

Depression in adults: treatment and management

**Appendix J2: study characteristics, included and excluded studies
for recognition, assessment and initial management**

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Summary tables of the psychometric properties of screening tools

Beck Depression Inventory (BDI)

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
Consultation				
Dutton, <i>et al.</i> 2004 Quality assessed: ++	BDI-21	DSM-IV	N=220, age = 49 years, 105 male, 115 female African American primary care patients <i>Prevalence of depression - 63/220</i>	Major depression True Positive = 57 False Positive = 25 False Negative = 8 True Negative = 130
Laprise & Vezina, 1998 Quality assessed: +	BDI-21	DSM-III-R	N=66, age = 78 years, 31 male, 35 female Nursing home residents, Canada (French) <i>Prevalence of depression - 27/66</i>	Major depression Cut-off 10 - BDI Sensitivity = 0.963 Specificity = 0.462
Whooley <i>et al.</i> , 1997 Quality assessed: +	BDI-30 item	DSM-III-Diagnostic Interview Schedule (DIS)	N = 543, mean age = 53 (S.D. 14), male 97% Patients visiting urgent care clinic; San Francisco, US <i>Prevalence of depression - 97/536</i>	Major depression Standard cut-off ≥ 10 - BDI-30 item: AUC = 87% (82-91) Sensitivity = 89% (81-95) Specificity = 64% (59-68)
Yeung <i>et al.</i> , 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 - 53/180</i> <i>Only those who screened positive on the BDI and agreed to be interviewed for DSM and a selective sample of those who screened negative on the BDI were interviewed</i>	Depression: major depressive disorder Cut-off ≥ 16 Sensitivity = 79% Specificity = 91% PPV = 79% NPV = 91%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
Zich <i>et al.</i> , 1990 Quality assessed: +	BDI-21	DSM-III Diagnostic Interview Schedule (DIS)	N = 31 Primary care patients who completed both the BDI and DIS, San Francisco, US [Does not give demographic information specific to this sub-group of patients] <u>Prevalence of depression -</u> 3/31	Depressive disorders Cut-off ≥ 10 - BDI Sensitivity = 100% Specificity = 75% Cut-off ≥ 16 - BDI Sensitivity = 100% Specificity = 89%
Community				
Viinamaki <i>et al.</i> , 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55, mean age = 48 years Participants recruited from a wood factory <u>Prevalence of depression -</u> 23/55	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%

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Consultation				
Parker <i>et al.</i> , 2002 Quality assessed: +	Beck Depression Inventory for Primary Care (BDI-PC)	DSM-IV (Composite International Diagnostic Interview - CIDI)	N= 302, mean age = 46.5 (SD = 12.9), 63.2% male 111 (36.8%) patients had chronic physical illness; mean duration = 9 years 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%) Australia, Sydney <i>Prevalence of depression - 14/160</i>	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 <i>et al.</i> , 2001 Quality assessed: ++	BDI-Fast Screen	DSM-IV	N=75, age = 74 years, 33 males, 42 females US geriatric medical setting <i>Prevalence of depression - 8/75</i>	Depression Cut-off 4 Sensitivity = 1 Specificity = 0.84
Whooley <i>et al.</i> , 1997 Quality assessed: +	BDI-13	DSM-III-Diagnostic Interview Schedule (DIS)	N = 543, mean age = 53 (S.D. 14), 97% male Patients visiting urgent care clinic, San Francisco, US <i>Prevalence of depression - 97/536</i>	Major depression Cut-off ≥ 5 - BDI-13 item AUC = 86% (82-90) Sensitivity = 92% (85-97) Specificity = 61% (56-66)

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Wilhelm <i>et al.</i> , 2004 Quality assessed: +	Beck Depression Inventory for Primary Care (BDI-PC)	DSM-IV	N= 212, age range = 16 - 91 years; 55.2% female Medical outpatients and inpatients, 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 <u>Prevalence of depression (major depression) - 49/212</u>	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				
Stukenberg <i>et al.</i> , 1990 Quality assessed: +	BDI - SF	DSM-III-R (SCID)	N=177 community dwelling adults, age range = 56 - 88 years, mean age = 67.4 (SD=7.20), 33% male <u>Prevalence of depression (any) - 27/178</u>	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% Severe depression Optimal cut-off ≥ 16 - BDI-SF Sensitivity = 0.29 Specificity = 0.99 PPV = 99%
Viinamaki <i>et al.</i> , 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55, mean age = 48 years Participants recruited from a wood factory	Depression Cut-off 8/9 Sensitivity = 61% Specificity = 78% PPV = 67%

Study	Identification tool	Comparator	Population	Results
Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Scale (BDI-FS);			<u>Prevalence of depression - 23/55</u>	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				
Blank <i>et al.</i> , 2004 Quality assessed: +	CES-D	Diagnostic Interview Schedule (DIS)	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, 37% male <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 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 CES-D Cut-off ≥ 16 Sensitivity = 71% (32-95) Specificity = 85% (81-87) AUC = 0.82 (0.60-1.03) Cut-off ≥ 14 - recommended Sensitivity = 86% (44-99) Specificity = 78% (74-79) Hospital sample CES-D

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				<p>Cut-off ≥ 16 Sensitivity = 75% (44-93) Specificity = 76% (73-78) AUC = 0.91 (0.84- 0.98)</p> <p>Cut-off ≥ 14 - recommended Sensitivity = 100% (70-100) Specificity = 70% (62-78)</p>
Klinkman <i>et al.</i> , 1997 Quality assessed: +	CES-D	DSM-III-R	<p>N=425 weighted sub-sample of 1580 people attending primary care, mean age = 39.6 years, 23.3% male</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 <i>et al.</i> , 2002 Quality assessed: +	CES-D	CIDI	<p>N=303, mean age = 61 years, 88 males, 215 females</p> <p>Primary care, Hispanic population in US</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 & Koenig, 1997 Quality assessed: +	CES-D	DSM-III-R	<p>N=76, age = 70 years, 41 males, 35 females</p> <p>US, medically ill inpatients</p> <p><u>Prevalence of depression - 26/76</u></p>	<p>Depression Sensitivity = 0.73 Specificity = 0.84</p> <p>Major Depression Sensitivity = 0.90 Specificity = 0.84</p>
Thomas <i>et al.</i> , 2001 Quality assessed: +	CES-D	DSM-IV	<p>N= 179 women, mean age: 44 years</p> <p>Participants were all low income women attending primary care clinics</p> <p><u>Prevalence of depression - 9/179</u></p>	<p>Major depressive disorder AUC = 0.89 (SE = .209)</p> <p>Cut-off ≥ 16 Sensitivity = 95% Specificity = 70% PPV = 28.4% NPV = 99.1%</p> <p>Cut-off ≥ 34 Sensitivity = 45% Specificity = 95% PPV = 52.9%</p>

