cut-off ≥ 16 - CES-D AUC - 89% (85-92) Sensitivity -93% (85-97)</p>

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			Male = 97% USA, San Francisco <i>Prevalence of depression</i> – 97/536	Specificity –69% (65-74) Cut-off ≥ 10 -CES-D (10 item) AUC – 87% (83-91) Sensitivity –90% (82-95) Specificity –72% (67-76)
Williams 1999 Quality assessed: +	CES-D	DSM-IV	N=296 age: 59 years, gender: 77 males, 219 females US <i>Prevalence of depression:</i> 36/296	Depression Sensitivity 0.88 Specificity 0.75
Zich 1990 Quality assessed: +	CES-D	DSM-III (Diagnostic Interview Schedule)	N = 31 primary care patients who completed both the BDI and DIS US, San Francisco [does not give demographic information specific to this sub-group of patients] <i>Prevalence of depression</i> – 3/31	Depressive disorders Cut-off ≥ 16 – CES-D Sensitivity – 100% Specificity – 53%
Community				
Papassotiropoulos 1999 Quality assessed: +	CES-D	ICD-10	N = 287; mean age = 76 years; 171 female, 116 Older people from the community; Germany <i>Prevalence of depression</i> = 10/287	Depression Optimal cut-off ≥ 10 Sensitivity – 75% Specificity – 72% AUC – 0.78
Sanchez-Garcia 2008 Quality assessed: ++	GDS-30	DSM-IV	N =534, older adults receiving IMSS, living in Mexico City, 206 individuals randomly selected for a clinical assessment. Mean age – 71.5 years (SD 7.0years) Male – 32% <i>Prevalence of major depression:-</i> 19/206	Any depression Standard cut-off CES-D Sensitivity – 82.0% (81.3-82.7) Specificity – 49.2% (48.7–49.6) PPV – 49.6% (49.1-50.0) NPV – 81.8% (81.1-88.5)

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			<i>Prevalence of any depression-:</i> 62/206	
Suthers 2004 Quality assessed: +	CES-D11	CIDI-SF	N = 1056 (used in table for analysis, 1284 included in study) Community sample responding to telephone screen <i>Prevalence of depression -</i> 79/1256	Depression Standard cut-off 9 Sensitivity - 48.1% Specificity - 88.27% PPV - 21.59% NPV - 96.20%
Tuuaninen 2001 Quality assessed: +	CES-D- Burnham Screen	DSM-IV	N=436 age: 68 years gender: all female US <i>Prevalence of depression -</i> 30/436	Usual cut-off (0.06) Sensitivity = 74% Specificity = 87%
Wada 2007 Quality assessed: +	CES-D	DSM-IV	N = 2219; mean age = 42 years; 351 women, 1868 male Community sample (workers in a company); Japan <i>Prevalence of depression -</i> 49/2219	Depression: major depressive disorder Standard cut-off ≥ 16- CES-D Sensitivity - 95.1% Specificity - 85.0% PPV - 10.7% NPV - 99.9% AUC - 0.96

General Health Questionnaire (GHQ)

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
Consultation				
Evans 1993 Quality assessed: +	GHQ-12	Geriatric Mental State (GMS)	N = 408, older adults attending primary care, London. N = 136 randomly selected for analysis of GHQ Mean age of total sample - 73 years (SD - 8.4) Male - 38% of total sample	Depression GHQ Sensitivity - 0.7692 Specificity - 0.7619

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
			<u>Prevalence of depression – 52/136</u>	
Goldberg1997 Quality assessed: +	GHQ-12; GHQ-28	CIDI (DSM-IV/ICD-10)	N = 5438 consecutive primary care patients in 15 countries.	<p>Common mental health problems</p> <p>GHQ-12</p> <p>Ankara – threshold 1/2: Sensitivity -70.6% Specificity – 82.3% PPV – 55.7%</p> <p>Athens – threshold 2/3: Sensitivity - 80.6% Specificity – 84.7% PPV – 62.4%</p> <p>Bangalore – threshold 6/7: Sensitivity – 86.7% Specificity – 88.9% PPV – 71.2%</p> <p>Berlin – threshold 2/3: Sensitivity – 72.6% Specificity – 75.0% PPV – 47.8%</p> <p>Groningen – threshold 2/3: Sensitivity - 80.3% Specificity – 86.4% PPV – 65.1%</p> <p>Ibadan – threshold 1/2: Sensitivity – 77.8% Specificity – 79.4% PPV – 54.4%</p> <p>Mainz – threshold 2/3: Sensitivity – 73.5% Specificity – 81.2% PPV – 55.2%</p> <p>Manchester – threshold 3/4: Sensitivity – 84.6% Specificity – 89.3% PPV – 71.4%</p> <p>Nagasaki – threshold 1/2: Sensitivity – 76.2%</p>

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				Specificity – 85.9% PPV – 63.1% Paris – threshold 1/2: Sensitivity – 78.2% Specificity – 79.4% PPV – 54.3% Rio de Janeiro – threshold 1/2: Sensitivity – 70.2% Specificity – 77.3% PPV – 49.4% Santiago – threshold 2/3: Sensitivity – 84.8% Specificity – 82.2% PPV – 60.0% Seattle – threshold 1/2: Sensitivity – 82.1% Specificity – 76.5% PPV – 52.4% Shanghai – threshold 1/2: Sensitivity – 80.6% Specificity – 84.7% PPV – 62.4% Verona – threshold 1/2: Sensitivity – 75.8% Specificity – 65.3% PPV – 40.6%
Hahn 2006 Quality assessed: +	GHQ-12	CIDI (DSM-IV/ICD-10)	N = 204 chronically ill in-patients; 5.9% cardiovascular diseases, 8.8% orthopaedic diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease Mean age = 49.6; age range 18-80 52% male 13 rehabilitation inpatient clinics in Germany <u>Prevalence of depression – 35/204</u>	Affective disorder (single episode or recurrent major depression, dysthymia) Optimal cut-off ≥ 7 - GHQ AUC – 0.779 (0.716-0.834) Sensitivity – 77.1% Specificity – 69.2% PPV – 34.2%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
Harter 2001 Quality assessed: +	GHQ-12	M-CIDI	N=206 Mean age = 48 years Neck and back pain (70%), arthropathies (14%), rheumatic disorders (6%), other musculoskeletal disorders (10%) <u>Prevalence of depression</u> - 10/206	AUC = 0.65 (0.57, 0.72) Cut-off ≥ 5: Sensitivity - 75% Specificity - 51.7% PPV - 17.3%
Harter 2006 Quality assessed: +	GHQ-12	M-CIDI	N= 569; 36% musculo-skeletal diseases; 29% CVD and 35% Cancer; 50% male; Mean age 54; Age range 22-83 <u>Prevalence of depression</u> - 59/130	Any depression GHQ AUC - 0.72 (0.68, 0.76) Cut-off ≥ 8 GHQ Sensitivity - 52.5% Specificity - 77.9% PPV - 22.1%
Henkel 2004 Secondary paper Henkel 2003 - brief report Quality assessed: +	GHQ-12	CIDI - ICD- 10 (and DSM- IV research criteria for minor depression)	N = 448, of which 431 had an independent clinical diagnosis, mean age 48.98 Primary care patients <u>Prevalence of depression (any)</u> - 82/431 <u>Prevalence of depression (major)</u> - 50/431 <u>Prevalence of depression</u> <u>(dysthymia disorder)</u> - 24/431 <u>Prevalence of depression (minor)</u> - 54/431	Any depression GHQ-12 Standard cut-off ≥2 Sensitivity - 85% Specificity - 63% PPV - 34% NPV - 95% Any depression according to ICD-10 GHQ-12 AUC - 0.833 Any depression according to ICD-10 including minor depression (per DSM-IV research criteria) GHQ-12 AUC - 0.817 Types of depression according to ICD-10 and DSM-IV research criteria:

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				<p>Major depression AUC - 0.874</p> <p>Dysthymia disorder AUC - 0.832</p> <p>Minor depression AUC - 0.755</p>
<p>MaGPIe Group 2005</p> <p>Quality assessed: +</p>	GHQ-12	CIDI	<p>N = 775 1151 were selected for interview, with 788 completing interviews</p> <p><i>Prevalence of depression:- 136/775</i></p>	<p>Depression</p> <p>Cut-off ≥3 Sensitivity - 66.3% Specificity - 71.8% PPV - 34.0% NPV - 90.7%</p> <p>Cut-off ≥4 Sensitivity - 59.9% Specificity - 80.5% PPV - 40.2% NPV - 90.2%</p> <p>Cut-off ≥5 Sensitivity - 53.5% Specificity - 85.1% PPV - 44.1% NPV - 89.3%</p> <p>Cut-off ≥6 Sensitivity - 43.9% Specificity - 89.4% PPV - 47.4% NPV - 87.9%</p> <p>Cut-off ≥7 Sensitivity - 38.2% Specificity - 92.5% PPV - 52.6% NPV - 87.3%</p> <p>Cut-off ≥8 Sensitivity - 29.5% Specificity - 94.5% PPV - 54.1% NPV - 86.0%</p>

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
Patel 2008 Quality assessed: ++	GHQ-12	CIS-R	N = 598 participants attending 5 primary care clinics in Goa, India Mean age = 37.5 years (Sd 14.2 years) Male - 43.6% <u>Prevalence of common mental disorders - 92/598</u>	Common mental disorders Threshold 5/6 - GHQ-12 Sensitivity - 73% Specificity - 90% PPV - 61.2% Threshold 6/7 - GHQ-12 Sensitivity - 60% Specificity - 93% PPV - 64.5% Threshold 7/8- GHQ-12 Sensitivity - 52% Specificity - 97% PPV - 77.1% AUC = 0.8969
Schmitz 1999a Schmitz 1999b - secondary study Schmitz 2001 - secondary study Quality assessed: +	GHQ-12	DSM-III-R (SCID)	N = 572 outpatients attending primary care practices in Dusseldorf, Germany. Of these 421 completed the GHQ-12 Mean age - 42.7years (SD - 15.7 years) Male - 31.3% <u>Prevalence of common mental disorder - 36.8%</u>	Common mental disorders Cut-off 11/12 Sensitivity - 0.70 Specificity - 0.68 PPV - 0.56 Cut-off 7/8 Sensitivity - 0.88 Specificity - 0.41 AUC - 0.76 (SD=0.026)
Community				
Costa 2006 Quality assessed: +	GHQ-12	ICD-10	N=126 age = 81 years, gender: 36 males, 90 females Elderly people, Brazil <u>Prevalence of depression:-:</u> 65/126	Sensitivity = 0.661 Specificity = 0.623
Donath 2008 Quality assessed: +	GHQ-12	ICD-10 or DSM-IV based on the CIDI	N = 10 641 part of the 1997 Australian National Survey of Health and Wellbeing, conducted on a community sample. Male - 44% <u>Prevalence of affective or anxiety</u>	Affective or anxiety disorder Cut-off 0/1 Sensitivity - 75.4% (72.5 - 78.4) Specificity- 69.9% (69.5 - 70.3) Cut-off 1/2

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
			<u>disorder – 7.3%</u>	Sensitivity – 58.8% (55.7 – 61.9) Specificity- 83.8% (83.0 – 84.5) Cut-off 2/3 Sensitivity – 48.0% (44.9 – 51.0) Specificity- 90.7% (89.9 – 91.4) Cut-off 3/4 Sensitivity – 38.6% (35.5 – 41.7) Specificity- 94.1% (93.2 – 94.9) AUC – 0.78 (0.76-0.80)
Papassotiropoulos 1999 Quality assessed: +	GHQ-12	ICD-10	N = 287; mean age = 76 years; 171 female, 116 Older people from the community; Germany <u>Prevalence of depression – 10/287</u>	Depression Optimal cut-off ≥ 4 Sensitivity – 63% Specificity – 91% AUC – 0.794
Viinamaki 1995 Quality assessed: +	GHQ-12	DSM-III-R	N=56 Mean age: 48 years Employers from factory <u>Prevalence of depression – 23/56</u>	Depression Cut-off 2/3 Sensitivity - 70% Specificity- 75% PPV – 73% NPV- 72%

General Health Questionnaire-28				
Study	Identification tool	Comparator / caseness	Population	Results
Consultation				
Goldberg1997 Quality assessed: +	GHQ-28	CIDI (DSM-IV/ICD-10)	N = 5438 consecutive primary care patients in 15 countries.	Common mental health problems GHQ-28 Ankara – threshold 3/4 Sensitivity -74.6% Specificity – 77.1%

General Health Questionnaire-28				
Study	Identification tool	Comparator / caseness	Population	Results
				PPV - 50.7% Athens - threshold 5/6: Sensitivity - 89.5% Specificity - 82.8% PPV - 62.2% Bangalore - threshold 8/9: Sensitivity - 93.4% Specificity - 85.0% PPV - 66.4% Berlin - threshold 5/6: Sensitivity - 81.9% Specificity - 72.9% PPV - 48.8% Groningen - threshold 5/6: Sensitivity - 84.9% Specificity - 81.9% PPV - 59.8% Ibadan - threshold 4/5: Sensitivity - 80.8% Specificity - 75.6% PPV - 51.2% Mainz - threshold 5/6: Sensitivity - 80.7% Specificity - 72.9% PPV - 48.5% Manchester - threshold 6/7: Sensitivity - 84.4% Specificity - 86.2% PPV - 65.8% Nagasaki - threshold 3/4: Sensitivity - 76.7% Specificity - 77.6% PPV - 51.9% Paris - threshold 3/4: Sensitivity - 79.3% Specificity - 74.9% PPV - 49.9% Rio de Janeiro - threshold 3/4: Sensitivity - 82.0% Specificity - 71.8%

General Health Questionnaire-28				
Study	Identification tool	Comparator / caseness	Population	Results
				PPV - 47.9% Santiago - threshold 6/7: Sensitivity - 89.0% Specificity - 85.8% PPV - 66.4% Seattle - threshold 3/4: Sensitivity - 80.5% Specificity - 74.8% PPV - 50.2% Shanghai - threshold 7/8: Sensitivity - 84.6% Specificity - 85.5% PPV - 64.8% Verona - threshold 5/6: Sensitivity - 70.8% Specificity - 72.9% PPV - 45.2%

Geriatric Depression Scale (GDS)

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator / caseness	Population	Results
Consultation				
Blank2004 Quality assessed: +	GDS - 30	Diagnostic Interview Schedule	N = 360, participants were recruited from primary care (N=125), general hospitals (N=150) and nursing home (N=85) settings (analysis presented separately for each group). All participants were aged >60 years Mean age - 77 years Male = 37% <u>Prevalence of major depression - 9%</u> <u>Prevalence of any depression - 16%</u>	Major depression Primary care sample GDS-30 Cut-off ≥10 Sensitivity - 79% (50-94) Specificity - 67% (63-69) AUC - 0.87 (0.77-0.97) Cut-off ≥17 - recommended Sensitivity - 79% (51-94) Specificity - 87% (84-89) Nursing Home sample GDS-30

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
			<p><u>Prevalence of major depression in primary care – 11%</u></p> <p><u>Prevalence of major depression in hospital – 8%</u></p> <p><u>Prevalence of major depression in nursing homes – 9%</u></p>	<p>Cut-off ≥10 Sensitivity – 86% (44-99) Specificity – 72% (68-73)</p> <p>AUC – 0.88 (0.74- 1.02)</p> <p>Cut-off ≥13 – recommended Sensitivity – 86% (44-99) Specificity – 85% (81-86)</p> <p>Hospital sample</p> <p>GDS-30 Cut-off ≥10 Sensitivity – 83% (52-97) Specificity – 78% (75-79)</p> <p>AUC – 0.90 (0.81- 1.00)</p> <p>Cut-off ≥15 – recommended Sensitivity – 83% (54-97) Specificity – 93% (90-94)</p>
Burke 1992 Quality assessed: +	GDS-30	DSM-III-R	<p>N = 67 cognitively intact outpatients</p> <p>Mean age = 77.2 (SD 6.5)</p> <p>Male = 34%</p> <p><u>Prevalence of depression – 16/67</u></p>	<p>Depression</p> <p>Cut-off ≥ 11 Sensitivity – 81% Specificity – 61%</p> <p>Cut-off ≥ 14 Sensitivity – 44% Specificity – 75%</p> <p>Cut-off ≥ 17 Sensitivity – 31% Specificity – 94%</p>
Evans 1993 Quality assessed: +	GDS-30	Geriatric Mental State (GMS)	<p>N = 408, older adults attending primary care, London. N = 144 randomly selected for analysis of GDS</p> <p>Mean age of total sample – 73 years (SD – 8.4)</p> <p>Male – 38% of total sample</p> <p><u>Prevalence of depression – 59/144</u></p>	<p>Depression</p> <p>GDS Sensitivity – 0.8475 Specificity – 0.7176</p>

FINAL DRAFT

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
Fernandez-San Martin 2002 Quality assessed: +	GDS-30	DSM-IV	N=192 age >65 years, gender: 70 males, 122 females Primary care, Spain <i>Prevalence of depression -</i> 60/192 (mainly psychotic depression)	Depression Cut-off ≥11 Sensitivity = 0.817 Specificity = 0.68
Jongenelis 2005 Quality assessed: +	GDS-30	DSM-IV	N= 333, age = 79 years, gender: 104 males, 229 females Nursing home, Netherlands <i>Prevalence of depression -:</i> 74/333	Any depression Cut-off 11 Sensitivity - 0.85 Specificity - 0.69
Koenig 1992A Quality assessed: +	GDS-30	DSM-III-R	N = 109 medically ill hospitalized patients Mean age = 74 (S.D. 4.1) 100% men Mean MMSE score = 25.7 (S.D. 3.3) US, Durham <i>Prevalence of depression -</i> 11/109	Major depression Cut-off ≥ 11 - GDS Sensitivity - 82% Specificity - 76% PPV - 27% NPV - 97%
Laprise 1998 Quality assessed: +	GDS-30	DSM-III-R	N=66, Nursing home residents, Canada (French) Mean age = 78 years, gender: 31 males, 35 females <i>Prevalence of depression -</i> 27/66	Depression Cut-off 10-GDS Sensitivity = 0.92 Specificity = 0.513
Lynes 1997 Quality assessed: +	GDS - 30	DSM-III-R	N = 130 older adults attending primary care. Mean age - 71.0 years (SD - 6.8 years) Male - 41.5%	Major depression Cut-off 10 GDS-30 Sensitivity = 100% Specificity = 84% AUC - 0.936 (0.031)

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
			<u>Prevalence of major depression – 14/130</u> <u>Prevalence of any depression – 24/130</u>	
Magni 1986 Quality assessed: ++	GDS-30	DSM-III	N = 220, Consecutive admissions to general medical ward, Italy Mean age = 76 years, Gender: 111 males, 109 females <u>Prevalence of depression (MDD and dysthymia) – 67/220</u> <u>MDD only – 18/220</u>	Depression Cut-off 11 -GDS Sensitivity = 0.86 Specificity = 0.74 Cut-off 14 - GDS Sensitivity = 0.65 Specificity = 0.91
McGivney 1994 Quality assessed: +	GDS - 30	DSM-III-R	N = 66 new admissions to two nursing homes. Mean age - 83 years (SD=4) Male - 29% <u>Prevalence of major depression::-</u> <u>6/66</u> <u>Prevalence of any depression::-</u> <u>30/66</u>	Any depression Cut-off ≥ 10 - GDS-30 Sensitivity - 63% Specificity - 83%
Nam Bae 2004 Quality assessed: ++	GDS - Korean version (GDS-K)	DSM-III-R	N = 154 (91.1% of eligible participants) Consecutively registered elderly psychiatric patients aged 55+ who visited the Geriatric Psychiatry Clinic in Seoul. People with dementia or any form of cognitive impairment were excluded from the study. Mean age = 66 years (SD = 6.48yrs) Male - 35% <u>Prevalence of depression – 62/154</u>	Major depression GDS-K Optimal cut-off ≥ 16 Sensitivity = 0.9032 Specificity = 0.7174 Optimal cut-off ≥ 18 (indicated by ROC curve) Sensitivity = 0.8387 Specificity = 0.8152

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
Neal 1994 Quality assessed: +	GDS-30	GMS- AGECAT	N = 45 older adults attending medical outpatient clinics in three UK hospitals. Mean age – 77.2 Male – 38% <u>Prevalence of depression:-</u> 10/45 (22%)	Depression Cut-off ≥ 9 – GDS-30 Sensitivity – 0.63 Specificity – 0.80 PPV – 0.92 NPV – 0.38 Cut-off ≥ 10 – GDS-30 Sensitivity – 0.74 Specificity – 0.80 PPV – 0.93 NPV – 0.47 Cut-off ≥ 11 – GDS-30 Sensitivity – 0.73 Specificity – 0.80 PPV – 0.94 NPV – 0.57 Cut-off ≥ 12 – GDS-30 Sensitivity – 0.83 Specificity – 0.80 PPV – 0.94 NPV – 0.57 Cut-off ≥ 13 – GDS-30 Sensitivity – 0.83 Specificity – 0.70 PPV – 0.91 NPV – 0.54 Cut-off ≥ 14 – GDS-30 Sensitivity – 0.83 Specificity – 0.60 PPV – 0.88 NPV – 0
Pomeroy 2001 Quality assessed: +	GDS - 30	ICD-10	N = 87 patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities; 40% male, mean age 78.4 (SD – 7.7 yrs) <u>Prevalence of depression –</u> 17/87	Depressive episode GDS-30 Optimal cut-off ≥ 11 Sensitivity – 100% Specificity – 62.9% AUC – 0.85 (0.77, 0.94) PPV – 39.5% NPV – 100%
Robison 2002	GDS-30	CIDI	N=303 Age = 61 years gender:	Sensitivity = 0.81

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
Quality assessed: +			88 males, 215 females Primary care, Hispanic population in US Prevalence: 67/303	Specificity = 0.65
Snowdon 1990 Quality assessed: +/- unable to assess due to lack of information.	GDS-30	DSM-III	N = 69 residents in old age hostels or nursing homes Mean age – not reported Male – percentage not reported <u>Prevalence of major depression – 12/69</u> <u>Prevalence of any depression – 15/69</u>	Any depression All participants Cut-off ≥11 – GDS-30 Sensitivity – 93% Specificity – 83% Cut-off ≥14 GDS-30 Sensitivity – 60% Specificity – 94% Nursing home participants only Cut-off ≥11 – GDS-30 Sensitivity – 100% Specificity – 66% Cut-off ≥14 GDS-30 Sensitivity – 71% Specificity – 92%
Van Marwijk 1995 Quality assessed: +	GDS – 30 item	DSM-III	N=586 age = 65-94 years, gender: 237 males, 349 females Older people in primary care, Netherlands <u>Prevalence of depression - 33/586</u>	Any depression Cut-off 10 – GDS-30 Sensitivity = 0.55 Specificity = 0.86
Vargas 2007 Quality assessed: +	GDS-30	DSM-IV	N=484 age = 70 years, gender: 208 males, 276 females General Outpatient Clinic, Portugal <u>Prevalence of depression -: 210/484</u>	Cut-off 12 Sensitivity = 0.87 Specificity = 0.73
Watson 2004 Quality assessed: +	GDS-30	DSM-IV	N = 84, Age over 70 and residing in two Continuing Care Retirement Communities in US.	Major Depression GDS-30 Standard cut-off ≥ 12

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
			Mean age 82 Male - 26% <u>Prevalence of depression - 10/78</u>	Sensitivity -60% (50, 70) Specificity -93% (88, 98) PPV - 55% NPV - 95% AUC - 0.88 GDS-30 Alternative cut-offs Cut-off ≥ 4 Sensitivity - 100% Specificity - 42% Cut-off ≥ 5 Sensitivity - 90% Specificity - 57% Cut-off ≥ 6 Sensitivity - 80% Specificity - 68% Cut-off ≥ 7 Sensitivity - 80% Specificity - 73% Cut-off ≥ 8 Sensitivity - 88% Specificity - 77% <u>Cut-off ≥ 9</u> Sensitivity - 80% Specificity - 85% ROC analysis - captured 80% of cases Cut-off ≥ 10 Sensitivity - 60% Specificity - 88% Cut-off ≥ 11 Sensitivity - 60% Specificity - 89% Cut-off ≥ 12 Sensitivity - 60% Specificity - 93% Cut-off ≥ 13 Sensitivity - 60% Specificity - 97% Cut-off ≥ 14 Sensitivity - 60%

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
				Specificity - 99% Cut-off ≥ 16 Sensitivity - 60% Specificity - 100% Minor depression GDS-30 Standard cut-off ≥ 12 Sensitivity - 33% (23, 43) Specificity - 88% (81, 95) PPV - 18% NPV - 95% AUC - 0.71
Community				
Carrete 2001 Quality assessed: +	GDS-30	DSM-IV (SCID)	N= 169 Mean age = 72 years gender: 57 males, 112 female Ambulatory older adults were contacted by telephone, Argentina <i>Prevalence of depression -</i> 22/169	Cut-off 11 Sensitivity = 0.88 Specificity = 0.84
Costa 2006 Quality assessed: +	GDS-30	ICD-10	N=126, Older adults, Brazil Mean age = 81 years, gender: 36 males, 90 females <i>Prevalence of depression -</i> 65/126	GDS Sensitivity = 0.733 Specificity = 0.654
Dunn 1989 Quality assessed: +	GDS-30	DSM-III measured used the Depression symptom checklist and the research diagnostic criteria/	N = 439 community dwelling older adults attending either an activity centre or dining facility Mean age - 74 years Male - % not reported <i>Prevalence of depression-</i> 36/439	Major depression Cut-off 11 - GDS 30 False Positive - 53 (18%) False Negative - 6 (17%)
Sanchez-Garcia 2008 Quality assessed:	GDS-30	DSM-IV	N =534, older adults receiving IMSS, living in Mexico City, 206 individuals randomly selected for a	Any depression Standard cut-off GDS Sensitivity - 53.8% (53.1-54.5)

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
++			clinical assessment. Mean age – 71.5 years (SD 7.0years) Male – 32% <u>Prevalence of major depression:-</u> 19/206 <u>Prevalence of any depression:-</u> 62/206	Specificity – 78.9% (78.4–79.5) PPV – 60.8% (60.0-61.6) NPV – 73.7% (73.3-74.1)

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
Abas 1998 Quality assessed: +	GDS-15	GMS- AGECAT	N = 164 (82 completed both the screen and the diagnostic interview) African-Caribbean adults aged over 60 using primary care services/ London, UK <u>Prevalence of depression – 22/82</u> <u>Prevalence of depression based on whole sample – 20% (95%CI 17-23)</u>	Major depression Cut-off ≥4 Sensitivity – 89.1% Specificity – 65.8% Cut-off ≥5 Sensitivity – 81.5% Specificity – 81.5% Cut-off ≥6 Sensitivity – 74.0% Specificity – 85.5%
Arthur1999 Quality assessed: +	GDS-15	ICD-10 based on SCAN	N = 201 All people aged over 75 in one large GP practice list undergoing a health check. Leicester, UK <u>Prevalence of depression - 12/201 – 6%</u>	Depression Cut-off ≥2 Sensitivity – 100% Specificity – 49.9% PPV – 11.2% NPV – 100.0% Cut-off ≥3 Sensitivity – 100% Specificity – 71.9% PPV – 18.4% NPV – 100.0% Cut-off ≥4 Sensitivity – 80% Specificity – 81.6%

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
				PPV - 21.6% NPV - 98.5% Cut-off ≥5 Sensitivity - 60.0% Specificity - 89.2% PPV - 26.1% NPV - 97.2% Cut-off ≥6 Sensitivity - 50.0% Specificity - 93.7% PPV - 33.3% NPV - 96.7% Cut-off ≥7 Sensitivity - 43.3% Specificity - 96.0% PPV - 40.6% NPV - 96.4%
Blank2004 Quality assessed: +	GDS - 15	Diagnostic Interview Schedule	N = 360, participants were recruited from primary care (N=125), general hospitals (N=150) and nursing home (N=85) settings (analysis presented separately for each group). All participants were aged >60 years Mean age - 77 years Male = 37% <u>Prevalence of major depression - 9%</u> <u>Prevalence of any depression - 16%</u> <u>Prevalence of major depression in primary care - 11%</u> <u>Prevalence of major depression in hospital - 8%</u> <u>Prevalence of major depression in nursing homes - 9%</u>	Major depression Primary care sample GDS-15 Cut-off ≥6 Sensitivity - 79% (51-94) Specificity - 75% (71-77) AUC - 0.81 (0.67-0.97) Cut-off ≥9 - recommended Sensitivity - 71% (45-90) Specificity - 91% (88-93) Nursing Home sample GDS-15 Cut-off ≥6 Sensitivity - 86% (44-99) Specificity - 82% (78-83) AUC - 0.87 (0.74- 1.00) Cut-off ≥7 - recommended Sensitivity - 86% (44-99) Specificity - 83% (80-85) Hospital sample

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
				GDS-15 Cut-off ≥ 6 Sensitivity – 83% (52-97) Specificity – 80% (77-81) AUC – 0.82 (0.68- 0.96) Cut-off ≥ 6 – recommended Sensitivity – 83% (53-97) Specificity – 80% (77-81)
Cullum 2006 Quality assessed: +	GDS-15	ICD-10	N = 618 medically ill older adults in hospital settings. Of these 221 completed both the screens and the diagnostic interviews. Mean age (whole sample) – 80.2years (SD 7.48 years) Mean age (interview sample) – 80.3 years (SD 7.49 years) Male (whole sample) – 41% Male (interview sample) – 40% <u>Prevalence of depression:</u> - 17.7% (weighted prevalence)	Depression Cut-off ≥ 5 – GDS-15 Sensitivity – 0.91 (0.71-0.98) Specificity – 0.63 (0.55-0.71) Cut-off ≥ 6 – GDS-15 Sensitivity – 0.78 (0.58-0.90) Specificity – 0.74 (0.66-0.80) Cut-off ≥ 7 – GDS-15 Sensitivity – 0.74 (0.54-0.87) Specificity – 0.81 (0.75-0.86) Cut-off ≥ 8 – GDS-15 Sensitivity – 0.61 (0.43-0.76) Specificity – 0.86 (0.82-0.89) Cut-off ≥ 9 – GDS-15 Sensitivity – 0.50 (0.35-0.65) Specificity – 0.92 (0.88-0.94) Cut-off ≥ 10 – GDS-15 Sensitivity – 0.39 (0.27-0.52) Specificity – 0.94 (0.92-0.96)
D’Ath 1994 Quality assessed: +	GDS-15	GMS	N=194, Age: 74 years, Gender: 126 females, 72 males <u>Prevalence of depression</u> - 67/194	Depression Sensitivity 91% Specificity 72%
Friedman 2005 Quality assessed: +	GDS-15	MINI	N = 960 functionally impaired but cognitively intact older adults participating in a RCT assessing a primary care health intervention. USA Mean age – 79.3years (SD 7.4	Depression Standard Cut-off ≥ 6 Sensitivity – 81.45% Specificity – 75.36% AUC – 0.858 (SE – 0.018)

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			years) Male – 25.4% <u>Prevalence of depression: - 124/960 (12.9%)</u>	
Hoyl 1999 Quality assessed: +	GDS-15 GDS-5	Clinical evaluation – including MINI, PRIME-MD and psychiatric consultation	N=74, frail older adult outpatients. California, USA Mean age – 74 years Male – 98% <u>Prevalence of depression – 34 / 74 (46%)</u>	Any depression GDS-15 Sensitivity - 0.94 Specificity - 0.82 PPV – 0.82 NPV – 0.94 AUC – 0.91 GDS-5 Optimal cut off ≥ 2 Sensitivity - 0.97 Specificity - 0.85 PPV – 0.85 NPV – 0.97 AUC – 0.94
Jongenelis 2005 Quality assessed: +	GDS-15	DSM-IV	N= 333, age = 79 years, gender: 104 males, 229 females Nursing home, Netherlands <u>Prevalence of depression -: 74/333</u>	Any depression Cut-off 5 Sensitivity - 0.81 Specificity - 0.63
Lynes 1997 Quality assessed: +	GDS - 15	DSM-III-R	N = 130 older adults attending primary care. Mean age – 71.0 years (SD – 6.8 years) Male – 41.5% <u>Prevalence of major depression – 14/130</u> <u>Prevalence of any depression – 24/130</u>	Major depression Cut-off 5 GDS-15 Sensitivity = 92% Specificity = 81% AUC – 0.935 (0.046)
Marc 2008 Quality assessed: +	GDS-15	DSM-IV using SCID and expert consensus	N = 526 older adults who were newly admitted to receive home nursing care. Participants with cognitive	Depression Optimal cut off ≥ 5 – GDS-15 Sensitivity – 71.8%