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				NPV = 93.2%
Watson <i>et al.</i> , 2004 Quality assessed: +	CES-D	DSM-IV	N = 84, age = > 70. 26% male, mean age 82 Participants residing in two Continuing Care Retirement Communities in US <u>Prevalence of depression - 10/78</u>	<p>Major depression</p> <p>CES-D Standard cut-off ≥ 16 Sensitivity = 60% (50, 70) Specificity = 89% (82, 96) PPV = 43% NPV = 94% AUC = 0.0.88</p> <p>GDS-30 Alternative cut-offs</p> <p>Cut-off ≥ 6 Sensitivity = 100% Specificity = 54%</p> <p>Cut-off ≥ 7 Sensitivity = 90% Specificity = 60%</p> <p>Cut-off ≥ 8 Sensitivity = 90% Specificity = 68%</p> <p>Cut-off ≥ 9 Sensitivity = 90% Specificity = 69%</p> <p>Cut-off ≥ 10 Sensitivity = 90% Specificity = 72%</p> <p>Cut-off ≥ 11 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>

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				<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>
<p>Whooley <i>et al.</i>, 1997</p> <p>Quality assessed: +</p>	CES-D	DSM-III-Diagnostic Interview Schedule (DIS)	<p>N = 543, mean age = 53 (S.D. 14), 97% male</p> <p>Patients visiting urgent care clinic, San Francisco, US</p> <p><u>Prevalence of depression</u> - 97/536</p>	<p>Major depression</p> <p>Standard cut-off ≥ 16 - CES-D AUC = 89% (85-92) Sensitivity = 93% (85-97) Specificity = 69% (65-74)</p> <p>Cut-off ≥ 10 -CES-D (10 item) AUC = 87% (83-91) Sensitivity = 90% (82-95) Specificity = 72% (67-76)</p>
<p>Williams <i>et al.</i>, 1999</p> <p>Quality assessed: +</p>	CES-D	DSM-IV	<p>N=296, age = 59 years, 77 males, 219 females</p> <p>US</p> <p><u>Prevalence of depression:</u> 36/296</p>	<p>Depression Sensitivity = 0.88 Specificity = 0.75</p>

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
Zich <i>et al.</i> , 1990 Quality assessed: +	CES-D	DSM-III (Diagnostic Interview Schedule)	N = 31 Primary care patients who completed both the BDI and DIS, San Francisco, US [Does not give demographic information specific to this sub-group of patients] <u>Prevalence of depression = 3/31</u>	Depressive disorders Cut-off ≥ 16 - CES-D Sensitivity = 100% Specificity = 53%
Community				
Papassotiropoulos & Heun, 1999 Quality assessed: +	CES-D	ICD-10	N = 287, mean age = 76 years, 171 female, 116 male Older people from the community, Germany <u>Prevalence of depression = 10/287</u>	Depression Optimal cut-off ≥ 10 Sensitivity = 75% Specificity = 72% AUC = 0.78
Sanchez-Garcia <i>et al.</i> , 2008 Quality assessed: ++	GDS-30	DSM-IV	N = 534, mean age = 71.5 years (SD 7.0), 32% male Older adults receiving IMSS, living in Mexico City, 206 individuals randomly selected for a clinical assessment. <u>Prevalence of major depression =: 19/206</u> <u>Prevalence of any depression =: 62/206</u>	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)
Suthers <i>et al.</i> , 2004 Quality assessed: +	CES-D11	CIDI-SF	N = 1056 (used in table for analysis, 1284 included in study) Community sample responding to telephone screen <u>Prevalence of depression = 79/1256</u>	Depression Standard cut-off 9 Sensitivity = 48.1% Specificity = 88.27% PPV = 21.59% NPV = 96.20%
Tuunaninen <i>et al.</i> , 2001	CES-D – Burnham Screen	DSM-IV	N=436, age = 68 years, all female	Usual cut-off (0.06) Sensitivity = 74%

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
Quality assessed: +			US <i>Prevalence of depression - 30/436</i>	Specificity = 87%
Wada <i>et al.</i> , 2007 Quality assessed: +	CES-D	DSM-IV	N = 2219, mean age = 42 years, 351 female, 1868 male Community sample (workers in a company), Japan <i>Prevalence of depression - 49/2219</i>	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
<i>Consultation</i>				
Evans & Katona, 1993 Quality assessed: +	GHQ-12	Geriatric Mental State (GMS)	N = 408, Mean age = 73 years (SD - 8.4) , 38% male N = 136 randomly selected for analysis of GHQ Older adults attending primary care, London <i>Prevalence of depression - 52/136</i>	Depression GHQ Sensitivity = 0.7692 Specificity = 0.7619
Goldberg <i>et al.</i> , 1997 Quality assessed: +	GHQ-12 GHQ-28	CIDI (DSM-IV/ICD-10)	N = 5438 Consecutive primary care patients in 15 countries	Common mental health problems GHQ-12 Ankara - threshold 1/2: Sensitivity = 70.6% Specificity = 82.3% PPV = 55.7% Athens - threshold 2/3: Sensitivity = 80.6% Specificity = 84.7% PPV = 62.4%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				<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% Specificity = 85.9% PPV = 63.1%</p> <p>Paris - threshold 1/2: Sensitivity = 78.2% Specificity = 79.4% PPV = 54.3%</p> <p>Rio de Janeiro - threshold 1/2: Sensitivity = 70.2% Specificity = 77.3% PPV = 49.4%</p> <p>Santiago - threshold 2/3: Sensitivity = 84.8% Specificity = 82.2% PPV = 60.0%</p>

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				<p>Seattle - threshold 1/2: Sensitivity = 82.1% Specificity = 76.5% PPV = 52.4%</p> <p>Shanghai - threshold 1/2: Sensitivity = 80.6% Specificity = 84.7% PPV = 62.4%</p> <p>Verona - threshold 1/2: Sensitivity = 75.8% Specificity = 65.3% PPV = 40.6%</p>
Hahn <i>et al.</i> , 2006 Quality assessed: +	GHQ-12	CIDI (DSM-IV/ICD-10)	<p>N = 204, age range 18-80, mean age = 49.6, 52% male</p> <p>13 rehabilitation inpatient clinics in Germany, chronically ill inpatients: 5.9% cardiovascular diseases, 8.8% orthopaedic diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease</p> <p><i>Prevalence of depression - 35/204</i></p>	<p>Affective disorder (single episode or recurrent major depression, dysthymia)</p> <p>Optimal cut-off ≥ 7 - GHQ AUC = 0.779 (0.716-0.834) Sensitivity = 77.1% Specificity = 69.2% PPV = 34.2%</p>
Harter <i>et al.</i> , 2001 Quality assessed: +	GHQ-12	M-CIDI	<p>N=206, mean age = 48 years</p> <p>Neck and back pain (70%), arthropathies (14%), rheumatic disorders (6%), other musculoskeletal disorders (10%)</p> <p><i>Prevalence of depression - 10/206</i></p>	<p>AUC = 0.65 (0.57, 0.72)</p> <p>Cut-off ≥ 5: Sensitivity = 75% Specificity = 51.7% PPV = 17.3%</p>
Harter <i>et al.</i> , 2006 Quality assessed: +	GHQ-12	M-CIDI	<p>N= 569, age range 22-83, mean age 54, 50% male</p> <p>36% musculo-skeletal diseases; 29% CVD and 35% cancer</p> <p><i>Prevalence of depression - 59/130</i></p>	<p>Any depression</p> <p>GHQ AUC = 0.72 (0.68, 0.76)</p> <p>Cut-off ≥ 8 GHQ Sensitivity = 52.5% Specificity = 77.9% PPV = 22.1%</p>