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			<p>impairment were excluded from the study. (492 cases used in the analysis due to missing data)</p> <p>Mean age = 78.3years (SD – 7.5 years)</p> <p>Male – 34.9%</p> <p><u>Prevalence of depression:</u> - 81/526 (15.4%)</p>	<p>Specificity – 78.2%</p> <p>AUC – 0.7933 (SE – 0.0308)</p> <p>Standard cut off ≥ 5 – GDS-15</p> <p>Sensitivity – 60.6%</p> <p>Specificity – 86.2%</p>
<p>Nam Bae 2004</p> <p>Quality assessed: ++</p>	Short GDS – Korean version (SGDG-K)	DSM-III-R	<p>N = 154 (91.1% of eligible participants)</p> <p>Consecutively registered elderly psychiatric patients aged 55+ who visited the Geriatric Psychiatry Clinic in Seoul. People with dementia or any form of cognitive impairment were excluded from the study.</p> <p>Mean age = 66 years (SD = 6.48yrs)</p> <p>Male – 35%</p> <p><u>Prevalence of depression –</u> 62/154</p>	<p>Major depression</p> <p>SGDS-K</p> <p>Optimal cut-off ≥ 8</p> <p>Sensitivity = 0.8548</p> <p>Specificity = 0.6957</p> <p>Optimal cut-off ≥ 10 (indicated by ROC curve)</p> <p>Sensitivity = 0.7419</p> <p>Specificity = 0.8587</p>
<p>Neal 1994</p> <p>Quality assessed: +</p>	GDS-15	DSM (GMS)	<p>N=45, Age = 77years, Gender: 18 males, 27 females</p> <p><u>Prevalence of depression –</u> 8/45</p>	<p>Depression</p> <p>Optimal cut-off - GDS-15</p> <p>Sensitivity 0.67</p> <p>Specificity 0.80</p>
<p>Pomeroy 2001</p> <p>Quality assessed: +</p>	GDS - 4 GDS - 15	ICD-10	<p>N = 87 patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities; 40% male, mean age 78.4 (SD – 7.7 yrs)</p> <p><u>Prevalence of depression –</u> 17/87</p>	<p>Depressive episode</p> <p>GDS-4</p> <p>Optimal cut-off ≥ 1</p> <p>Sensitivity – 82.4%</p> <p>Specificity – 67.1%</p> <p>AUC – 0.80 (0.68, 0.93)</p> <p>PPV – 37.8%</p> <p>NPV – 94.0%</p> <p>GDS-15</p> <p>Optimal cut-off ≥ 5</p> <p>Sensitivity – 82.4%</p>

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Specificity – 60.0 AUC – 0.82 (0.71, 0.93) PPV – 33.3% NPV – 93.3%
Rinaldi 2003 Quality assessed: +	GDS-15 5-item GDS (Hoyl1999) – (GDS-5)	DSM-IV	N= 181 Participants were 65yrs and older, with normal cognitive function enrolled from three settings: an acute geriatric ward (33%), a geriatric outpatient clinic (28%) and a nursing home (39%); mean age 79.4 (SD- 7.3yrs) <i>Prevalence of depression –</i> 87/181	Any depression GDS-15 Sensitivity – 0.92 (0.88, 0.96) Specificity – 0.83 (0.78, 0.88) PPV – 0.83 (0.78, 0.88) NPV – 0.92 (0.88, 0.96) AUC – 0.88 GDS-5 Sensitivity – 0.94 (0.91, 0.98) Specificity – 0.81 (0.75, 0.87) PPV – 0.81 (0.75, 0.87) NPV – 0.94 (0.90, 0.97) AUC – 0.85
Scheinthal 2001 Quality assessed: ++	GDS-15	DSM-IV	N=75, Age: 74 years, Gender: 33 males, 42 females US geriatric medical setting <i>Prevalence of depression –</i> 8/75	Cut-off ≥ 7 Sensitivity 1 Specificity 0.79
Van Marwijk 1995 Quality assessed: +	GDS – 15 item	DSM-III	N=586 age = 65-94 years, gender: 237 males, 349 females Older people in primary care, Netherlands <i>Prevalence of depression -</i> 33/586	Any depression Cut-off <3/3 – GDS-15 Sensitivity – 67% Specificity – 73% PPV – 13% NPV – 97% Cut-off <2/2+ Sensitivity – 76% Specificity – 53% PPV – 9% NPV – 97%
Community				
De Craen 2003 Quality assessed: +	GDS-15	DSM-IV	N=79, Community dwelling, older adults Median age = 87 years, gender: 24 males, 55 females	Cut-off 3 True Positive = 7 False Positive = 17 False Negative =1 True Negative =54

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			Netherlands	
Orcos 2007 Unable to quality assess as full translation required - (Detailed English abstract containing information on population and all results)	GDS-15 GDS-5	DSM-IV	N= 301, non-selected older community dwelling adults. <u>Prevalence of depression:</u> - 14.6%	Depression GDS-15 Sensitivity - 0.818 (0.704-0.932) Specificity - 0.977 (0.958-0.995) PPV - 0.857 (0.751-0.963) NPV - 0.969 (0.948-0.99) GDS-5 Sensitivity - 0.864 (0.762-0.965) Specificity - 0.856 (0.813-0.899) PPV - 0.507 (0.394-0.62) NPV - 0.973 (0.952-0.994)
Rait 1999 Quality assessed: +	GDS-15	DSM-IV	N=130, Mean age = >60 years, Gender: no information <u>Prevalence of depression - :</u> 13/130	Depression Sensitivity - 91% Specificity - 72%

Hospital Anxiety and Depression Scale (HADS)

Hospital Anxiety and Depression Scale (HADS - Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
Hahn 2006 Quality assessed: +	HADS	CIDI (DSM-IV/ICD-10)	N = 204 chronically ill in-patients; 5.9% cardiovascular diseases, 8.8% orthopaedic diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease Mean age = 49.6; age range 18-80 52% male	Affective disorder (single episode or recurrent major depression, dysthymia) Optimal cut-off ≥ 18 - HADS AUC - 0.785 (0.722-0.839) Sensitivity - 71.4% Specificity - 74.6% PPV - 36.8%

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
			13 rehabilitation inpatient clinics in Germany <i>Prevalence of depression – 35/204</i>	
Harter 2001 Quality assessed: +	HADS	M-CIDI	N=206 Mean age = 48 years Neck and back pain (70%), arthropathies (14%), rheumatic disorders (6%), other musculoskeletal disorders (10%) <i>Prevalence of depression – 10/206</i>	AUC = 0.79 (0.73, 0.85) Cut-off ≥ 16: Sensitivity – 78.3% Specificity – 70.6% PPV – 28.6%
Harter 2006 Quality assessed: +	HADS	M-CIDI	N = 569; 36% musculo-skeletal diseases; 29% CVD and 35% Cancer; 50% male; Mean age 54; Age range 22-83 <i>Prevalence of depression – 59/130</i>	Any depression HADS AUC – 0.82 (0.79, 0.86) Cut-off ≥ 18- HADS Sensitivity – 73.7% Specificity – 79.5% PPV – 30.7%
Healey 2008 Quality assessed: ++	HADS	DSM-IV (SCID)	N = 49 stroke patients recruited from inpatient rehabilitation units Mean age = 78.9 (6.79) Male = 43% <i>Prevalence of MDD- 7/49</i> <i>Prevalence of minor depression – 6/49</i> <i>Prevalence of any depression – 13/49</i>	Any depression Cut-off ≥ 8 - HADS Sensitivity – 62% (36-82) Specificity – 69% (53-82) PPV – 42% (23-64) NPV – 83% (66-93) MDD Cut-off ≥ 8 - HADS Sensitivity – 86% (49-97) Specificity – 69% (54-81) PPV – 32% (15-54) NPV – 97% (83-99)

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
Herrero 2003 Quality assessed: +	HADS	DSM-IV (SCID)	N=385, Mean age = 38 years, gender: 204 males, 181 females General Hospital - all participants were outpatients with severe medical pathology, from neurosurgery, pulmonary, cardiology, neurology and infectious illness settings, Spain <i>Prevalence of depression -</i> 87/385	Cut-off 7 Sensitivity = 0.92 Specificity = 0.644
Lam 1995 Quality assessed: +	HADS	DSM-III-R	N=100, age = 69 years, gender: 44 males, 56 females Elderly primary care patients, Hong Kong <i>Prevalence of depression -</i> 9/100	Sensitivity = 0.78 Specificity = 0.91
Lowe 2004A Lowe2004B - duplicate report Quality assessed: +	HADS	DSM-IV (SCID)	N= 501; 21% musculo-skeletal disease, 16% endocrine, nutritional & metabolic disease, 10% cardiovascular/circulatory disease, 7% gastrointestinal disease, 6% respiratory system disease; mean age = 41.7 y/o (SD = 13.8); 32.9% male 395 outpatients from Heidelberg University Medical Hospital 106 patients from 12 GPs in Heidelberg <i>Prevalence of depression -</i> 66/501	Any depression Cut-off ≥ 7- HADS Sensitivity - 86% (78, 91) Specificity - 70% (65, 74) Cut-off ≥ 8- HADS Sensitivity - 81% (73, 87) Specificity - 75% (71, 80) Cut-off ≥ 10- HADS Sensitivity - 75% (66, 82) Specificity - 82% (78, 86) Major depression Cut-off ≥ 8- HADS Sensitivity - 88% (78, 95) Specificity - 69% (64, 73) Cut-off ≥ 9- HADS Sensitivity - 85% (78, 95) Specificity - 76% (64, 73) Cut-off ≥ 10- HADS Sensitivity - 74% (62, 84) Specificity - 83% (79, 86)

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
Parker 2002 Quality assessed: +	HADS	DSM-IV (CIDI)	<p>N= 302 outpatients from cardiology (29.5%), respiratory (23.2%), gastroenterology (11.6%). Nephrology (14.9%), haematology (7.9%), rheumatology (5.0%), radiation oncology (4.6%), endocrinology (3.3%)</p> <p>Mean age = 46.5 (SD = 12.9); 63.2% male</p> <p>111 (36.8%) patients had chronic physical illness; mean duration = 9 years</p> <p>Australia, Sydney</p> <p><u>Prevalence of depression</u> – 14/160</p>	<p>Depression</p> <p>Cut-off ≥ 2 – BDI-PC AUC – 0.892 Sensitivity - 100% (not calculated) Specificity – 20.5% (5.5, 32.4)</p> <p>Cut-off ≥ 5 – BDI-PC AUC – 0.892 Sensitivity - 100% (not calculated) Specificity – 50.0% (35.2, 64.8)</p> <p>Cut-off ≥ 6 – BDI-PC AUC – 0.892 Sensitivity - 100% (not calculated) Specificity – 65.9% (51.9, 79.9)</p> <p>Cut-off ≥ 8 – BDI-PC AUC – 0.892 Sensitivity - 75% (32.6, 100] Specificity – 70.4% (70.4, 93.2)</p> <p>Optimal cut-off ≥ 9 – BDI-PC AUC – 0.892 Sensitivity - 75% (32.6, 100] Specificity – 70.4% (82.4, 99.4)</p> <p>Cut-off ≥ 11 – BDI-PC AUC – 0.892 Sensitivity – 50.0% (1, 99) Specificity – 93.24% (85.7 100)</p>
Upadhyaya1997 Quality assessed: +	HADS	GMS- AGECAT	<p>N = 72, attendees over 65years old at a medical centre (80 approached to take part in study)</p> <p>UK, Liverpool</p> <p>Age = 71.2, 37 males, 35 females</p> <p><u>Prevalence of depression</u> – 20/72</p>	<p>Depression</p> <p>Optimal cut-off 8/9 Sensitivity 70% Specificity 87%</p>

Hamilton Depression Rating Scale (HDRS)

Hamilton Depression Rating Scale (HDRS)				
Study	Identification tool	Comparator/ caseness	Population	Results

Community				
Stukenberg 1990 Quality assessed: +	HDRS	DSM-III-R (SCID)	N=177 community dwelling adults, over 55 years; Mean age = 67.4 (SD=7.20) Age range 56-88years 33% male <i>Prevalence of depression -</i> 27/178	Any depression HDRS AUC - 0.85(SE .05)
Mixed community and consultation sample				
Mottram 2000 Quality assessed: +	HDRS	DSM-IV	N=414 mean age = 77 years, gender: 111 males, 303 males <i>Prevalence of depression -</i> 330/414	Depression Cut-off ≥ 16 Sensitivity = 0.875 Specificity = 0.991

Major Depression Inventory (MDI)

Major Depression Inventory (MDI)				
Study	Identification tool	Comparator	Population	Results
Community				
Forsell 2005 Quality assessed: +	MDI	DSM-IV	N = 1093; mean age = 42 years; 638 female, 455 male Community sample; Sweden, Stockholm <i>Prevalence of depression -</i> 81/1093	Depression: major depressive disorder Optimal cut-off 26 Sensitivity - 61% Specificity - 85% AUC - 0.83

Montgomery-Asberg Depression Rating Scale (MADRS)

Montgomery-Asberg Depression Rating Scale (MADRS)				
Study	Identification tool	Comparator/ caseness	Population	Results
Mixed community and consultation				
Mottram 2000 Quality assessed: +	MADRS	DSM-IV	N=414 older adults mean age = 77 years, gender: 111 males, 303 males <i>Prevalence of depression -</i> 330/414	Depression Cut-off ≥ 21 Sensitivity = 0.72 Specificity = 0.989

Patient Health Questionnaire (PHQ)

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
<p>Kroenke2001, Spitzer 1999, Kroenke2003, Huang 2005 - All use same participants.</p> <p>Kroenke2001, Huang2005 - PHQ-9</p> <p>Spitzer1999, Kroenke2003 - PHQ-2</p> <p>Quality assessed: +</p>	<p>Patient Health Questionnaire 2 item version (PHQ-2)</p>	<p>DSM-III-R (SCID and diagnostic questions from the PRIME-MD conducted over the telephone by mental health professionals</p>	<p>N = 580 (6000 in total study)</p> <p>The total sample screened = 6000 of these 580 had a MHP interview within 48 hours and were used in the analysis. They did not differ from the total sample on any demographic or functional item.</p> <p>The total sample was recruited from 5 general practices, 3 family practices and 7 obstetrics-gynecology sites)</p> <p><u>Prevalence of depression - 41/580</u></p>	<p>MDD Sensitivity = 0.88 Specificity = 0.88</p> <p>Major Depressive disorder</p> <p>PHQ-2 Cut-off ≥ 1 Sensitivity - 97.6% Specificity - 59.2% PPV - 15.4%</p> <p>Cut-off ≥ 2 Sensitivity - 92.7% Specificity - 73.7% PPV - 21.1%</p> <p>Cut-off ≥ 3 Sensitivity - 82.9% Specificity - 90.0% PPV - 38.4%</p> <p>Cut-off ≥ 4 Sensitivity - 73.2% Specificity - 93.3% PPV - 45.5%</p> <p>Cut-off ≥ 5 Sensitivity - 53.7% Specificity - 96.8% PPV - 56.4%</p> <p>Cut-off ≥ 6 Sensitivity - 26.8% Specificity - 99.4% PPV - 78.6%</p> <p>AUC PHQ-2 0.93 The AUC was greater for those aged <60 (0.94 vs. 0.86)</p> <p>Any Depressive disorder - N = 106/580</p> <p>PHQ-2 Cut-off ≥ 1</p>