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
<p>Henkel <i>et al.</i> 2004a & b</p> <p>Secondary paper Henkel <i>et al.</i>, 2003 - brief report</p> <p>Quality assessed: +</p>	GHQ-12	CIDI - ICD-10 (and DSM-IV research criteria for minor depression)	<p>N = 448, of which 431 had an independent clinical diagnosis, mean age = 48.98</p> <p>Primary care patients</p> <p><i>Prevalence of depression (any) - 82/431</i></p> <p><i>Prevalence of depression (major) - 50/431</i></p> <p><i>Prevalence of depression (dysthymia disorder) - 24/431</i></p> <p><i>Prevalence of depression (minor) - 54/431</i></p>	<p>Any depression</p> <p>GHQ-12 Standard cut-off ≥ 2 Sensitivity = 85% Specificity = 63% PPV = 34% NPV = 95%</p> <p>Any depression according to ICD-10 GHQ-12 AUC = 0.833</p> <p>Any depression according to ICD-10 including minor depression (per DSM-IV research criteria) GHQ-12 AUC = 0.817</p> <p>Types of depression according to ICD-10 and DSM-IV research criteria:</p> <p>Major depression AUC = 0.874</p> <p>Dysthymia disorder AUC = 0.832</p> <p>Minor depression AUC = 0.755</p>
<p>The MaGPIe Research Group, 2005</p> <p>Quality assessed: +</p>	GHQ-12	CIDI	<p>N = 775</p> <p>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%</p>

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				PPV = 44.1% NPV = 89.3% Cut-off ≥ 6 Sensitivity = 43.9% Specificity = 89.4% PPV = 47.4% NPV = 87.9% Cut-off ≥ 7 Sensitivity = 38.2% Specificity = 92.5% PPV = 52.6% NPV = 87.3% Cut-off ≥ 8 Sensitivity = 29.5% Specificity = 94.5% PPV = 54.1% NPV = 86.0%
Patel <i>et al.</i> , 2008 Quality assessed: ++	GHQ-12	Clinical Interview Schedule (Revised - CIS-R)	N = 598, mean age = 37.5 years (SD 14.2 years), 43.6% male Participants attending 5 primary care clinics in Goa, India <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 <i>et al.</i> , 1999a Schmitz <i>et al.</i> , 1999b – secondary study Schmitz <i>et al.</i> , 2001 – secondary study	GHQ-12	DSM-III-R (SCID)	N = 572, mean age = 42.7 years (SD - 15.7), 31.3% male Outpatients attending primary care practices in Dusseldorf, Germany. Of these 421 completed the GHQ-12 <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

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
Quality assessed: +				AUC = 0.76 (SD=0.026)
Community				
Costa <i>et al.</i> , 2006 Quality assessed: +	GHQ-12	ICD-10	N=126, age = 81 years, 36 male, 90 female Elderly people, Brazil <i>Prevalence of depression - 65/126</i>	Sensitivity = 0.661 Specificity = 0.623
Donath, 2001 Quality assessed: +	GHQ-12	ICD-10 or DSM-IV based on the CIDI	N = 10,641, 44% male Part of the 1997 Australian National Survey of Health and Wellbeing, conducted on a community sample <i>Prevalence of affective or anxiety disorder - 7.3%</i>	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 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 & Heun, 1999 Quality assessed: +	GHQ-12	ICD-10	N = 287, mean age = 76 years, 171 female, 116 male Older people from the community, Germany <i>Prevalence of depression - 10/287</i>	Depression Optimal cut-off ≥ 4 Sensitivity = 63% Specificity = 91% AUC = 0.794

General Health Questionnaire-12				
Study	Identification tool	Comparator/ caseness	Population	Results
Viinamaki <i>et al.</i> , 1995 Quality assessed: +	GHQ-12	DSM-III-R	N=56, mean age = 48 years Employers from factory <u>Prevalence of depression -</u> 23/56	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				
Goldberg <i>et al.</i> , 1997 Quality assessed: +	GHQ-28	CIDI (DSM- IV/ICD-10)	N = 5,438 Consecutive primary care patients in 15 countries	Common mental health problems GHQ-28 Ankara - threshold 3/4 Sensitivity = 74.6% Specificity = 77.1% 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%

General Health Questionnaire-28				
Study	Identification tool	Comparator/ caseness	Population	Results
				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% 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				
Blank <i>et al.</i> , 2004 Quality assessed: +	GDS - 30	Diagnostic Interview Schedule (DIS)	N = 360, age = >60 years, mean age 77, 37% male Participants were recruited from primary care (N=125), general hospitals (N=150) and nursing home (N=85) settings (analysis presented separately for each group) <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-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 Cut-off ≥ 10 Sensitivity = 86% (44-99) Specificity = 72% (68-73) AUC = 0.88 (0.74-1.02) Cut-off ≥ 13 - recommended Sensitivity = 86% (44-99) Specificity = 85% (81-86) Hospital sample GDS-30 Cut-off ≥ 10 Sensitivity = 83% (52-97) Specificity = 78% (75-79) AUC = 0.90 (0.81-1.00) Cut-off ≥ 15 - recommended Sensitivity = 83% (54-97) Specificity = 93% (90-94)
Burke <i>et al.</i> , 1992 Quality assessed: +	GDS-30	DSM-III-R	N = 67, mean age = 77.2 (SD 6.5), 34% male Cognitively intact outpatients	Depression Cut-off ≥ 11 Sensitivity = 81% Specificity = 61%