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
				<p>Sensitivity - 90.6% Specificity - 65.4% PPV - 36.9%</p> <p>Cut-off ≥ 2 Sensitivity - 82.1% Specificity - 80.4% PPV - 48.3%</p> <p>Cut-off ≥ 3 Sensitivity - 62.3% Specificity - 95.4% PPV - 75.0%</p> <p>Cut-off ≥ 4 Sensitivity - 50.9% Specificity - 97.9% PPV - 81.2%</p> <p>Cut-off ≥ 5 Sensitivity - 31.1% Specificity - 98.7% PPV - 84.6%</p> <p>Cut-off ≥ 6 Sensitivity - 12.3% Specificity - 99.8% PPV - 92.6%</p> <p>AUC PHQ-2 0.90 The AUC was lower for those aged <60 (0.88 vs. 0.95)</p> <p>MDD Sensitivity = 0.88 Specificity = 0.88</p> <p>Major Depressive disorder</p> <p>PHQ-9 Cut-off ≥ 9 Sensitivity - 95% Specificity - 84%</p> <p>Cut-off ≥ 10 Sensitivity - 88% Specificity - 88%</p> <p>Cut-off ≥ 11 Sensitivity - 83%</p>

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Specificity – 89% Cut-off ≥ 12 Sensitivity – 83% Specificity – 92% Cut-off ≥ 13 Sensitivity – 78% Specificity – 93% Cut-off ≥ 14 Sensitivity – 73% Specificity – 94% Cut-off ≥ 15 Sensitivity – 68% Specificity – 95%
Lowe 2005 – PHQ-2 (sub-group of Lowe 2004) Lowe 2004A – PHQ-9 results Lowe2004B – duplicate report Quality assessed: +	PHQ-2	DSM-IV (SCID)	N= 520; medical outpatients: from 12 GPs in Heidelberg Mean age = 41.3 y/o (SD = 14); 36% male <u>Prevalence of major depression - 71/520</u> <u>Prevalence of any depressive disorder - 132/520</u>	Any depression Standard cut-off ≥ 3- PHQ Sensitivity – 79% Specificity – 86% Major depression Standard cut-off ≥ 3- PHQ Sensitivity – 87% Specificity – 78%
Community				
Li 2007 Quality assessed: +	Patient Health Questionnaire 2 (PHQ-2)	DSM-IV	N=8, 205 adults aged ≥ 65 who participated in the National Epidemiologic Survey on Alcohol and Related Conditions. Mean age = 74.1, 29.5% Male. The participants were a subset of the NESARC sample which is representative of the U.S. non-institutionalised population. <u>Prevalence of depression - 323/8205</u>	Depression PHQ-2 Two Questions: Sensitivity – 100% Specificity – 77% (75.8, 78.0) AUC – 0.88 (0.87, 0.89) PPV – 14.3% (12.5, 16.1) Paper further reports criterion validity of the PHQ-2 for different break downs of the population e.g. >85, Hispanic etc.

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
Arroll 2003 Quality assessed: +	Two screening questions from B-PHQ (1) During the past two weeks, have you often been bothered by feeling down, depressed or hopeless?; (2) During the past month, have you often been bothered by little interest or pleasure in doing things?	Composite International Diagnostic Interview (CIDI)	N=421 Median age 46 years Primary care patients <i>Prevalence of depression - 29/421</i>	Depression 2 items: Sensitivity - 97% Specificity - 67% PPV - 18% Depression only question: Sensitivity - 86% Specificity - 72% PPV - 18% Pleasure only question: Sensitivity - 83% Specificity - 79% PPV - 22%
Arroll 2005 Quality assessed: +	Two screening questions: (1) during the past month have you often been bothered by feeling down, depressed or hopeless? (2) During the past month have you often been bothered by little interest or pleasure in doing things? Help question: Is this something with which you would like help with?	Composite International Diagnostic Interview	N=1025 Primary care patients <i>Prevalence of depression - 29/421</i>	Depression Help question alone - Sensitivity - 75% (60, 85) Specificity - 94% (93, 96) Two screening questions alone - Sensitivity - 96% (86, 99) Specificity - 78% (76, 81) Either screening question plus help question - Sensitivity - 79% (65, 88) Specificity - 94% (92, 95)
Haughey 2005	PHQ-2 Whooley	DSM-IV	N = 226 People presenting to	Depression

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Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/ caseness	Population	Results
Quality assessed: +			an urgent care clinic. Mean age - 40 years (SD =19 years) Male - <u>Prevalence of depression - 31/226</u>	Sensitivity - 0.9677 Specificity - 0.5179
Robison 2002 Quality assessed: +	PHQ-2 Whooley	CIDI	N=303 Age = 61 years gender: 88 males, 215 females Primary care, Hispanic population in US Prevalence: 67/303	Sensitivity = 0.92 Specificity = 0.44
Whooley 1997 Quality assessed: +	PHQ-2 (Yes or No scale)	DSM-III- Diagnostic Interview Schedule (DIS)	N = 543 Patients visiting urgent care clinic Mean age = 53 (S.D. 14) Male = 97% USA, San Francisco <u>Prevalence of depression - 97/536</u>	Major Depression Two Questions: AUC - 82% (78-86) Sensitivity - 96% (90-99) Specificity - 57% (53-62)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
Azah 2005 Quality assessed: +	PHQ-9 (Malay version)	CIDI	N =265 patients attending a primary care clinic Those scoring >5 and a selection of those scoring <5 were interviewed by a psychiatrist. Mean age (of whole sample) - 38.7 (SD = 13.8) Male (of whole sample) - 38.3% <u>Prevalence of depression: -</u>	Depression Optimal cut-off ≥ 5 - PHQ-9 Sensitivity - 69% Specificity - 60.5 % PPV - 60.3% AUC - 0.399

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
			97/180	
Corapcioglu 2004 Quality assessed: +	PHQ-9	DSM-IV	N=1387, Age = 29 years Gender: 857 males, 530 females Primary care, Turkey <u>Prevalence of depression -</u> 267/1387 <u>Prevalence of major depression -</u> 91/1387	Depression: Standard cut-off - PHQ-9 Sensitivity = 0.76 Specificity = 0.853 MDD: Standard cut-off - PHQ-9 Sensitivity = 0.714 Specificity = 0.919
Diez-Quevedo 2001 Quality assessed: +	PHQ-9	DSM-III-R	N=1003 Mean age = 43 years, gender: 552 males, 451 females Medical and surgical inpatients, Spain <u>Prevalence of depression:</u> 263/1003 <u>Prevalence of major depression -</u> 148/1003	Any depression: Standard cut-off - PHQ-9 Sensitivity = 0.89 Specificity = 0.87 MDD: Standard cut-off - PHQ-9 Sensitivity = 0.84 Specificity = 0.92
Eack 2006 Quality assessed: +	PHQ-9	SCID	N= 50, mean age = 39 years, gender: all female Women in psychiatric services seeking treatment for their children <u>Prevalence of depression: -</u> 17/50	MDD Standard cut-off - PHQ-9 True Positive = 9 False Positive = 9 False Negative = 5 True Negative = 27 Any depression Standard cut-off - PHQ-9 True Positive = 11 False Positive = 10 False Negative = 6 True Negative = 22
Gilbody 2007 Quality assessed: +	PHQ-9	SCID	N=96, mean age = 43 years, gender: 22 males, 74 females UK <u>Prevalence of Major depression -</u> 36/96	MDD Standard cut-off - PHQ-9 Sensitivity = 0.917 Specificity = 0.783
Hahn 2006 Quality assessed:	Patient Health Questionnaire - Brief	CIDI (DSM-IV/ICD-10)	N = 204 chronically ill in-patients; 5.9% cardiovascular diseases, 8.8% orthopaedic	Affective disorder [single or recurrent major depression or dysthymia)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
+			diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease Mean age = 49.6; age range 18-80 13 rehabilitation inpatient clinics in Germany <u>Prevalence of depression - 35/204</u>	Optimal cut-off ≥ 11- PHQ-Brief AUC - 0.844 (0.786-0.891) Sensitivity - 80% Specificity - 75.7% PPV - 40.6%
Henkel 2004 Quality assessed: +	Brief Patient Health Questionnaire (B-PHQ)	CIDI - ICD-10 (and DSM-IV research criteria for minor depression)	N = 448, of which 431 had an independent clinical diagnosis, mean age 48.98 (same participants as study above) Primary care patients <u>Prevalence of depression (any) - 82/431</u> <u>Prevalence of depression (major) - 50/431</u> <u>Prevalence of depression (dysthymia disorder) - 24/431</u> <u>Prevalence of depression (minor) - 54/431</u>	Any depression Any depression according to ICD-10 AUC - 0.843 Any depression according to ICD-10 including minor depression (per DSM-IV research criteria) AUC - 0.783 Major depression AUC - 0.913 Dysthymia disorder AUC - 0.885 Minor depression AUC - 0.763 Standard cut-off ≥ 2 inc. 1a or 1b - B-PHQ Sensitivity - 79% Specificity - 86% PPV - 55% NPV - 95%
Kroenke2001, Spitzer 1999, Kroenke2003, Huang 2005 - All use same participants. Kroenke2001, Huang2005 - PHQ-9	PHQ-9	DSM-III-R (SCID and diagnostic questions from the PRIME-MD conducted over the telephone by mental health	N = 580 (6000 in total study) The total sample screened = 6000 of these 580 had a MHP interview within 48 hours and were used in the analysis. They did not differ from the total sample on any demographic or functional item.	Major Depressive disorder PHQ-9 Cut-off ≥ 9 Sensitivity - 95% Specificity - 84% Cut-off ≥ 10 Sensitivity - 88% Specificity - 88%

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
Spitzer1999, Kroenke2003 – PHQ-2 Quality assessed: +		professionals	The total sample was recruited from 5 general practices, 3 family practices and 7 obstetrics-gynecology sites) <i>Prevalence of depression - 41/580</i>	Cut-off ≥ 11 Sensitivity – 83% Specificity – 89% Cut-off ≥ 12 Sensitivity – 83% Specificity – 92% Cut-off ≥ 13 Sensitivity – 78% Specificity – 93% Cut-off ≥ 14 Sensitivity – 73% Specificity – 94% Cut-off ≥ 15 Sensitivity – 68% Specificity – 95%
Lotrakul 2008 Quality assessed: +	PHQ-9 Thai version	DSM-IV (MINI)	N = 924 patients at a family care clinic. N = 279 were included in a convenience sample assessed with the MINI Mean age – 45.0 years (total sample) Male – 26.3% (total sample) <i>Prevalence of major depression – 13/279</i> <i>Prevalence of any depression – 69/279</i>	Major depression Optimal cut-off ≥ 9- PHQ Sensitivity – 84% Specificity – 77% PPV – 21% NPV – 99% Standard cut-off ≥ 10- PHQ Sensitivity – 74% Specificity – 85% PPV – 27% NPV – 98% AUC – 0.89 (0.85 – 0.92)
Lowe 2004A Lowe2004B – duplicate report Lowe 2005 – PHQ-2 data Quality assessed: +	PHQ-9	DSM-IV (SCID)	N= 501; medical outpatients: 21% musculo-skeletal disease, 16% endocrine, nutritional & metabolic disease, 10% cardiovascular/circulatory disease, 7% gastrointestinal disease, 6% respiratory system disease Mean age = 41.7 y/o (SD = 13.8); 32.9% male 395 outpatients from	Any depression Cut-off ≥ 9- PHQ Sensitivity – 87% (79, 92) Specificity – 76% (72, 80) Cut-off ≥ 10- PHQ Sensitivity – 81% (73, 87) Specificity – 82% (78, 86) Cut-off ≥ 11- PHQ Sensitivity – 79% (70, 85) Specificity – 85% (81, 89)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
			Heidelberg University Medical Hospital 106 patients from 12 GPs in Heidelberg <u>Prevalence of depression -</u> 66/501	Major depression Cut-off \geq 11- PHQ Sensitivity - 98% (92, 100) Specificity - 80% (76, 83) Cut-off \geq 12- PHQ Sensitivity - 95% (87, 99) Specificity - 84% (80, 87) Cut-off \geq 13- PHQ Sensitivity - 88% (78, 95) Specificity - 87% (84, 90)
Yeung 2008 Quality assessed: +	PHQ-9 Chinese Bilingual version	DSM-IV (SCID - Chinese version)	N = 1940 completed the PHQ- 9 questionnaires. Of these 184 had both a PHQ-9 screen and completed the SCID interview. All participants were Chinese Americans attending primary care clinics <u>Prevalence of depression -</u> 42/184	MDD PHQ-9 optimal cut-off \geq 10 Sensitivity - 81% Specificity - 98% PPV - 92% NPV - 95% AUC - 97 (SE 0.01)
Community				
Adewuya 2006 Quality assessed: +	PHQ-9	Mini International Neuropsychi atric Interview (MINI)	N = 512, Age = 25, Males: 59% Nigeria, student sample at university <u>Prevalence: major depression -</u> 13/512	MDD only Cut-off \geq 10 -PHQ-9 Sensitivity = 0.846 Specificity = 0.994 PPV = 0.750 NPV = 0.996
Han 2008 Quality assessed: +	PHQ-9	DSM-IV	N=1060, Age = >60 years Gender: No information South Korea, population based geriatric sample <u>Prevalence of depression -</u> 175/1060 <u>Prevalence of major depression -</u> 62/1060	Any depression: Cut-off 5 - PHQ-9 Sensitivity = 0.80 Specificity = 0.78

Single Question

Single Question and two-item screens				
Study	Identification tool	Comparator/ caseness	Population	Results
Consultation				
Arroll 2003 Quality assessed: +	Two screening questions from B-PHQ (1) During the past two weeks, have you often been bothered by feeling down, depressed or hopeless?; (2) During the past month, have you often been bothered by little interest or pleasure in doing things?	Composite International Diagnostic Interview (CIDI)	N=421 Median age 46 years Primary care patients <u>Prevalence of depression - 29/421</u>	Depression Depression only question: Sensitivity - 86% Specificity - 72% PPV - 18% Pleasure only question: Sensitivity - 83% Specificity - 79% PPV - 22%
Arroll 2005 Quality assessed: +	Two screening questions: (1) during the past month have you often been bothered by feeling down, depressed or hopeless?; (2) during the past month have you often been bothered by little interest or pleasure in doing things? Help question: Is this something with which you would like help with?	Composite International Diagnostic Interview	N=1025 Primary care patients <u>Prevalence of depression - 29/421</u>	Depression Help question alone - Sensitivity - 75% (60, 85) Specificity - 94% (93, 96) Two screening questions alone - Sensitivity - 96% (86, 99) Specificity - 78% (76, 81) Either screening question plus help question - Sensitivity - 79% (65, 88) Specificity - 94% (92, 95)
Howe 2000 Quality assessed: +	MHI-1	DSM-IV	N=100 age = 81 years, gender: 38 males 62 females. Older adults from UK primary care settings	Depression: Sensitivity = 0.67 Specificity = 0.60

Single Question and two-item screens				
Study	Identification tool	Comparator/ caseness	Population	Results
			Prevalence: 30/100	
Means-Christensen 2006 Quality assessed: +	Screening question - 1. Have you lost interest in things? 2. Have you felt sad, empty or depressed?	Composite International Diagnostic Interview	N= 801; 37.8% male; mean age 41.49 y/o (SD = 12.48), age range 19 -79. Primary care patients in clinic in US <i>Prevalence of depression - 41/115</i>	Depression Sensitivity - 88% Specificity - 75% PPV - 19% NPV - 99%
Pomeroy 2001 Quality assessed: +	MHI-1 (Are you depressed?)	ICD-10	N = 87 patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities; 40% male, mean age 78.4 (SD - 7.7 yrs) <i>Prevalence of depression - 17/87</i>	Depression Sensitivity - 88.2% Specificity - 71.4% AUC - 0.88 (0.79-0.97) PPV - 42.9% NPV - 96.1%
Robison 2002 Quality assessed: ++	Yale-1	CIDI	N=303 Age = 61 years gender: 88 males, 215 females Primary care, Hispanic population in US Prevalence: 67/303	Depression Sensitivity = 0.86 Specificity = 0.42
Williams 1999 Quality assessed: +	CES-D	DSM-IV	N=291 age: 58 years, gender: 93 males, 198 females Prevalence: 40/291 US	Depression Sensitivity 0.85 Specificity 0.66

Zung's Self-Rating Depression Scale

Zung's Self-Rating Depression Scale				
Study	Identification tool	Comparator	Population	Results
Community				
Adalberto 2006 Quality assessed: +	SDS (20 item)	DSM-IV	N = 266; mean age = 37.4 years Community sample; Colombia, Bucaramanga	Depression: major depressive disorder Standard cut-off ≥ 40 Sensitivity - 88.6% Specificity - 74.8% PPV - 41.1%

			<u>Prevalence of depression -</u> 44/266	NPV - 97.1% AUC - 0.901
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References to included studies

Abas, M.A., Phillips, C., Carter, J. *et al.* (1998) Culturally sensitive validation of screening questionnaires for depression in older African-Caribbean people living in south London. *British Journal of Psychiatry*, 173: 249-254.

Adalberto, C-A. (2006) Validation of Zung's self-rating depression scale among the colombian general population. *Social Behavior & Personality: An International Journal*, 34, 87-89.

Adewuya, A.O., Ola, B.A., & Afolabi, O.O. (2006) Validity of the Patient Health Questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *Journal of Affective Disorders*, 96, 89-93.

Arroll, B., Khin, N., and Kerse, N. (2003) Screening for depression in primary care with two verbally asked questions: cross sectional study. *BMJ*, 327, 1144-1146.

Arroll, B., Goodyear-Smith, F., Kerse, N., *et al* (2005) Effect of the addition of a "help" question to two screening questions on specificity for diagnosis of depression in general practice: Diagnostic validity study. *BMJ: British Medical Journal*, 331,

Arthur, A., Jagger, C., Lindesay, J., *et al* (1999) Using an annual over-75 health check to screen for depression: Validation of the short Geriatric Depression Scale (GDS15) within general practice. *International Journal of Geriatric Psychiatry*, 14,

Azah, N., Shah, M., Juwita, S., *et al.* (2005) Validation of the malay version brief patient health questionnaire (PHQ-9) among adult attending family medicine clinics. *International Medical Journal*, 12, 259-263.

Bhui, K., Bhugra, D., and Goldberg, D. (2000) Cross-cultural validity of the Amritsar Depression Inventory and the General Health Questionnaire amongst English and Punjabi primary care attenders. *Social Psychiatry and Psychiatric Epidemiology*, 35,

Blank, K., Gruman, C., & Robison, J.T. (2004) Case-finding for depression in elderly people@ Balancing ease of administration with validity in varied treatment settings. *Journal of Gerontology*, 59A, 378-384.

Burke, W. J., Nitcher, R. L., Roccaforte, W. H., *et al* (1992) A prospective evaluation of the Geriatric Depression Scale in an outpatient geriatric assessment center. *Journal of the American Geriatrics Society.*, 40, 1227-1230.

Corapcioglu, A. and Ozer, G. U. (2004) Adaptation of revised Brief PHQ (Brief-PHQ-r) for diagnosis of depression, panic disorder and somatoform disorder in primary healthcare settings. *International Journal of Psychiatry in Clinical Practice.*, 8,

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Costa, E., Barreto, S. M., Uchoa, E., *et al* (2006) Is the GDS-30 better than the GHQ-12 for screening depression in elderly people in the community? The Bambui Health Aging Study (BHAS). *International Psychogeriatrics*, 18, 493-503.

Cuijpers, P., Dekker, J., Neteboom, A., *et al* (2007) Sensitivity and specificity of the Major Depression Inventory in outpatients. *BMC Psychiatry*, 7, 39.

Cullum, S., Tucker, S., Todd, C., *et al* (2006) Screening for depression in older medical inpatients. *International Journal of Geriatric Psychiatry*, 21, 476.

D'Ath, P., Katona, P., Mullan, E., *et al.* (1994) Screening, detecting and management of depression in elderly primary care attenders I: the acceptability and performance of the 15 item Geriatric Depression Scale (GDS-15) and the development of shorter versions. *Family Practice*, 11, 260-266.

De, C., Heeren, T. J., and Gussekloo, J. (2003) Accuracy of the 15-item geriatric depression scale (GDS-15) in a community sample of the oldest old. *International Journal of Geriatric Psychiatry*, 18.

Diez-Quevedo, C., Rangil, T., Sanchez-Planell, L., Kroenke, K. *et al.* (2001) Validation and utility of the Patient Health Questionnaire in diagnosing mental disorders in 1003 general hospital Spanish inpatients. *Psychosomatic Medicine*, 63, 679-686.

Donath, S. (2001) The validity of the 12-item General Health Questionnaire in Australia: a comparison between three scoring methods. *Australian and New Zealand Journal of Psychiatry*, 35, 231-235.

Dunn, V.K. & Sacco, W.P. (1989) Psychometric evaluation of the Geriatric Depression Scale and the Zung Self-rating Depression Scale using an elderly community sample. *Psychology and Aging*, 4, 125-126.

Dutton, G. R., Grothe, K. B., Jones, G. N., *et al* (2004) Use of the Beck Depression Inventory-II with African American primary care patients. *General Hospital Psychiatry*, 26, 437-442.

Eack, S., Greeno, C., and Lee, B. J. (2006) Limitations of the Patient Health Questionnaire in Identifying Anxiety and Depression in Community Mental Health: Many Cases are Undetected. *Research on Social Work Practice*, 16,

Evans, S. & Katona, C. (1993) Epidemiology of depressive symptoms in elderly primary care attenders. *Dementia*, 4, 327-333.

Fernandez-San, M., Andrade, C., Molina, J., *et al* (2002) Validation of the Spanish version of the Geriatric Depression Scale (GDS) in primary care. *International Journal of Geriatric Psychiatry*, 17,

Forsell, Y. (2005) The Major Depression Inventory versus Schedules for Clinical Assessment in Neuropsychiatry in a population sample. *Social Psychiatry and Psychiatric Epidemiology*, 40.

Friedman, B., Heisel, M. J. & Delavan, R.L. (2005) Psychometric properties of the 15-item Geriatric Depression Scale in functionally impaired, cognitively intact, community dwelling elderly primary care patients. *Journal of the American Geriatric Society*, 53, 1570-1576

Gilbody, S., Richards, D., & Barkham, M. (2007) Diagnosing depression in primary care using self-completed instruments: UK validation of PHQ-9 and CORE-OM. *British Journal of General Practice*, 57, 650-652.

Goldberg, D.P., Gater, R., Sartorius, G.N., Ustun, T.B., *et al.* (1997) The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine*, 27, 191-197.

Hahn, D., Reuter, K., and Harter, M. (2006) Screening for affective and anxiety disorders in medical patients: Comparison of HADs, GHQ-12 and brief-PHQ. *GMS Psycho-Social-Medicine*, 306, 1-11.

Han, C., Ahn Jo, S., Kwah, J.-H., *et al.* (2008) Validation of the Patient Health Questionnaire-9 korean version in the elderly population: the Ansan Geriatric study. *Comprehensive Psychiatry*, 49, 218-223.

Harter, M., Woll, S., Wunsch, A., *et al* (2006) Screening for mental disorders in cancer, cardiovascular and musculoskeletal diseases. Comparison of HADS and GHQ-12. *Social Psychiatry & Psychiatric Epidemiology*, 41, 56-62.

Harter, M., Reuter, K., Gross-Hardt, K., *et al* (2001) Screening for anxiety, depressive and somatoform disorders in rehabilitation: Validity of HADS and GQH-12 in patients with musculoskeletal disease. *Disability and Rehabilitation: An International, Multidisciplinary Journal*, 23, 744.

Haughey, M. T., Calderon, Y., Torres, S., *et al.* (2005) Identification of depression in an inner-city population using a simple screen. *Academic Emergency Medicine*, 12, 1221-1226.

Henkel, V., Mergl, R., Coyne, J. C., *et al* (2004a) Screening for depression in primary care: will one or two items suffice? *European Archives of Psychiatry & Clinical Neuroscience*, 254, 215-223.

Henkel, V., Mergl, R., Kohnen, R., *et al* (2004b) Use of brief depression screening tools in primary care: consideration of heterogeneity in performance in different patient groups. *General Hospital Psychiatry*, 26, 190-198.

Henkel, V., Mergl, R., Kohnen, R., *et al* (2003) Identifying depression in primary care: A comparison of different methods. *BMJ: British Medical Journal*, 326,

FINAL DRAFT

- Herrero, M. J., Blanch, J., Peri, J. M., *et al* (2003) A validation study of the hospital anxiety and depression scale (HADS) in a Spanish population. *General Hospital Psychiatry*, 25,
- Howe, A., Bath, P., Goudie, F., *et al* (2000) Getting the questions right: An example of loss of validity during transfer of a brief screening approach for depression in the elderly. *International Journal of Geriatric Psychiatry*, 15.
- Hoyl, M. T., Alessi, C. A., Harker, J. O., *et al*. (1999) Development and testing of a five-item version of the Geriatric Depression Scale. *Journal of the American Geriatrics Society*, 47, 873-878.
- Jongenelis, K., Gerritsen, D. L., Pot, A. M., *et al* (2007) Construction and validation of a patient- and user-friendly nursing home version of the Geriatric Depression Scale. *International Journal of Geriatric Psychiatry*, 22,
- Klinkman, M. S., Coyne, J.C., Gallo, S. *et al*. (1997) Can case-finding instruments be used to improve physician detection of depression in primary care? *Archives of Family Medicine*, 6, 567 - 573.
- Kroenke, K., Spitzer, R., and Williams, J. (2001) The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16, 613.
- Kroenke, K. (2003) The Patient Health Questionnaire-2: Validity of a two-item depression screener. *Medical Care*, 41, 1292.
- Lam, C.L.K., Pan, P-C., Chan, A.W.T., *et al*. (1995) Can the hospital anxiety and depression (HAD) scale be used on Chinese elderly in general practice? *Family Practice*, 12, 149-153.
- Laprise, R., & Vezina, J. (1998). Diagnostic performance of the Geriatric Depression Scale and the Beck Depression Inventory with nursing home residents. *Canadian journal of Aging*, 17, 401-413.
- Leung, K. K., Lue, B. H., Lee, M. B., *et al* (1998) Screening of depression in patients with chronic medical diseases in a primary care setting. *Family Practice*, 15, 67-75.
- Li, C., Friedman, B., Conwell, Y., *et al*. (2007) Validity of the Patient Health Questionnaire 2 (PHQ-2) in identifying major depression in older people. *Journal of the American Geriatric Society*, 55, 596-602.
- Lotrakul, M., Sumrithe, S. & Saipanish, R. (2008) Reliability and validity of the Thai version of the PHQ-9. *BMC Psychiatry*, 8.
- Lowe, B., Kroenke, K., and Grafe, K. (2005) Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of Psychosomatic Research*, 58, 163-171.

FINAL DRAFT

Lowe, B., Spitzer, R., Grafe, K., *et al* (2004a) Comparative validity of three screening questionnaires for DSM-IV depressive disorders and physicians' diagnoses. *Journal of Affective Disorders*, 78 ,140.

Lowe, B., Grafe, K., Zipfel, S., *et al* (2004b) Diagnosing ICD-10 Depressive Episodes: Superior Criterion Validity of the Patient Health Questionnaire. *Psychotherapy and Psychosomatics*, 73.

Lyness J.M., Noel, T.K., Cox, C. *et al.* (1997) Screening patients for depression in elderly primary care patients. *Archives of Internal Medicine*, 157, 449-454.

Magni, G., Schifano, F., and de, L. (1986) Assessment of depression in an elderly medical population. *Journal of Affective Disorders*, 11.

Marc, L.G., Raue, P.J. & Bruce, M.L. (2008) Screening performance of the 15-item geriatric depression scale in a diverse elderly home care population. *American Journal of Geriatric Psychiatry*, 16, 914-921.

McGivney, S.A., Mulvihill, M., & Taylor, B. (1994) Validating the GDS depression screen in the nursing home. *Journal of the American Geriatric Society*, 42, 490-492.

Means-Christensen, A. J., Sherbourne, C. D., Roy-Byrne, P. P., *et al* (2006) Using five questions to screen for five common mental disorders in primary care: diagnostic accuracy of the Anxiety and Depression Detector. *General Hospital Psychiatry*., 28, 108-118.

Mottram, P., Wilson, K., & Copeland, J. (2000) Validation of the Hamilton Depression rating scale and Montgommery and Asberg rating scales in terms of AGE-CAT depression cases. *International Journal of Geriatric Psychiatry*., 15, 1113-1119.

Nam Bae, J. & Cho, M. J. (2004) Development of the Korean version of the Geriatric Depression Scale and its short form among elderly psychiatric patients. *Journal of Psychosomatic Research*., 57, 297-305.

Neal, R.M. & Baldwin, R.C. (1994) Screening for anxiety and depression in elderly medical outpatients. *Age and Ageing*, 23, 461-464

Okimoto, J.T., Barnes, R.F., Veith, R.C., *et al.* (1982) Screening for depression in geriatric medical patients. *American Journal of Psychiatry*, 139, 799-802.

Orcos, O.R., Fort, S., Khajouli, K.S. *et al.* (2007) Validacion de la version Espanola de 5 y 15 items de la escala de depression geriatrica en personas mayores en atencion primaria, *Rev Clin Esp*, 207, 559-562.

Papassotiropoulos, A. & Heun, R. (1999) Screening for depression in the elderly: a study on misclassification by screening instruments and improvement of scale performance. *Neuro-Psychopharmacol and Biological Psychiatry*, 23, 431-446.

- Parker, G., Hilton, T., Bains, J., *et al* (2002) Cognitive-based measures screening for depression in the medically ill: The DMI-10 and the DMI-18. *Acta Psychiatrica Scandinavica*, 105
- Patel, V., Araya, R., Chowdhary, N., *et al.* (2008) Detecting common mental disorders in primary care in India: A comparison of five screening questionnaires. . *Psychological Medicine*, 38, 218-228.
- Persoons, P., Luyckx, K., Desloovere, C. *et al.* (2003) Anxiety and mood disorders in otorhinolaryngology outpatients presenting with dizziness: Validation of the self-administered PRIME-MD Patient Health Questionnaire and epidemiology. *General Hospital Psychiatry*, 25, 316-323.
- Pomeroy, I., Clark, C., and Philp, I. (2001) The effectiveness of very short scales for depression screening in elderly medical patients. *International Journal of Geriatric Psychiatry*, 16,
- Rinaldi, P., Mecocci, P., Benedetti, C., *et al* (2003) Validation of the five-item geriatric depression scale in elderly subjects in three different settings. *Journal of the American Geriatrics Society*, 51, 694-698.
- Robison, J., Gruman, C., Gaztambide, S., *et al.* (2002) Screening for depression in middle-aged and older Puerto Rican primary care patients. *Journal of Gerontology*, 57, 308-314.
- Sanchez-Garcia, S., Juarez-Cedillo, T., Garcia-Gonzalez, J.J. *et al.* (2008) Usefulness of two instruments in assessing depression among elderly Mexicans in population studies and for primary care. *Salud Publica de Mexico*, 50, 447-456
- Scheinthal, S. M., Steer, R., Giffin, L., *et al* (2001) Evaluating geriatric medical outpatients with the Beck Depression Inventory-FastScreen for medical patients. *Aging & Mental Health*, 5, 148.
- Schein, R.L. & Koenig, H.G. (1997) The center for epidemiological studies-depression (CES-D) scale: assessment of depression in the medically ill elderly. *International Journal of Geriatric Psychiatry*, 12, 436-446.
- Schmitz, N., Kruse, J., Tress, W., *et al.* (1999a) Psychometric properties of the general health questionnaire (GHQ-12) in a German primary care sample. *Acta Psychiatrica Scandinavica*, 100, 462-468.
- Schmitz, N., Kruse, J., Heckrath, C., *et al.* (1999b) Diagnosing mental disorders in primary care: the general health questionnaire (GHQ) and the symptom checklist (SCL-90-R). *Social Psychiatry Psychiatric Epidemiology*, 34, 360-366.
- Schmitz, N., Kruse, J., & Tress, W. (2001) Improving screening for mental disorders in the primary care setting by combining the GHQ-12 and SCL-90-R subscales. *Comprehensive Psychiatry*, 42, 166-173.

FINAL DRAFT

Serber, E. R., Sears, S. F., Nielsen, C. D., *et al.* (2007) Depression, anxiety, and quality of life in patients with obstructive hypertrophic cardiomyopathy three months after alcohol septal ablation. *American Journal of Cardiology.*, 100, 1592-1597.