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
			<i>Prevalence of depression - 16/67</i>	Cut-off ≥ 14 Sensitivity = 44% Specificity = 75% Cut-off ≥ 17 Sensitivity = 31% Specificity = 94%
Evans & Katona, 1993 Quality assessed: +	GDS-30	Geriatric Mental State (GMS)	N = 408, mean age = 73 years (SD - 8.4), 38% male Older adults attending primary care, London. N = 144 randomly selected for analysis of GDS <i>Prevalence of depression - 59/144</i>	Depression GDS Sensitivity = 0.8475 Specificity = 0.7176
Fernandez-San Martin <i>et al.</i> , 2002 Quality assessed: +	GDS-30	DSM-IV	N=192, age = >65 years, 70 males, 122 females Primary care, Spain <i>Prevalence of depression - 60/192 (mainly psychotic depression)</i>	Depression Cut-off ≥11 Sensitivity = 0.817 Specificity = 0.68
Jongenelis <i>et al.</i> , 2007 Quality assessed: +	GDS-30	DSM-IV	N= 333, age = 79 years, 104 males, 229 females Nursing home, Netherlands <i>Prevalence of depression - 74/333</i>	Any depression Cut-off 11 Sensitivity = 0.85 Specificity = 0.69
Koenig <i>et al.</i> , 1992a & b Quality assessed: +	GDS-30	DSM-III-R	N = 109, mean age = 74 (S.D. 4.1), 100% male Medically ill hospitalised patients, Durham, US Mean MMSE score = 25.7 (S.D. 3.3) <i>Prevalence of depression - 11/109</i>	Major depression Cut-off ≥ 11 - GDS Sensitivity = 82% Specificity = 76% PPV = 27% NPV = 97%
Laprise & Vezina, 1998	GDS-30	DSM-III-R	N=66, mean age = 78 years, 31 males, 35 females	Depression

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
Quality assessed: +			Nursing home residents, Canada (French) <u>Prevalence of depression - 27/66</u>	Cut-off 10-GDS Sensitivity = 0.92 Specificity = 0.513
Lyness <i>et al.</i> , 1997 Quality assessed: +	GDS-30	DSM-III-R	N = 130, mean age = 71 years (SD - 6.8), 41.5% male Older adults attending primary care <u>Prevalence of major depression - 14/130</u> <u>Prevalence of any depression - 24/130</u>	Major depression Cut-off 10 GDS-30 Sensitivity = 100% Specificity = 84% AUC = 0.936 (0.031)
Magni <i>et al.</i> , 1986 Quality assessed: ++	GDS-30	DSM-III	N = 220, mean age = 76 years, 111 male, 109 female Consecutive admissions to general medical ward, Italy <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 <i>et al.</i> , 1994 Quality assessed: +	GDS-30	DSM-III-R	N = 66, mean age - 83 years (SD=4), 29% male New admissions to two nursing homes <u>Prevalence of major depression- 6/66</u> <u>Prevalence of any depression- 30/66</u>	Any depression Cut-off ≥ 10 - GDS-30 Sensitivity = 63% Specificity = 83%
Nam Bae & Cho, 2004 Quality assessed: ++	GDS - Korean version (GDS-K)	DSM-III-R	N = 154 (91.1% of eligible participants), mean age = 66 years (SD = 6.48), male - 35% 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	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
			from the study. <u>Prevalence of depression - 62/154</u>	
Neal & Baldwin, 1994 Quality assessed: +	GDS-30	GMS-AGECAT	N = 45, mean age - 77.2, 38% male Older adults attending medical outpatient clinics in three UK hospitals. <u>Prevalence of depression:- 10/45 (22%)</u>	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 <i>et al.</i> , 2001 Quality assessed: +	GDS-30	ICD-10	N = 87, mean age 78.4 (SD - 7.7), 40% male Patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities	Depressive episode GDS-30 Optimal cut-off ≥ 11 Sensitivity = 100% Specificity = 62.9% AUC = 0.85 (0.77, 0.94) PPV = 39.5%

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
			<u>Prevalence of depression - 17/87</u>	NPV = 100%
Robison <i>et al.</i> , 2002 Quality assessed: +	GDS-30	CIDI	N=303, age = 61 years, 88 males, 215 females Primary care, Hispanic population, US <u>Prevalence of depression - 67/303</u>	Sensitivity = 0.81 Specificity = 0.65
Snowdon, 1990 Quality assessed: +/- unable to assess due to lack of information	GDS-30	DSM-III	N = 69, mean age and % male - not reported Residents in old age hostels or nursing homes <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 <i>et al.</i> , 1995 Quality assessed: +	GDS-30 item	DSM-III	N=586, age = 65-94 years, 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 <i>et al.</i> , 2007 Quality assessed: +	GDS-30	DSM-IV	N=484, age = 70 years, 208 males, 276 females General Outpatient Clinic, Portugal <u>Prevalence of depression - 210/484</u>	Cut-off 12 Sensitivity = 0.87 Specificity = 0.73

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
Watson <i>et al.</i> , 2004 Quality assessed: +	GDS-30	DSM-IV	N = 84, age = >70, mean age = 82, 26% male Participants residing in two Continuing Care Retirement Communities in US <i>Prevalence of depression - 10/78</i>	Major depression GDS-30 Standard cut-off ≥ 12 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% Cut-off ≥ 9 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%

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
				Specificity = 97% Cut-off ≥ 14 Sensitivity = 60% 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 <i>et al.</i> , 2001 Quality assessed: +	GDS-30	DSM-IV (SCID)	N= 169, mean age = 72 years, 57 males, 112 female Ambulatory older adults were contacted by telephone, Argentina <u>Prevalence of depression - 22/169</u>	Cut-off 11 Sensitivity = 0.88 Specificity = 0.84
Costa <i>et al.</i> , 2006 Quality assessed: +	GDS-30	ICD-10	N=126, mean age = 81 years, 36 males, 90 females Older adults, Brazil <u>Prevalence of depression - 65/126</u>	GDS Sensitivity = 0.733 Specificity = 0.654
Dunn & Sacco, 1989 Quality assessed: +	GDS-30	DSM-III measured used the Depression Symptom Checklist and the research diagnostic criteria/	N = 439, mean age = 74 years, % male - not reported Community dwelling older adults attending either an activity centre or dining facility <u>Prevalence of depression - 36/439</u>	Major depression Cut-off 11 - GDS 30 False Positive = 53 (18%) False Negative = 6 (17%)
Sanchez-Garcia, <i>et al.</i> , 2008	GDS-30	DSM-IV	N =534, mean age = 71.5 years (SD 7.0), 32% male	Any depression

Geriatric Depression Scale - 30 item				
Study	Identification tool	Comparator/caseness	Population	Results
Quality assessed: ++			<p>Older adults receiving IMSS (Mexican Institute of Social Security), living in Mexico City, 206 individuals randomly selected for a clinical assessment</p> <p><i>Prevalence of major depression:-</i> 19/206</p> <p><i>Prevalence of any depression:-</i> 62/206</p>	<p>Standard cut-off GDS</p> <p>Sensitivity = 53.8% (53.1-54.5) Specificity = 78.9% (78.4-79.5) PPV = 60.8% (60.0-61.6) NPV = 73.7% (73.3-74.1)</p>

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
Consultation				
Abas <i>et al.</i> , 1998 Quality assessed: +	GDS-15	GMS-AGECAT	<p>N = 164 (82 completed both the screen and the diagnostic interview)</p> <p>African-Caribbean adults aged over 60 using primary care services, London, UK</p> <p><i>Prevalence of depression - 22/82</i></p> <p><i>Prevalence of depression based on whole sample - 20% (95% CI 17, 23)</i></p>	<p>Major depression</p> <p>Cut-off ≥4 Sensitivity = 89.1% Specificity = 65.8%</p> <p>Cut-off ≥5 Sensitivity = 81.5% Specificity = 81.5%</p> <p>Cut-off ≥6 Sensitivity = 74.0% Specificity = 85.5%</p>
Arthur <i>et al.</i> , 1999 Quality assessed: +	GDS-15	ICD-10 based on SCAN	<p>N = 201</p> <p>All people aged over 75 in one large GP practice list undergoing a health check, Leicester, UK</p> <p><i>Prevalence of depression - 12/201 - 6%</i></p>	<p>Depression</p> <p>Cut-off ≥2 Sensitivity = 100% Specificity = 49.9% PPV = 11.2% NPV = 100.0%</p> <p>Cut-off ≥3 Sensitivity = 100% Specificity = 71.9% PPV = 18.4% NPV = 100.0%</p> <p>Cut-off ≥4 Sensitivity = 80% Specificity = 81.6% PPV = 21.6%</p>

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
				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%
Blank <i>et al.</i> , 2004 Quality assessed: +	GDS-15	Diagnostic Interview Schedule (DIS)	N = 360, mean age = 77 years, 37% male 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 <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)

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
				Hospital sample 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 <i>et al.</i> , 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. Whole sample: mean age = 80.2 years (SD 7.48 years), 41% male Interview sample: mean age = 80.3 years (SD 7.49 years), 40% male <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 <i>et al.</i> , 1994 Quality assessed: +	GDS-15	GMS	N=194, age = 74 years, 126 females, 72 males <u>Prevalence of depression</u> - 67/194	Depression Sensitivity = 91% Specificity = 72%
Friedman <i>et al.</i> , 2005 Quality assessed: +	GDS-15	Mini International Neuropsychiatric Interview (MINI)	N = 960, mean age = 79.3 years (SD 7.4), 25.4% male Functionally impaired but cognitively intact older adults participating in a RCT	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
			<p>assessing a primary care health intervention, US</p> <p><u>Prevalence of depression: - 124/960 (12.9%)</u></p>	
<p>Hoyl <i>et al.</i>, 1999</p> <p>Quality assessed: +</p>	<p>GDS-15</p> <p>GDS-5</p>	<p>Clinical evaluation - including MINI, PRIME-MD and psychiatric consultation</p>	<p>N=74, mean age = 74 years, 98% male</p> <p>Frail older adult outpatients, California, US</p> <p><u>Prevalence of depression - 34 / 74 (46%)</u></p>	<p>Any depression</p> <p>GDS-15 Sensitivity = 0.94 Specificity = 0.82 PPV = 0.82 NPV = 0.94 AUC = 0.91</p> <p>GDS-5 Optimal cut off ≥ 2 Sensitivity = 0.97 Specificity = 0.85 PPV = 0.85 NPV = 0.97 AUC = 0.94</p>
<p>Jongenelis <i>et al.</i>, 2007</p> <p>Quality assessed: +</p>	GDS-15	DSM-IV	<p>N= 333, age = 79 years, 104 males, 229 females</p> <p>Nursing home, Netherlands</p> <p><u>Prevalence of depression - 74/333</u></p>	<p>Any depression</p> <p>Cut-off 5 Sensitivity = 0.81 Specificity = 0.63</p>
<p>Lyness <i>et al.</i>, 1997</p> <p>Quality assessed: +</p>	GDS - 15	DSM-III-R	<p>N = 130, mean age = 71.0 years (SD - 6.8 years), 41.5% male</p> <p>Older adults attending primary care</p> <p><u>Prevalence of major depression - 14/130</u></p> <p><u>Prevalence of any depression - 24/130</u></p>	<p>Major depression</p> <p>Cut-off 5 GDS-15 Sensitivity = 92% Specificity = 81%</p> <p>AUC = 0.935 (0.046)</p>
<p>Marc <i>et al.</i>, 2008</p> <p>Quality assessed: +</p>	GDS-15	DSM-IV using SCID and expert consensus	<p>N = 526, mean age = 78.3 years (SD - 7.5), 34.9% male</p> <p>Older adults who were newly admitted to receive home nursing care; participants with cognitive impairment</p>	<p>Depression</p> <p>Optimal cut off ≥ 5 - GDS-15 Sensitivity = 71.8% Specificity = 78.2%</p> <p>AUC = 0.7933 (SE - 0.0308)</p>

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
			were excluded from the study (492 cases used in the analysis due to missing data) <i>Prevalence of depression: - 81/526 (15.4%)</i>	Standard cut off ≥ 5 - GDS-15 Sensitivity = 60.6% Specificity = 86.2%
Nam Bae & Cho, 2004 Quality assessed: ++	Short GDS - Korean version (SGDG-K)	DSM-III-R	N = 154 (91.1% of eligible participants), mean age = 66 years (SD = 6.48), 35% male 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. <i>Prevalence of depression - 62/154</i>	Major depression SGDS-K Optimal cut-off ≥ 8 Sensitivity = 0.8548 Specificity = 0.6957 Optimal cut-off ≥ 10 (indicated by ROC curve) Sensitivity = 0.7419 Specificity = 0.8587
Neal & Baldwin, 1994 Quality assessed: +	GDS-15	DSM (GMS)	N=45, age = 77years, 18 males, 27 females <i>Prevalence of depression - 8/45</i>	Depression Optimal cut-off - GDS-15 Sensitivity = 0.67 Specificity = 0.80
Pomeroy <i>et al.</i> , 2001 Quality assessed: +	GDS-4 GDS-15	ICD-10	N = 87, mean age 78.4 (SD - 7.7), 40% male Patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities <i>Prevalence of depression - 17/87</i>	Depressive episode GDS-4 Optimal cut-off ≥ 1 Sensitivity = 82.4% Specificity = 67.1% AUC = 0.80 (0.68, 0.93) PPV = 37.8% NPV = 94.0% GDS-15 Optimal cut-off ≥ 5 Sensitivity = 82.4% Specificity = 60.0 AUC = 0.82 (0.71, 0.93) PPV = 33.3% NPV = 93.3%
Rinaldi <i>et al.</i> , 2003 Quality assessed: +	GDS-15 5-item GDS (Hoyl <i>et al.</i> , 1999) (GDS-5)	DSM-IV	N= 181, age = 65 years and older, mean age 79.4 (SD- 7.3) Participants with normal cognitive function enrolled	Any depression GDS-15 Sensitivity = 0.92 (0.88, 0.96) Specificity = 0.83 (0.78, 0.88)