Snowdon, J. (1990) Validity of the Geriatric Depression Scale. *Journal of the American Geriatrics Society*, 38, 722-723.

Spitzer, R.L., Kroenke, K., Williams, J.B. *et al.* (1999) Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *JAMA*, 282, 1737-1744.

Stukenberg, K., Dura, J., and Kiecolt-Glaser, J. (1990) Depression screening scale validation in an elderly, community-dwelling population. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 2,

Suthers, K. M., Gatz, M., and Fiske, A. (2004) Screening for depression: A comparative analysis of the 11-item CES-D and the CIDI-SF. *Journal of Mental Health and Aging.*, 10,

Thomas, J.L., Jones, G.N, Scarinci, I.C., *et al.* (2001) The utility of the CES-D as a depression screening measure among low-income women attending primary care clinics. *International Journal of Psychiatry in Medicine*, 31, 25-40.

Tuunainen, A., Langer, R. D., Klauber, M. R., *et al* (2001) Short version of the CES-D (Burnam screen) for depression in reference to the structured psychiatric interview. *Psychiatry Research.*, 103, 261-270.

Upadhyaya, A. & Stanley, I. (1997) Detection of depression in primary care: comparison of two self-administered scales. *International Journal of Geriatric Psychiatry*, 12, 35-37.

Van Marwijk, H.W.J., Wallace, P., De Bock, G.H. *et al.* (1995) Evaluation of the feasibility, reliability and diagnostic value of shortened versions of the Geriatric Depression Scale. *British Journal of General Practice*, 45, 195-199.

Vargas, H., Matsuo, T., and Blay, S. (2007) Validity of the Geriatric Depression Scale for patients seen at general outpatient clinics. *Clinical Gerontologist*, 30.

Viinamaki, H., Niskanen, L., and Koskela, K. (1995) General Health Questionnaire and Beck Depression Scale as screening methods for psychiatric morbidity among the unemployed. *European Journal of Psychiatry*, 9,

Wada, K., Tanaka, K., Theriault, G., *et al* (2007) Validity of the Center for Epidemiologic Studies Depression Scale as a screening instrument of major depressive disorder among Japanese workers. *American Journal of Industrial Medicine.*, 50, 8-12.

Watson, L. C., Lewis, C. L., Kistler, C. E., *et al* (2004) Can we trust depression screening instruments in healthy 'old-old' adults? *International Journal of Geriatric Psychiatry*, 19,

Whooley, M. A., Avins, A. L., Miranda, J., *et al* (1997) Case-finding instruments for depression. Two questions are as good as many. *Journal of General Internal Medicine*, 12, 439-445.

Williams, J.W., Mulrow, C.D., Kroenke, K., *et al.* (1999) Case-finding for depression in primary care: a randomised trial. *American Journal of Medicine*, 196, 36-43.

Yeung, A., Howarth, S., Chan, R., *et al* (2002) Use of the Chinese version of the Beck Depression Inventory for screening depression in primary care. *Journal of Nervous and Mental Disease*, 190, 94-99.

Yeung, A., Yu, S. C., Fung, F., *et al.* (2006) Recognizing and engaging depressed Chinese Americans in treatment in a primary care setting. *International Journal of Geriatric Psychiatry*, 21, 216-823.

Yeung, A., Fung, F., Yu, S.-C. *et al.* (2008) Validation of the Patient Health Questionnaire-9 for depression screening among Chinese Americans. *Comprehensive Psychiatry*. 49, 211-217.

Zich, J. M., Attkisson, C. C., and Greenfield, T. K. (1990) Screening for depression in primary care clinics: The CES-D and the BDI. *International Journal of Psychiatry in Medicine*, 20, 259-277.

References to excluded studies and reasons for exclusion

The data was not extractable or the outcomes were not relevant:

Arean, P. & Miranda, J. (1997) The utility of the Centre for Epidemiological Studies-Depression Scale in older primary care patients. *Aging & Mental Health*, 1, 47-56.

Baker, F. M., Espino, D., Robinson, B., *et al.* (1993) Assessing depressive symptoms in African American and Mexican American elders. *Clinical Gerontologist*, 14, 15-29.

Bech, P. & Wermuth, L. (1998) Applicability and validity of the Major Depression Inventory in patients with Parkinson's Disease. *Nordic Journal of Psychiatry*, 52, 305-309.

Berkman, A.T.F., Deeg, D.J.H., Van Limbeek, J. *et al.* (1997) Criterion validity of the center for epidemiologic studies (CES-D): results from a community-based sample of older subjects in the Netherlands. *Psychological Medicine*, 27, 231-235.

Beursterien, K.M., Steinwald, B. & Ware, J.E. (1996) Usefulness of the SF-36 health survey in measuring health outcomes in the depressed elderly. *Journal of the Geriatric Psychiatry Neurology*, 9, 13-21.

Brown, C., Schlberg, H. C., & Madonia, M. J. (1995) Assessing depression in primary care practice with the beck depression inventory and the Hamilton rating scale for depression. *Psychological Assessment*, 7, 59-65.

Burke, W. J., Roccaforte, W. H., Wengel, S. P., *et al.* (1995) The reliability and validity of the Geriatric Depression Rating Scale administered by telephone. *Journal of the American Geriatrics Society*, 43, 674-679.

Burkhardt, B. R., Rogers, K., McDonald, W. D., *et al.* (1984) The measurement of depression: enhancing the predictive validity of the Beck Depression Inventory. *Journal of Clinical Psychology*, 40, 1368-1372.

Cahill, J., Barkham, M., Stiles, W., *et al.* (2006) Convergent Validity of the CORE Measures With Measures of Depression for Clients in Cognitive Therapy for Depression. *Journal of Counseling Psychology*, 53, 253-259.

Callahan, L. F., Kaplan, M. R., & Pincus, T. (1991) The Beck Depression Inventory, Center for Epidemiological Studies Depression Scale (CES-D), and General Well-Being Schedule depression subscale in rheumatoid arthritis. Criterion contamination of responses. *Arthritis Care & Research*, 4, 3-11.

Christensen, K. S., Toft, T., Frostholm, L., *et al.* (2005) Screening for common mental disorders: who will benefit? Results from a randomised clinical trial. *Family Practice*, 22, 428-434.

DeForge, B. & Sobal, J. (1988) Self-report depression scales in the elderly: The relationship between the CES-D and ZUNG. *International Journal of Psychiatry in Medicine*, 18, 325-338.

Finlay-Jones, R. A. & Murphy, E. (1979) Severity of psychiatric disorder and the 30-item General Health Questionnaire. *British Journal of Psychiatry*, 134, 613.

Fisher, L., Skaff, M. M., Mullan, J. T., *et al.* (2007) Clinical depression versus distress among patients with type 2 diabetes: not just a question of semantics. *Diabetes Care*, 30, 542-548.

Freudenstein, U., Arthur, A., Matthews, R., *et al.* (2002) Can routine information improve case finding of depression among 65 to 74 year olds in primary care? *Family Practice*, 19, 520-522.

Furukawa, T. A., Kessler, R. C., Slade, T., *et al.* (2003) The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine*, 33, 357-362.

Ghubash, R., Daradkeh, T., El-Rufaie, O. F., *et al.* (2001) A comparison of the validity of two psychiatric screening questionnaires: The Arabic General Health Questionnaire (AGHQ) and Self-Reporting Questionnaire (SRQ-10) in UAE, using receiver operating characteristic (ROC) analysis. *European Psychiatry*, 16, 122-126.

Goldberg, D., Privett, M., Ustun, B. *et al.* (1998) The effects of detection and treatment on the outcome of major depression in primary care: a naturalistic study. *British Journal of General Practice*, 48, 1840-1844.

- Golub, E. T., Latka, M., Hagan, H., *et al.* (2004) Screening for depressive symptoms among HCV-infected injection drug users: examination of the utility of the CES-D and the Beck Depression Inventory. *Journal of Urban Health.*, 81, 278-290.
- Greenfield, S. F., Reizes, J. M., Muenz, L. R., *et al.* (2000) Treatment for depression following the 1996 National Depression Screening Day. *American Journal of Psychiatry.*, 157, 1867-1869.
- Guo, Y., Musselman, D., Manatunga, A., *et al.* (2006) The diagnosis of major depression in patients with cancer: a comparative approach. . *Psychosomatics: Journal of Consultation Liaison Psychiatry*, 47, 376-384.
- Hengeveld, M., Ancion, F., & Rooijmans, H. (1987) Prevalence and recognition of depressive disorders in general medical inpatients. *International Journal of Psychiatry in Medicine*, 17, 341-349.
- Hustey, F. M. & Smith, M. D. (2007) A depression screen and intervention for older ED patients. *American Journal of Emergency Medicine.*, 25, 133-137.
- Iliffe, S., Mitchley, S., Gould, M., *et al.* (1994) Evaluation of the use of brief screening instruments for dementia, depression and problem drinking among elderly people in general practice. *British Journal of General Practice.*, 44, 503-507.
- Incalzi, R. A., Cesari, M., Pedone, C., *et al.* (1998) Construct validity of the 15-item Geriatric Depression Scale in older medical inpatients. *Journal of Geriatric Psychiatry and Neurology*, 16, 23-28.
- Jang, Y., Small, B. J., & Haley, W. E. (1987) Cross-cultural comparability of the Geriatric Depression Scale: Comparison between older Koreans and older Americans. *Aging & Mental Health*, 5, 31-37.
- Janson, C., Bjornsson, E., Hetta, J., *et al.* (1994) Anxiety and depression in relation to respiratory symptoms and asthma. *American Journal of Respiratory & Critical Care Medicine.*, 149, 930-934.
- Jarjoura, D., Polen, A., Baum, E., *et al.* (2001) Effectiveness of screening and treatment for depression in ambulatory indigent patients. *Journal of General Internal Medicine.*, 19, 78-84.
- Johnston, M., Pollard, B., & Hennessey, P. (2000) Construct validation of the hospital anxiety and depression scale with clinical populations. *Journal of Psychosomatic Research*, 48, 579-584.
- Jones, J. E., Hermann, B. P., Woodard, J. L., *et al.* (2005) Screening for major depression in epilepsy with common self-report depression inventories. *Epilepsia.*, 46, 731-735.
- Kathol, R., Mutgi, A., Williams, J., *et al.* (1990) Diagnosis of major depression in cancer patients according to four sets of criteria. *American Journal of Psychiatry*, 147, 1021-1024.

Kellermann, M., Fekete, I., Gesztelyi, R., *et al.* (1999) Screening for depressive symptoms in the acute phase of stroke. *General Hospital Psychiatry*, 21, 116-121.

Kerber, C., Dyck, M., Culp, K., *et al.* (2005) Comparing the Geriatric Depression Scale, Minimum Data Set, and Primary Care Provider Diagnosis for Depression in Rural Nursing Home Residents. *Journal of the American Psychiatric Nurses Association*, 11, 269-275.

Kessler, D., Bennewith, O., Lewis, G., *et al.* (2002) Detection of depression and anxiety in primary care: Follow up study. *BMJ: British Medical Journal*, 325, 1016-1017.

Kessler, D., Lloyd, K., Lewis, G., *et al.* (1999) Cross sectional study of symptom attribution and recognition of depression and anxiety in primary care. *BMJ*, 436-440.

Kirmayer, L. J., Robbins, J. M., Dworkind, M., *et al.* (1993) Somatization and the recognition of depression and anxiety in primary care. *American Journal of Psychiatry*, 150, 734-741.

Kominski, G., Andersen, R., Bastani, R., *et al.* (2001) UPBEAT: The impact of a psychogeriatric intervention in VA medical centres. *Medical Care*, 39, 500-512.

Kurlowicz, L. H., Outlaw, F. H., Ratcliffe, S. J., *et al.* (2001) An exploratory study of depression among older African American users of an academic outpatient rehabilitation program. *Archives of Psychiatric Nursing*, 19, 3-9.

Lane, J. E., Shellenberger, S., Gresen, K. W., *et al.* (2000) Screening for depression within a rural primary care practice by a self-rating depression scale. *Primary Care Psychiatry*, 6, 73-76

Lee, H., Chiu, H., Wing, Y., *et al.* (1994) The Zung Self-Rating Depression Scale: Screening for depression among the Hong Kong Chinese elderly. *Journal of Geriatric Psychiatry and Neurology*, 7, 216-220.

Leigh, I., Robins, C., & Welkowitz, J. (1988) Modification of the Beck Depression Inventory for use with a deaf population. *Journal of Clinical Psychology*, 44, 728-732.

Levenson, J. L., Hamer, R. M., & Rossiter, L. F. (1992) A randomized controlled study of psychiatric consultation guided by screening in general medical inpatients. *American Journal of Psychiatry*, 149, 631-637.

Lovibond, P. F. and Lovibond, S. H. (1995) The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33, 335-343.

Lyness, J.M., Noel, T.K., Cox, C., *et al.* (1997) Screening for depression in elderly primary care patients. *Archive of Internal Medicine*, 157, 499-454.

Lyons, J., Strain, J., Hammer, J., *et al.* (1989) Reliability, validity, and temporal stability of the Geriatric Depression Scale in hospitalized elderly. *International Journal of Psychiatry in Medicine*, 19, 203-209.

- Magruder-Habib, K., Zung, W. W. K., & Feussner, J. R. (1990) Improving physicians' recognition and treatment of depression in general medical care. *Medical Care*, 28, 239-250.
- Mahard, R. E. (1988) The CES-D as a measure of depressive mood in the elderly Puerto Rican population. *Journal of Gerontology*, 43, 24-25.
- Malasi, T. H., Mirza, J. A., El-Islam, M. F., et al. (1991) Validation of the hospital anxiety and depression scale in arab patients. *Acta Psychiatrica Scandinavia*, 84, 323-326.
- Mohr, D., Goodkin, D. E., Likosky, W., et al. (1997) Identification of Beck Depression Inventory items related to multiple sclerosis. *Journal of Behavioral Medicine*, 20, 407-414.
- Munoz, R., Gonzalez, G., & Starkweather, J. (1995) Automated screening for depression: Toward culturally and linguistically appropriate uses of computerized speech recognition. *Hispanic Journal of Behavioral Sciences*, 17, 195-208.
- Oduwole, O. O. & Ogunyemi, A. O. (1989) Validity of the GHQ-30 in a Nigerian medical outpatient clinic. *The Canadian Journal of Psychiatry / La Revue canadienne de psychiatrie*, 34, 20-23.
- O'Malley, P. G., Wong, P. W. K., Kroenke, K., et al. (1998) The value of screening for psychiatric disorders prior to upper endoscopy. *Journal of Psychosomatic Research*, 44, 279-287.
- Oliver, J. & Simmons, M. E. (2005) Affective disorders and depression as measured by the Diagnostic Interview Schedule and the Beck Depression Inventory in an unselected adult population. *Journal of Clinical Psychology*, 41, 469-477.
- Onelov, E., Steineck, G., Nyberg, U., et al. (2007) Measuring anxiety and depression in the oncology setting using visual-digital scales. *Acta Oncologica*, 46, 810-816.
- Osborn, D., Fletcher, A., Smeeth, L., et al. (2002) Geriatric Depression Scale scores in a representative sample of 14 545 people aged 75 and over in the United Kingdom: results from the MRC trial of assessment and management of older people in the community. *International Journal of Geriatric Psychiatry*, 17, 375-382.
- Payne, D. K., Hoffman, R. G., Theodoulou, M., et al. (1999) Screening for anxiety and depression in women with breast cancer. *Psychosomatics*, 40, 64-69.
- Perez-Stable, E., Miranda, J., Munoz, R. F., et al. (1990) Depression in medical outpatients: under recognition and misdiagnosis. *Archives of Internal Medicine*, 150, 1083-1088.
- Pinto-Meza, A., Serrano-Bianco, A., Penarrubia, M., et al. (2005) Assessing Depression in Primary Care with the PHQ-9: Can It Be Carried Out over the Telephone? *Journal of General Internal Medicine*, 20, 738-742.
- Raft, D., Spencer, R. F., Toomey, T., et al. (1977) Depression in medical outpatients: use of zung scale. *Diseases of the Nervous System*, 999-1004.