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
			from three settings: an acute geriatric ward (33%), a geriatric outpatient clinic (28%) and a nursing home (39%) <i>Prevalence of depression - 87/181</i>	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 <i>et al.</i> , 2001 Quality assessed: ++	GDS-15	DSM-IV	N=75, age = 74 years, 33 males, 42 females US geriatric medical setting <i>Prevalence of depression - 8/75</i>	Cut-off ≥ 7 Sensitivity = 1 Specificity = 0.79
Van Marwijk <i>et al.</i> , 1995 Quality assessed: +	GDS-15	DSM-III	N=586, age = 65-94 years, 237 males, 349 females Older people in primary care, Netherlands <i>Prevalence of depression - 33/586</i>	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 <i>et al.</i> , 2003 Quality assessed: +	GDS-15	DSM-IV	N=79, median age = 87 years, 24 males, 55 females Community dwelling, older adults Netherlands	Cut-off 3 True Positive = 7 False Positive = 17 False Negative = 1 True Negative = 54
Orcos <i>et al.</i> , 2007 Unable to quality assess as full translation required - (Detailed English abstract containing	GDS-15 GDS-5	DSM-IV	N= 301, non-selected older community dwelling adults <i>Prevalence of depression: - 14.6%</i>	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)

Geriatric Depression Scale - 15 item (and Brief GDS)				
Study	Identification tool	Comparator/caseness	Population	Results
information on population and all results)				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 <i>et al.</i> , 1999 Quality assessed: +	GDS-15	DSM-IV	N=130, mean age = >60 years, no information on gender <u>Prevalence of depression - 13/130</u>	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 <i>et al.</i> , 2006 Quality assessed: +	HADS	CIDI (DSM-IV/ICD-10)	N = 204, age range 18-80, mean age = 49.6, 52% male 13 rehabilitation inpatient clinics in Germany, chronically ill inpatients; 5.9% cardiovascular diseases, 8.8% orthopaedic diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease <u>Prevalence of depression - 35/204</u>	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%
Harter <i>et al.</i> , 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%) <u>Prevalence of depression - 10/206</u>	AUC = 0.79 (0.73, 0.85) Cut-off ≥ 16: Sensitivity = 78.3% Specificity = 70.6% PPV = 28.6%

Hospital Anxiety and Depression Scale (HADS - Depression only)				
Study	Identification tool	Comparator/caseness	Population	Results
Harter <i>et al.</i> , 2006 Quality assessed: +	HADS	M-CIDI	N= 569, age range 22-83, mean age 54, 50% male 36% musculo-skeletal diseases; 29% CVD and 35% cancer <u>Prevalence of depression - 59/130</u>	Any depression HADS AUC = 0.82 (0.79, 0.86) Cut-off ≥ 18- HADS Sensitivity = 73.7% Specificity = 79.5% PPV = 30.7%
Healey <i>et al.</i> , 2008 Quality assessed: ++	HADS	DSM-IV (SCID)	N = 49, mean age = 78.9 (6.79), male = 43% Stroke patients recruited from inpatient rehabilitation units <u>Prevalence of MDD- 7/49</u> <u>Prevalence of minor depression - 6/49</u> <u>Prevalence of any depression - 13/49</u>	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)
Herrero <i>et al.</i> , 2003 Quality assessed: +	HADS	DSM-IV (SCID)	N=385, mean age = 38 years, 204 males, 181 females General hospital - all participants were outpatients with severe medical pathology, from neurosurgery, pulmonary, cardiology, neurology and infectious illness settings, Spain <u>Prevalence of depression - 87/385</u>	Cut-off 7 Sensitivity = 0.92 Specificity = 0.644
Lam <i>et al.</i> , 1995 Quality assessed: +	HADS	DSM-III-R	N=100, age = 69 years, 44 males, 56 females Elderly primary care patients, Hong Kong <u>Prevalence of depression - 9/100</u>	Sensitivity = 0.78 Specificity = 0.91

Hospital Anxiety and Depression Scale (HADS - Depression only)				
Study	Identification tool	Comparator/caseness	Population	Results
<p>Lowe <i>et al.</i>, 2004a</p> <p>Lowe <i>et al.</i>, 2004b - duplicate report</p> <p>Quality assessed: +</p>	HADS	DSM-IV (SCID)	<p>N= 501, mean age = 41.7 years (SD = 13.8), 32.9% male</p> <p>395 outpatients from Heidelberg University Medical Hospital, 106 patients from 12 GPs in Heidelberg</p> <p>21% musculo-skeletal disease, 16% endocrine, nutritional & metabolic disease, 10% cardiovascular/circulatory disease, 7% gastrointestinal disease, 6% respiratory system disease</p> <p><u>Prevalence of depression - 66/501</u></p>	<p>Any depression</p> <p>Cut-off ≥ 7 - HADS Sensitivity = 86% (78, 91) Specificity = 70% (65, 74)</p> <p>Cut-off ≥ 8 - HADS Sensitivity = 81% (73, 87) Specificity = 75% (71, 80)</p> <p>Cut-off ≥ 10 - HADS Sensitivity = 75% (66, 82) Specificity = 82% (78, 86)</p> <p>Major depression</p> <p>Cut-off ≥ 8 - HADS Sensitivity = 88% (78, 95) Specificity = 69% (64, 73)</p> <p>Cut-off ≥ 9 - HADS Sensitivity = 85% (78, 95) Specificity = 76% (64, 73)</p> <p>Cut-off ≥ 10 - HADS Sensitivity = 74% (62, 84) Specificity = 83% (79, 86)</p>
<p>Parker <i>et al.</i>, 2002</p> <p>Quality assessed: +</p>	HADS	DSM-IV (CIDI)	<p>N= 302, 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>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>Australia, Sydney</p> <p><u>Prevalence of depression - 14/160</u></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)</p>

Hospital Anxiety and Depression Scale (HADS - Depression only)				
Study	Identification tool	Comparator/caseness	Population	Results
				Specificity = 70.4% (70.4, 93.2) Optimal cut-off ≥ 9 - BDI-PC AUC = 0.892 Sensitivity = 75% (32.6, 100] Specificity = 70.4% (82.4, 99.4) Cut-off ≥ 11 - BDI-PC AUC = 0.892 Sensitivity = 50.0% (1, 99) Specificity = 93.24% (85.7 100)
Upadhyaya & Stanley, 1997 Quality assessed: +	HADS	GMS-AGECAT	N = 72, age = 71.2, 37 males, 35 females Attendees over 65years old at a medical centre (80 approached to take part in study), Liverpool, UK <u>Prevalence of depression - 20/72</u>	Depression Optimal cut-off 8/9 Sensitivity = 70% Specificity = 87%

Hamilton Depression Rating Scale (HDRS)

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

Major Depression Inventory (MDI)

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

Montgomery-Asberg Depression Rating Scale (MADRS)