- Reifler, D. R., Kessler, H. S., Bernhard, E. J., *et al.* (1996) Impact of screening for mental health concerns on health service utilization and functional status in primary care patients. *Archives of Internal Medicine.*, 156, 2593-2599.
- Richard, I. & Kurlan, R. (2006) The under-recognition of depression in Parkinson's disease. *Neuropsychiatric Disease and Treatment*, 2, 349-353.
- Riggs, R. M., McCarthy, J. M., & Kaufman, L. (2007) The utility of the beck depression inventory in the evaluation of chronic pelvic pain patients. *Journal of Gynaecologic Surgery.* 23, 127-132.
- Santor, D. A., Zuroff, D. C., & Ramsay, J. O. (1995) Examining scale discriminability in the BDI and CES-D as a function of depressive severity. *Psychological Assessment.*, 7, 131-139.
- Schreiner, A. S., Hayakawa, H., Morimoto, T., *et al.* (2003) Screening for late life depression: cut-off scores for the Geriatric Depression Scale and the Cornell Scale for depression in dementia among Japanese subjects. *International Journal of Geriatric Psychiatry*, 18, 498-505.
- Sherwood, A., Blumenthal, J. A., Trivedi, R., *et al.* (2007) Relationship of depression to death or hospitalization in patients with heart failure. *Archives of Internal Medicine.*, 167, 367-373.
- Shinar, D., Gross, C. R., Price, T. R., *et al.* (1986) Screening for depression in stroke patients: the reliability and validity of the Center for Epidemiologic Studies Depression Scale. *Stroke.*, 17, 241-245.
- Steeds, R. P., Bickerton, D., Smith, M. J., *et al.* (2004) Assessment of depression following acute myocardial infarction using the Beck depression inventory. *Heart.*, 90, 217-218.
- Svanborg, P. & Asberg, M. (2001) A comparison between the Beck Depression Inventory (BDI) and the self-rating version of the Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders*, 64, 203-216.
- Thombs, B.D., Hudson, M., Schieir, O. *et al.* (2008) Reliability and validity of the center for epidemiologic studies depression scale in patients with systemic sclerosis. *Arthritis and Rheumatism*, 59, 438-443.
- Tucker, M. A., Ogle, S. J., Davison, J. G., *et al.* (1986) Development of a brief screening test for depression in the elderly. *Journal of Clinical & Experimental Gerontology*, 8, 173-190.
- Weatherall, M. (2000) A randomized controlled trial of the Geriatric Depression Scale in an inpatient ward for older adults. *Clinical Rehabilitation.*, 14, 186-191.
- Wedding, U., Koch, A., Rohrig, B., *et al.* (2007) Questioning depression in patients with cancer: contribution of somatic and affective symptoms to Beck's Depression Inventory. *Annals of Oncology.*, 18, 1875-1881.

Wojnar, M., Drozd, W., Araszkiwicz, A., *et al.* (2005) Assessment and prevalence of depression in women 45-55 years of age visiting gynecological clinics in Poland. *Archives of Womens Mental Health*, 6, 193-201.

Yesavage, J. *et al.* (1982) Development and validation of a Geriatric Depression Screening Scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37-49.

The gold standard comparator was not relevant:

Arnau, R., Meagher, M., Norris, M., *et al.* (2002) Psychometric evaluation of the Beck Depression Inventory-II with primary care medical patients. *Health Psychology*, 20, 112-119.

Avasarala, J. R., Cross, A. H., & Trinkaus, K. (2003) Comparative assessment of Yale Single Question and Beck Depression Inventory Scale in screening for depression in multiple sclerosis. *Multiple Sclerosis*, 9, 307-310.

Beck, A. T., Guth, D., Steer, R. A., *et al.* (1997) Screening for major depression disorders in medical inpatients with the beck depression inventory for primary care. *Behaviour Research and Therapy*, 35, 758-791.

Beck, A. T., Steer, R. A., Ball, R., *et al.* (1997) Use of the beck anxiety and depression inventories for primary care with medical outpatients. *Assessment*, 4, 211-219.

Bohannon, R. W., Maljanian, R., & Goethe, J. (2003) Screening for depression in clinical practice: reliability and validity of a five-item subset of the CES-Depression. *Perceptual & Motor Skills*, 97, 855-861.

Cameron, I.M., Crawford, J.R., Lawton, K. *et al.* (2008) Assessing the validity of the PHQ-9, HADS, BDI-II and QIDS-SR16 in measuring severity of depression in a UK sample of primary care patients with a diagnosis of depression: study protocol. *Primary Care and Community Psychiatry*, 13, 67-71.

Chattat, R., Ellena, L., Cucinotta, D., *et al.* (2001) A study of the validity of different short versions of the geriatric depression scale. *Archives of Gerontology and Geriatrics*.Suppl, 7, 81-86.

Clement, J. P., Fray, E., Paycin, S., *et al.* (1999) Detection of depression in elderly hospitalized patients in emergency wards in France using the CES-D and the Mini-GDS: Preliminary experiences. *International Journal of Geriatric Psychiatry*, 14, 373-378.

Cole, S. R., Kawachi, I., Maller, S. J., *et al.* (2000) Test of item-response bias in the CES-D scale. experience from the New Haven EPESE study. *Journal of Clinical Epidemiology*, 53, 285-289.

Corson, K., Gerrity, M. S., & Dobscha, S. K. (2004) Screening for depression and suicidality in a VA primary care setting: 2 items are better than 1 item. *American Journal of Managed Care*, 10, 839-845.

- Doering, L., Cross, R., Magsarili, M., *et al.* (2007) Utility of observer-rated and self-report instruments for detecting major depression in women after cardiac surgery: A pilot study. *American Journal of Critical Care*, 16, 260-269.
- Dowson, C., Laing, R., Barraclough, R., *et al.* (2001) The use of the Hospital Anxiety and Depression Scale (HADS) in patients with chronic obstructive pulmonary disease: a pilot study. *New Zealand Medical Journal*, 114, 447-449.
- Fraguas, R. J., Gonsalves, H., De, L., *et al.* (2006) The detection of depression in medical setting: a study with PRIME-MD. *Journal of Affective Disorder.*, 91, 11-17.
- Flint, A. J. & Rifat, S. L. (1996) Validation of the Hospital Anxiety and Depression scale as a measure of severity of geriatric depression. *International Journal of Geriatric Psychiatry*, 11, 991-994.
- Gallagher, D., Breckenridge, J., Steinmetz, J., *et al.* (1983) The Beck Depression Inventory and Research Diagnostic Criteria: Congruence in an Older Population. *Journal of Consulting and Clinical Psychology*, 51, 945-946.
- Gessler, S., Low, J., Daniells, E., *et al.* (2008) Screening for distress in cancer patients: Is the Distress Thermometer a valid measure in the UK and does it measure change over time? A prospective validation study. *Psycho-Oncology*, 17, 538-547.
- Giordano, M., Tirelli, P., Ciarambino, T., *et al.* (2007) Screening of depressive symptoms in young-old hemodialysis patients: relationship between Beck Depression Inventory and 15-item Geriatric Depression Scale. *Nephron.*, 106, 187-192.
- Griffith, N. M., Szaflarski, J. P., Szaflarski, M., *et al.* (2005) Measuring depressive symptoms among treatment-resistant seizure disorder patients: POMS Depression scale as an alternative to the BDI-II. *Epilepsy and Behavior.*, 7, 266-272.
- Gori, C., Appollonio, I., Riva, G. P., *et al.* (1998) Using a single question to screen for depression in the nursing home. *Archives of Gerontology and Geriatrics Supplement*, 6, 235-240.
- Hammond, M.F. (1998) Rating depression severity in the elderly physically ill patient: reliability and factor structure of the Hamilton and the montgomery-asbery depression rating scales. *International Journal of Geriatric Psychiatry*, 13, 257-261.
- Hegel, M.T., Collins, D., Kearing, S., *et al.* (2008) Sensitivity and specificity of the distress thermometer for depression in newly diagnoses breast cancer patients. *Psycho-oncology*, 17, 556-560.
- Herrmann, N., Mittmann, N., Silver, I. L., *et al.* (1996) A validation study of the geriatric depression scale short form. *International Journal of Geriatric Psychiatry.*, 11, 457-460.
- Heiser, D. (2004) Depression identification in the long-term care setting: the GDS vs. the MDS. *Clinical Gerontologist*, 27, 3-18.

Hoeper, E. W., Nycz, G. R., Kessler, L. G., *et al.* (1984) The usefulness of screening for mental illness. *The Lancet*, 7, 33-35.

Holi, M., Marttunen, M., & Aalberg, V. (2003) Comparison of the GHQ-36, the GHQ-12 and the SCL-90 as psychiatric screening instruments in the Finnish population. *Nordic Journal of Psychiatry*, 57, 233-238.

Husaini, B. *et al.* (1980) Depression in rural communities: Validating the CES-D scale. *Journal of Community Psychology*, 8, 20-27.

Hustey, F. M. (2005) The use of a brief depression screen in older emergency department patients. *Academic Emergency Medicine*, 12, 905-908.

Ingram, F. (1996) The short geriatric depression scale: a comparison with the standard form in independent older adults. *Clinical Gerontologist*, 16, 49-56.

Jacobsen, P. B., Donovan, K. A., Trask, P. C., *et al.* (2001) Screening for psychological distress in ambulatory cancer patients. *Cancer*, 103, 1494-1502.

Katz, M. R., Kopek, N., Waldron, J., *et al.* (2004) Screening for depression in head and neck cancer. *Psycho-Oncology*, 13, 269-280.

Keir, S.T., Callhoun-Eagan, R.D., Swartz, J.J. *et al.* (2008) Screening for distress in patients with brain cancer using the NCCN's rapid screening measure. *Psycho-oncology*, 17, 621-625.

Kunik, M. E., Azzam, P. N., Soucek, J., *et al.* (2007) A practical screening tool for anxiety and depression in patients with chronic breathing disorders. *Psychosomatics*, 48, 16-21.

Lane, A.D., Jajoo, J., Taylor, R.S., *et al.* (2007) Cross-cultural adaptation in Punjabi of the English version of the hospital anxiety and depression scale. *BMC Psychiatry*, 7.

Leshner, E. (1986) Validation of the Geriatric Depression Scale among nursing home residents. *Clinical Gerontologist*, 4, 21-28.

Lewinsohn, P.M., Seeley, J.R., Roberts, R.E. *et al.* (1997) Center for epidemiologic studies depression scale (CES-D) as a screening instrument for depression among community-residing older adults. *Psychology and Aging*, 12, 277-287.

Lim, P. P. J., Ng, L. L., Chiam, P. C., *et al.* (2000) Validation and comparison of three brief depression scales in an elderly Chinese population. *International Journal of Geriatric Psychiatry*, 15, 824-830.

Mahoney, J., Drinka, T. J. K., Abler, R., *et al.* (1994) Screening for depression: Single question versus GDS. *Journal of the American Geriatrics Society*, 42, 1006-1008.

Martens, M. P., Parker, J. C., Smarr, K. L., *et al.* (2003) Assessment of depression in rheumatoid arthritis: a modified version of the center for epidemiologic studies depression scale. *Arthritis & Rheumatism*, 49, 549-555.

FINAL DRAFT

- Martens, M., Parker, J., Smarr, K., *et al.* (2006) Development of a Shortened Center for Epidemiological Studies Depression Scale for Assessment of Depression in Rheumatoid Arthritis. *Rehabilitation Psychology*, 51, 135-139.
- Mondolo, F., Jahanshahi, M., Grana, A., *et al.* (2006) The validity of the hospital anxiety and depression scale and the geriatric depression scale in Parkinson's disease. *Behavioural Neurology*, 17, 109-115.
- Osborn, D., Fletcher, A., Smeeth, L., *et al.* (2003) Performance of a single screening question for depression in a representative sample of 13,670 people aged 75 and over in the UK: Results from the MRC trial of assessment and management of older people in the community. *Family Practice*, 20, 682-684.
- O'Sullivan, R. L., Fava, M., Agustin, C., *et al.* (1997) Sensitivity of the six-item Hamilton Depression Rating Scale. *Acta Psychiatrica Scandinavica*, 95, 379-384.
- Olsson, I., Mykletun, A., & Dahl, A. A. (2005) The Hospital Anxiety and Depression Rating Scale: a cross-sectional study of psychometrics and case finding abilities in general practice. *BMC Psychiatry*, 5, 46.
- Ozalp, E., Cankurtaran, E., Soygur, H., *et al.* (2007) Screening for psychological distress in Turkish cancer patients. *Psycho-Oncology*, 16, 307-311.
- Recklitis, C., Licht, I., Ford, J., *et al.* (2007) Screening adult survivors of childhood cancer with the distress thermometer: A comparison with the SCL-90-R. *Psycho-Oncology*, 16, 1046-1049.
- Ransom, S., Jacobsen, P. B., & Booth-Jones, M. (2006) Validation of the Distress Thermometer with bone marrow transplant patients. *Psycho-Oncology*, 15, 604-612.
- Roberts, R. E. & Vernon, S. W. (1983) The Center for Epidemiologic Studies Depression Scale: its use in a community sample. *American Journal of Psychiatry*, 140, 41-46.
- Shah, A., Herbert, R., Lewis, S., *et al.* (1997) Screening for depression among acutely ill geriatric inpatients with a short geriatric depression scale. *Age and Ageing*, 26, 217-221.
- Shah, A., Phongsathorn, V., Bielawska, C., *et al.* (1996) Screening for depression among geriatric inpatients with short versions of the Geriatric Depression Scale. *International Journal of Geriatric Psychiatry*, 11, 915-918.
- Stefansson, J. & Kristjansson, I. (1985) Comparison of the General Health Questionnaire and the Cornell Medical Index Health Questionnaire. *Acta Psychiatrica Scandinavica*, 72, 482-487.
- Troidle, L., Wuerth, D., Finkelstein, S., *et al.* (2003) The BDI and the SF36: which tool to use to screen for depression? *Advances in Peritoneal Dialysis*, 19, 159-167

Tuinman, M.A., Gazendam-Donofrio, S.M. & Hoekstra-Weeber, J.E. (2008) Screening and referral for psychosocial distress in oncologic practice: use of the distress thermometer. *Cancer*, 113, 870-8.

Van, M., Arnold, I., Bonnema, J., *et al.* (1993) Self-report depression scales for elderly patients in primary care: a preliminary study. *Family Practice*, 10, 63-65.

Wall, J. R., Lichtenberg, P. A., MacNeill, S. E., *et al.* (1999) Depression detection in geriatric rehabilitation: Geriatric Depression Scale short form vs. long form. *Clinical Gerontologist*, 20, 13-21.

Walsh, T. L., Homa, K., Hanscom, B., *et al.* (2006) Screening for depressive symptoms in patients with chronic spinal pain using the SF-36 Health Survey. *Spine Journal*, 6, 316-320.

Watkins, C., Daniels, L., Jack, C., *et al.* (2001) Accuracy of a single question in screening for depression in a cohort of patients after stroke: Comparative study. *BMJ: British Medical Journal*, 323, 1159.

Watkins, C. L., Lightbody, C. E., Sutton, C. J., *et al.* (2007) Evaluation of a single-item screening tool for depression after stroke: a cohort study. *Clinical Rehabilitation*, 21, 846-852.

Wilson, B., Spittal, J., Heidenheim, P., *et al.* (2006) Screening for depression in chronic hemodialysis patients: comparison of the Beck Depression Inventory, primary nurse, and nephrology team. *Hemodialysis International*, 10, 35-41.

There were problems with the methodology:

Bech, P., Rasmussen, N. A., Olsen, L. R., *et al.* (2001) The sensitivity and specificity of the Major Depression Inventory, using the Present State Examination as the index of diagnostic validity. *Journal of Affective Disorders*, 66, 160-164.

Coyne, J. C., Schwenk, T. L., & Smolinski, M. (1991) Recognizing depression: a comparison of family physician ratings, self-report, and interview measures. *Journal of the American Board of Family Practice*, 4, 207-215.

Fountoulakis, K. N., Iacovides, A., Kleanthous, S., *et al.* (1929) Reliability, validity and psychometric properties of the Greek translation of the Major Depression Inventory. *BMC Psychiatry*, 3.

Irwin, M., Artin, K. H., & Oxman, M. N. (1999) Screening for depression in the older adult: criterion validity of the 10-item Center for Epidemiological Studies Depression Scale (CES-D) *Archives of Internal Medicine*, 159, 1701-1704.

Lasa, L., yuso-Mateos, J. L., Vazquez-Barquero, J. L., *et al.* (2000) The use of the Beck Depression Inventory to screen for depression in the general population: a preliminary analysis. *Journal of Affective Disorders*, 57, 261-265.

Lynch, S., Curran, S., Montgomery, S., *et al.* (2000) The Brief Depression Scale - Reliability and validity of a new self-rating depression scale. *Primary Care Psychiatry.*, 6, 111-118.

Parker, G. & Gladstone, G. (2004) Capacity of the 10-item Depression in the Medically Ill screening measure to detect depression 'caseness' in psychiatric out-patients. *Psychiatry Research*, 127, 283-287.

Robaey, G., De Bie, J., Wichers, M. C., *et al.* (2007) Early prediction of major depression in chronic hepatitis C patients during peg-interferon alpha-2b treatment by assessment of vegetative-depressive symptoms after four weeks. *World Journal of Gastroenterology*, 13, 5736-5740.

Surtees, P. G. (1987) Psychiatric disorder in the community and the General Health Questionnaire. *British Journal of Psychiatry.*, 150, 828-835.

Viinamaki, H., Tanskanen, A., Honkalampi, K., *et al.* (2004) Is the Beck Depression Inventory suitable for screening major depression in different phases of the disease? *Nordic Journal of Psychiatry.*, 58, 49-53.

Williamson, R. J., Neale, B. M., Sterne, A., *et al.* (2005) The value of four mental health self-report scales in predicting interview-based mood and anxiety disorder diagnoses in sibling pairs. *Twin Research & Human Genetics*, 8, 101-107.

The population was not relevant:

Almeida, O. & Almeida, S. (1999) Short versions of the Geriatric Depression Scale: A study of their validity for the diagnosis of a major depressive episode according to ICD-10 and DSM-IV. *International Journal of Geriatric Psychiatry*, 14, 858-865.

Baker, F. & Miller, C. L. (1991) Screening a skilled nursing home population for depression. *Journal of Geriatric Psychiatry and Neurology*, 4, 218-221.

Baker, F. M., Velli, S. A., Friedman, J., *et al.* (1995) Screening tests for depression in older black vs. white patients. *American Journal of Geriatric Psychiatry*, 3, 43-51.

Bonomi, A. E., Kernic, M. A., Anderson, M. L., *et al.* (2008) Use of brief tools to measure depressive symptoms in women with a history of intimate partner violence. *Nursing Research*, 57, 150-156.

Canals, J., Blade, J., Carbajo, G., *et al.* (2001) The Beck Depression Inventory: Psychometric characteristics and usefulness in nonclinical adolescents. *European Journal of Psychological Assessment*, 17, 63-68.

Cohen, C. I., Hyland, K., & Kimhy, D. (2003) The utility of mandatory depression screening of dementia patients in nursing homes. *American Journal of Psychiatry*, 160, 2012-2017.

Cuijpers, P., Dekker, J., Noteboom, A., *et al.* (2007) Sensitivity and specificity of the Major Depression Inventory in outpatients. *BMC Psychiatry*, 7, 39.

- Elliott, T. E., Renier, C. M., & Palcher, J. A. (2003) Chronic pain, depression, and quality of life: Correlations and predictive value of the SF-36. *Pain Medicine*, 4, 331-339.
- Estlander, A. M., Takala, E. P., & Verkasalo, M. (1995) Assessment of depression in chronic musculoskeletal pain patients. *Clinical Journal of Pain*, 11, 194-200.
- Geisser, M. E., Roth, R. S., & Robinson, M. E. (1997) Assessing depression among persons with chronic pain using the Center for Epidemiological Studies-Depression Scale and the Beck Depression Inventory: a comparative analysis. *Clinical Journal of Pain.*, 13, 163-170.
- Gilley, D.W. & Wilson, R.S. (1997) Criterion-related validity of the geriatric depression scale in Alzheimer's disease. *Journal of Clinical and Experimental Neuropsychology*, 19, 489-499.
- Haringsma, R., Engels, G. I., Beekman, A. F. T., *et al.* (2004) The criterion validity of the Center for Epidemiological Studies Depression Scale (CES-D) in a sample of self-referred elders with depressive symptomatology. *International Journal of Geriatric Psychiatry*, 19, 558-563.
- Haver, B. (1997) Screening for psychiatric comorbidity among female alcoholics: the use of a questionnaire (SCL-90) among women early in their treatment programme. *Alcohol and Alcoholism*, 32, 725-730.
- Hedstrom, M., Kreuger, A., Ljungman, G., *et al.* (2006) Accuracy of assessment of distress, anxiety, and depression by physicians and nurses in adolescents recently diagnosed with cancer. *Pediatric Blood & Cancer.*, 46, 773-779.
- Hickie, C. & Snowdon, J. (1987) Depression scales for the elderly: GDS, Gilleard, Zung. *Clinical Gerontologist*, 6, 51-53.
- Holcomb, W. L. J., Stone, L. S., Lustman, P. J., *et al.* (1996) Screening for depression in pregnancy: characteristics of the Beck Depression Inventory. *Obstetrics & Gynecology.*, 88, 1021-1025.
- Huffman, J. C., Smith, F. A., Blais, M. A., *et al.* (2001) Recognition and treatment of depression and anxiety in patients with acute myocardial infarction. *American Journal of Cardiology.*, 98, 319-324.
- Kertzman, S., Aladjem, Z., Milo, R., *et al.* (2004) The utility of the visual analogue scale for the assessment of depressive mood in cognitively impaired patients. *International Journal of Geriatric Psychiatry*, 19, 789-796.
- Kertzman, S., Treves, I. A., Treves, T. A., *et al.* (2002) Hamilton depression scale in dementia. *International Journal of Psychiatry in Clinical Practice*, 6, 91-94.
- Kogan, E., Kabacoff, R., Hersen, M., *et al.* (1994) Clinical cutoffs for the Beck Depression Inventory and the Geriatric Depression Scale with older adult psychiatric outpatients. *Journal of Psychopathology and Behavioral Assessment*, 16, 233-242

Krefetz, D. G., Steer, R. A., Jermyn, R. T., *et al.* (2004) Screening HIV-infected patients with chronic pain for anxiety and mood disorders with the beck anxiety and depression inventory-fast screens for medical settings. *Journal of Clinical Psychology in Medical Settings.*, 11, 283-289.

Le Fevre, P., Devereux, J., Smith, S., *et al.* (1999) Screening for psychiatric illness in the palliative care inpatient setting: a comparison between the Hospital Anxiety and Depression Scale and the General Health Questionnaire-12. *Palliative Medicine*, 13, 399-407.

Lloyd-Williams, M., Dennis, M., & Taylor, F. (2004) A prospective study to determine the association between physical symptoms and depression in patients with advanced cancer. *Palliative Care*, 18, 558-563.

Olin, J., Schneider, L., Eaton, E., *et al.* (1992) The Geriatric Depression Scale and the Beck Depression Inventory as screening instruments in an older adult outpatient population. *Psychological Assessment*, 4, 190-192.

Rouch-Leroyer, I., Sourgen, C., Barberger-Gateau, P., *et al.* (2000) Detection of depressive symptomatology in elderly people: a short version of the CES-D scale. *Aging-Clinical & Experimental Research.*, 12, 228-233.

Sheeran, T. & Zimmerman, M. (2002) Case identification of depression with self-report questionnaires. *Psychiatry Research*, 109, 51-59.

Weiss, R., Griffin, M., & Mirin, S. (1989) Diagnosing major depression in cocaine abusers: The use of depression rating scales. *Psychiatry Research*, 28, 335-343.

Zoger, S., Svedlund, J., and Holgers, K. M. (2004) The Hospital Anxiety and Depression Scale (HAD) as a screening instrument in tinnitus evaluation. *International Journal of Audiology*, 43,

The scale was not relevant:

Aidala, A., Havens, J., Mellins, C. A., *et al.* (2004) Development and validation of the Client Diagnostic Questionnaire (CDQ): a mental health screening tool for use in HIV/ AIS service settings. *Psychology, Health & Medicine*, 9, 362-379.

Adshead, F., Cody, D. D., & Pitt, B. (1992) BASDEC: a novel screening instrument for depression in elderly medical inpatients. *BMJ*, 305, 397.

Alessi, C. A., Josephson, K. R., Harker, J. O., *et al.* (2003) The yield, reliability, and validity of a postal survey for screening community-dwelling older people. *Journal of the American Geriatrics Society.*, 51 , 194-202.

Ames, D., Flynn, E., Tuckwell, V., *et al.* (1994) Diagnosis of psychiatric disorder in elderly general and geriatric hospital patients: AGE-CAT and DSM-III-R compared. *International Journal of Geriatric Psychiatry*, 9, 627-633.

Becht, M. C., Van, E., Teeuwisse, T. M., *et al.* (2001) Measuring depression in women around menopausal age: towards a validation of the Edinburgh Depression Scale. *Journal of Affective Disorders*, 63, 209-213.

Booth, B. M., Kirchner, J. E., Hamilton, G., *et al.* (1998) Diagnosing depression in the medically ill: validity of a lay-administered structured diagnostic interview. *Journal of Psychiatric Research*, 32, 353-360.

Cairney, J., Veldhuizen, S., Wade, T., *et al.* (2007) Evaluation of 2 measures of psychological distress as screeners for depression in the general population. *The Canadian Journal of Psychiatry / La Revue canadienne de psychiatrie*, 52, 111-120.

Cepoiu, M., McCusker, J., Cole, M. G., *et al.* (2007) Recognition of depression in older medical inpatients. *Journal of General Internal Medicine*, 22, 559-564.

Christensen, K. S., Fink, P., Toft, T., *et al.* (2005) A brief case-finding questionnaire for common mental disorders: the CMDQ. *Family Practice*, 22, 448-457.

Clarke, D. & McKenzie, D. (2003) An examination of the efficiency of the 12-item SPHERE questionnaire as a screening instrument for common mental disorders in primary care. *Australian and New Zealand Journal of Psychiatry*, 37, 236-239.

Clarke, D. M., McKenzie, D. P., & Smith, G. C. (1995) The recognition of depression in patients referred to a consultation-liaison service. *Journal of Psychosomatic Research*, 39, 327-334.

Costantini, M., Musso, M., Viterbori, P., *et al.* (1999) Detecting psychological distress in cancer patients: validity of the Italian version of the hospital anxiety and depression scale. *Supportive Care in Cancer*, 7, 121-127.

Friedman, B., Heisel, M., & Delavan, R. (2005) Validity of the SF-36 five-item Mental Health Index for major depression in functionally impaired, community-dwelling elderly patients. *Journal of the American Geriatrics Society*, 53, 1978-1985.

Fujisawa, D., Tanaka, E., Sakamoto, S., *et al.* (2005) The development of a brief screening instrument for depression and suicidal ideation for elderly: The depression and suicide screen. *Psychiatry and Clinical Neurosciences*, 59, 635-638.

Gainotti, G., Azzoni, A., Razzano, C., *et al.* (1997) The Post-Stroke Depression Rating Scale: a test specifically devised to investigate affective disorders of stroke patients. *Journal of Clinical & Experimental Neuropsychology*, 19, 340-356.

Ghubash, R., Daradkeh, T. K., Al, N., *et al.* (2000) The performance of the Center for Epidemiologic Study Depression Scale (CES-D) in an Arab female community. *International Journal of Social Psychiatry*, 46, 241-249.

Goldberg, D. P. & Blackwell, B. (1970) Psychiatric illness in general practice. A detailed study using a new method of case identification. *British Medical Journal.*, 1, 439-443.

Hammond, M. F., O'Keeffe, S. T., & Barer, D. H. (2000) Development and validation of a brief observer-rated screening scale for depression in elderly medical patients. *Age and Ageing.*, 29, 511-515.

Hinton, W. L., Du, N., Chen, Y. C. J., *et al.* (1994) Screening for major depression in Vietnamese refugees: A validation and comparison of two instruments in a health screening population. *Journal of General Internal Medicine.*, 9,

Huffman, J.C. (2006) Rapid screening for major depression in post-myocardial infarction patients: an investigation using Beck Depression Inventory II items. *Heart.*, 92, 1656-1660.

Jay, M. & John, O. P. (2004) A depressive symptom scale for the California psychological inventory: construct validation of the CPI-D. *Psychological Assessment*, 16, 299-309.

Keller, M., Sommerfeldt, S., Fischer, C., *et al.* (2004) Recognition of distress and psychiatric morbidity in cancer patients: a multi-method approach. *Annals of Oncology.*, 15, 1243-1249.

Kessler, R., Barker, P. R., Colpe, L. J., *et al.* (2008) Screening for serious mental illness in the general population. *Archives of General Psychiatry*, 60, 184-189.

Klinkman, M. S., Coyne, J. C., Gallo, S., *et al.* (1998) False positives, false negatives, and the validity of the diagnosis of major depression in primary care. *Archives of Family Medicine*, 7, 451-461.

Lloyd-Williams, M., Shiels, C., & Dowrick, C. (2007) The development of the Brief Edinburgh Depression Scale (BEDS) to screen for depression in patients with advanced cancer. *Journal of Affective Disorders.*, 99, 259-264

Loke, B., Nicklason, F., & Burvill, P. (1996) Screening for depression: clinical validation of the geriatricians' diagnosis, the brief assessment schedule depression cards and the 5-item version of the symptom checklist among non-demented geriatric inpatients. *International Journal of Geriatric Psychiatry*, 11, 461-465.

Lynch, S., Clarkson, P., Fairhurst, D. *et al.* (2002) A comparative study of two scoring methods for screening with the Brief Depression Scale. *Primary Care Psychiatry*, 8, 73-76.

Means-Christensen, A., Arnau, R., Tonidandel, A., *et al.* (2005) An efficient method of identifying major depression and panic disorder in primary care. *Journal of Behavioral Medicine*, 28, 265-572.

Nyklicek, I., Scherders, M. J., & Pop, V. J. (2004) Multiple assessments of depressive symptoms as an index of depression in population-based samples. *Psychiatry Research.*, 128, 111-116.

FINAL DRAFT

Parker, G., Hilton, T., Hadzi-Pavlovic, D., *et al.* (2001) Screening for depression in the medically ill: the suggested utility of a cognitive based approach. *Australian and New Zealand Journal of Psychiatry.*, 35, 474-480.

Ramirez, A. J., Richards, M. A., & Jarrett, S. R. (1995) Can mood disorder in women with breast cancer be identified preoperatively? *British Journal of Cancer*, 72, 1509-1512.

Razavi, D., Delvaux, N., Bredart, A., *et al.* (1992) Screening for psychiatric disorders in a lymphoma out-patient population. *European Journal of Cancer*, 28A, 1869-1872.

Rizzo, R., Piccinelli, M., Bellantuono, C., *et al.* (2000) The Personal Health Questionnaire: a new screening instrument for detection of ICD-10 depressive disorders in primary care. *Psychological Medicine*, 30, 831-840.

Ross, H. & Glaser, F. (1989) Psychiatric screening of alcohol and drug patients: The validity of the GHQ-60. *American Journal of Drug and Alcohol Abuse*, 15, 429-442.

Rumpf, H. J., Meyer, C., Hapke, U., *et al.* (1991) Screening for mental health: validity of the MHI-5 using DSM-IV Axis I psychiatric disorders as gold standard. *Psychiatry Research.*, 105, 243-253.

Silveira, E., Taft, C., Sundh, V., *et al.* (1993) Performance of the SF-36 Health Survey in screening for depressive and anxiety disorders in an elderly female Swedish population. *Quality of Life Research*, 14, 1263-1274.

Vignaroli, E., Pace, E. A., Willey, J., *et al.* (2006) The Edmonton Symptom Assessment System as a screening tool for depression and anxiety. *Journal of Palliative Medicine.*, 9, 296-303.

It was not feasible to translate the paper:

Grafe, K., Zipfel, S., Herzog, W., *et al.* (2004) Screening psychischer storungen mit dem gesundheitsfragebogen fur patienten (PHQ-D). *Diagnostica*, 50, 171-181.