Montgomery-Asberg Depression Rating Scale (MADRS)				
Study	Identification tool	Comparator/caseness	Population	Results
<i>Mixed community and consultation</i>				
Mottram <i>et al.</i> , 2000	MADRS	DSM-IV	N=414 older adults, mean age = 77 years, 111 males, 303 males	Depression
Quality assessed: +			<i>Prevalence of depression - 330/414</i>	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
<i>Consultation</i>				
Kroenke <i>et al.</i> , 2001, Spitzer <i>et al.</i> , 1999, Kroenke, 2003, Huang <i>et al.</i> , 2005 - all use same participants	Patient Health Questionnaire 2-item version (PHQ-2)	DSM-III-R (SCID and diagnostic questions from the PRIME-MD conducted over the telephone by mental health profession-	N = 580 (6000 in total study) The total sample screened = 6000; of these 580 had a mental health practitioner interview within 48 hours and were used in the analysis. They did not differ from the total sample on any demographic or functional item.	MDD Sensitivity = 0.88 Specificity = 0.88
Kroenke <i>et al.</i> , 2001, Huang 2005 - PHQ-9				Major depressive disorder PHQ-2 Cut-off ≥ 1 Sensitivity = 97.6% Specificity = 59.2% PPV = 15.4%

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/caseness	Population	Results
Spitzer <i>et al.</i> , 1999, Kroenke, 2003 - PHQ-2 Quality assessed: +		als)	The total sample was recruited from 5 general practices, 3 family practices and 7 obstetrics-gynecology sites) <u>Prevalence of depression - 41/580</u>	<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 = 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 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>

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/caseness	Population	Results
				<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 = 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% Specificity = 89%</p> <p>Cut-off ≥ 12 Sensitivity = 83% Specificity = 92%</p> <p>Cut-off ≥ 13 Sensitivity = 78% Specificity = 93%</p> <p>Cut-off ≥ 14 Sensitivity = 73% Specificity = 94%</p> <p>Cut-off ≥ 15 Sensitivity = 68% Specificity = 95%</p>

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

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/caseness	Population	Results
Consultation				
<p>Arroll <i>et al.</i>, 2003</p> <p>Quality assessed: +</p>	Two screening questions from B-PHQ (1) During the past month, have you often been bothered by feeling down,	CIDI	<p>N=421, median age = 46 years</p> <p>Primary care patients</p> <p><i>Prevalence of depression - 29/421</i></p>	<p>Depression</p> <p>2 items:</p> <p>Sensitivity = 97%</p> <p>Specificity = 67%</p> <p>PPV = 18%</p>

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/caseness	Population	Results
	depressed or hopeless?; (2) During the past month, have you often been bothered by little interest or pleasure in doing things?			Depression only question: Sensitivity = 86% Specificity = 72% PPV = 18% Pleasure only question: Sensitivity = 83% Specificity = 79% PPV = 22%
Arroll <i>et al.</i> , 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?	CIDI	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)
Haughey <i>et al.</i> , 2005 Quality assessed: +	PHQ-2 Whooley	DSM-IV	N = 226, mean age = 40 years (SD =19 years) People presenting to an urgent care clinic. <u>Prevalence of depression - 31/226</u>	Depression Sensitivity = 0.9677 Specificity = 0.5179
Robison <i>et al.</i> , 2002 Quality assessed: +	PHQ-2 Whooley	CIDI	N=303, age = 61 years, 88 males, 215 females Primary care, Hispanic population in US <u>Prevalence of depression - 67/303</u>	Sensitivity = 0.92 Specificity = 0.44

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/caseness	Population	Results
Whooley <i>et al.</i> , 1997 Quality assessed: +	PHQ-2 (Yes or No scale)	DSM-III-Diagnostic Interview Schedule (DIS)	N = 543, mean age = 53 (S.D. 14), 97% male Patients visiting urgent care clinic, San Francisco, US <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 <i>et al.</i> , 2005 Quality assessed: +	PHQ-9 (Malay version)	CIDI	N = 265, mean age = 38.7 (SD = 13.8), 38.3% male Patients attending a primary care clinic; those scoring >5 and a selection of those scoring <5 were interviewed by a psychiatrist <u>Prevalence of depression: - 97/180</u>	Depression Optimal cut-off ≥ 5 - PHQ-9 Sensitivity = 69% Specificity = 60.5 % PPV = 60.3% AUC = 0.399
Corapcioglu & Ozer, 2004 Quality assessed: +	PHQ-9	DSM-IV	N=1387, age = 29 years, 857 males, 530 females Primary care, Turkey <u>Prevalence of depression - 267/1387</u> <u>Prevalence of major depression - 91/1387</u>	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 <i>et al.</i> , 2001 Quality assessed: +	PHQ-9	DSM-III-R	N=1003, mean age = 43 years, 552 males, 451 females Medical and surgical inpatients, Spain <u>Prevalence of depression: 263/1003</u> <u>Prevalence of major depression - 148/1003</u>	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 <i>et al.</i> , 2006 Quality assessed:	PHQ-9	SCID	N= 50, mean age = 39 years, all female	MDD Standard cut-off - PHQ-9 True Positive = 9

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/caseness	Population	Results
+			Women in psychiatric services seeking treatment for their children <i>Prevalence of depression: - 17/50</i>	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 <i>et al.</i> , 2007 Quality assessed: +	PHQ-9	SCID	N=96, mean age = 43 years, 22 males, 74 females UK <i>Prevalence of major depression - 36/96</i>	MDD Standard cut-off - PHQ-9 Sensitivity = 0.917 Specificity = 0.783
Hahn <i>et al.</i> , 2006 Quality assessed: +	Brief Patient Health Questionnaire (B-PHQ)	CIDI (DSM-IV/ICD-10)	N = 204, age range = 18-80, mean age = 49.6 13 rehabilitation inpatient clinics in Germany, chronically ill inpatients; 5.9% cardiovascular diseases, 8.8% orthopaedic diseases, 5.4% cancer, 18.6% endocrinologic disease, 53.4% pneumological disease <i>Prevalence of depression - 35/204</i>	Affective disorder [single or recurrent major depression or dysthymia) Optimal cut-off ≥ 11 - PHQ-Brief AUC = 0.844 (0.786-0.891) Sensitivity = 80% Specificity = 75.7% PPV = 40.6%
Henkel <i>et al.</i> , 2004a & b 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 <i>Prevalence of depression (any) - 82/431</i> <i>Prevalence of depression (major) - 50/431</i> <i>Prevalence of depression (dysthymia disorder) - 24/431</i>	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

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/caseness	Population	Results
			<u>Prevalence of depression (minor) - 54/431</u>	Standard cut-off ≥ 2 inc. 1a or 1b - B-PHQ Sensitivity = 79% Specificity = 86% PPV = 55% NPV = 95%
<p>Kroenke <i>et al.</i>, 2001, Spitzer <i>et al.</i>, 1999, Kroenke, 2003, Huang 2005 - all use same participants</p> <p>Kroenke <i>et al.</i>, 2001, Huang 2005 - PHQ-9</p> <p>Spitzer <i>et al.</i>, 1999, Kroenke, 2003 - PHQ-2</p> <p>Quality assessed: +</p>	PHQ-9	DSM-III-R (SCID and diagnostic questions from the PRIME-MD conducted over the telephone by mental health professionals)	<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>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% Specificity = 89%</p> <p>Cut-off ≥ 12 Sensitivity = 83% Specificity = 92%</p> <p>Cut-off ≥ 13 Sensitivity = 78% Specificity = 93%</p> <p>Cut-off ≥ 14 Sensitivity = 73% Specificity = 94%</p> <p>Cut-off ≥ 15 Sensitivity = 68% Specificity = 95%</p>
<p>Lotrakul <i>et al.</i>, 2008</p> <p>Quality assessed: +</p>	PHQ-9 Thai version	DSM-IV (MINI)	<p>N = 924, mean age = 45.0 years, 26.3% male</p> <p>Patients at a family care clinic. N = 279 were included in a convenience sample assessed with the MINI.</p> <p><u>Prevalence of major depression - 13/279</u></p> <p><u>Prevalence of any depression - 69/279</u></p>	<p>Major depression</p> <p>Optimal cut-off ≥ 9- PHQ Sensitivity = 84% Specificity = 77% PPV = 21% NPV = 99%</p> <p>Standard cut-off ≥ 10- PHQ Sensitivity = 74% Specificity = 85% PPV = 27% NPV = 98%</p>

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/caseness	Population	Results
				AUC = 0.89 (0.85–0.92)
<p>Lowe <i>et al.</i>, 2004a</p> <p>Lowe <i>et al.</i>, 2004b – duplicate report</p> <p>Lowe <i>et al.</i>, 2005 – PHQ-2 data</p> <p>Quality assessed: +</p>	PHQ-9	DSM-IV (SCID)	<p>N= 501, mean age = 41.7 years (SD = 13.8); 32.9% male</p> <p>395 outpatients from Heidelberg University Medical Hospital, 106 patients from 12 GPs in Heidelberg</p> <p>21% musculo-skeletal disease, 16% endocrine, nutritional & metabolic disease, 10% cardiovascular/circulatory disease, 7% gastrointestinal disease, 6% respiratory system disease</p> <p><i>Prevalence of depression - 66/501</i></p>	<p>Any depression</p> <p>Cut-off ≥ 9- PHQ Sensitivity = 87% (79, 92) Specificity = 76% (72, 80)</p> <p>Cut-off ≥ 10- PHQ Sensitivity = 81% (73, 87) Specificity = 82% (78, 86)</p> <p>Cut-off ≥ 11- PHQ Sensitivity = 79% (70, 85) Specificity = 85% (81, 89)</p> <p>Major depression</p> <p>Cut-off ≥ 11- PHQ Sensitivity = 98% (92, 100) Specificity = 80% (76, 83)</p> <p>Cut-off ≥ 12- PHQ Sensitivity = 95% (87, 99) Specificity = 84% (80, 87)</p> <p>Cut-off ≥ 13- PHQ Sensitivity = 88% (78, 95) Specificity = 87% (84, 90)</p>
<p>Yeung <i>et al.</i>, 2008</p> <p>Quality assessed: +</p>	PHQ-9 Chinese Bilingual version	DSM-IV (SCID – Chinese version)	<p>N = 1940 completed the PHQ-9 questionnaires. Of these 184 had both a PHQ-9 screen and completed the SCID interview.</p> <p>All participants were Chinese Americans attending primary care clinics</p> <p><i>Prevalence of depression - 42/184</i></p>	<p>MDD</p> <p>PHQ-9 optimal cut-off ≥ 10 Sensitivity = 81% Specificity = 98% PPV = 92% NPV = 95%</p> <p>AUC = 97 (SE 0.01)</p>
Community				
<p>Adewuya <i>et al.</i>, 2006</p> <p>Quality assessed: +</p>	PHQ-9	MINI	<p>N = 512, age = 25, 59% male</p> <p>Nigeria, student sample at university</p> <p><i>Prevalence: major depression - 13/512</i></p>	<p>MDD only</p> <p>Cut-off ≥ 10 -PHQ-9 Sensitivity = 0.846 Specificity = 0.994 PPV = 0.750 NPV = 0.996</p>

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
Han <i>et al.</i> , 2008 Quality assessed: +	PHQ-9	DSM-IV	N=1060, age = >60 years, no information on gender South Korea, population based geriatric sample <u>Prevalence of depression - 175/1060</u> <u>Prevalence of major depression - 62/1060</u>	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
<i>Consultation</i>				
Arroll <i>et al.</i> , 2003 Quality assessed: +	Two screening questions from B-PHQ (1) During the 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?	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 <i>et al.</i> , 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	CIDI	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)

Single Question and two-item screens				
Study	Identification tool	Comparator/caseness	Population	Results
	bothered by little interest or pleasure in doing things? Help question: Is this something with which you would like help with?			Either screening question plus help question: Sensitivity = 79% (65, 88) Specificity = 94% (92, 95)
Howe <i>et al.</i> , 2000 Quality assessed: +	Mental Health Inventory - 1 item version (MHI-1)	DSM-IV	N=100, age = 81 years, 38 males, 62 females Older adults from UK primary care settings <u>Prevalence of depression - 30/100</u>	Depression: Sensitivity = 0.67 Specificity = 0.60
Means-Christensen <i>et al.</i> , 2006 Quality assessed: +	Screening question: 1. Have you lost interest in things? 2. Have you felt sad, empty or depressed?	CIDI	N= 801, age range 19-79, mean age 41.49 years (SD = 12.48), 37.8% male Primary care patients in clinic in US <u>Prevalence of depression - 41/115</u>	Depression Sensitivity = 88% Specificity = 75% PPV = 19% NPV = 99%
Pomeroy <i>et al.</i> , 2001 Quality assessed: +	MHI-1 (Are you depressed?)	ICD-10	N = 87, mean age 78.4 (SD - 7.7 yrs), 40% male Patients over the age of 60 admitted to medical rehabilitation wards or attending day rehabilitation facilities <u>Prevalence of depression - 17/87</u>	Depression Sensitivity = 88.2% Specificity = 71.4% AUC = 0.88 (0.79-0.97) PPV = 42.9% NPV = 96.1%
Robison <i>et al.</i> , 2002 Quality assessed: ++	Yale-1	CIDI	N=303, age = 61 years, 88 males, 215 females Primary care, Hispanic population in US <u>Prevalence of depression - 67/303</u>	Depression Sensitivity = 0.86 Specificity = 0.42

Single Question and two-item screens				
Study	Identification tool	Comparator/caseness	Population	Results
Williams <i>et al.</i> , 1999 Quality assessed: +	CES-D	DSM-IV	N=291, age = 58 years, 93 males, 198 females US <u>Prevalence of depression - 40/291</u>	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
<i>Community</i>				
Adalberto, 2006 Quality assessed: +	SDS (20 item)	DSM-IV	N = 266; mean age = 37.4 years Community sample, Colombia, Bucaramanga <u>Prevalence of depression - 44/266</u>	Depression: major depressive disorder Standard cut-off ≥ 40 Sensitivity = 88.6% Specificity = 74.8% PPV = 41.1% NPV = 97.1% AUC = 0.901

References to included studies

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