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Depression: Summary table of the psychometric properties of screening tools

Contents

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 *Prevalence of depression* – **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) *Prevalence of depression* – **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 *Prevalence of depression* – **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 *Prevalence of depression* – **53/180** *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*	**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] *Prevalence of depression* – **3/31**	**Depressive disorders** **Cut-off ≥ 10 - BDI** Sensitivity – 100% Specificity – 75% **Cut-off ≥ 16 - BDI** Sensitivity – 100% Specificity – 89%
Physical health problems				
Aben 2002 Quality assessed: +	BDI-21	DSM-IV	N = 202 (N=171 completed BDI); mean age = 68 years; 91 female, 111 male Stroke patients; Netherlands, Maastricht *Prevalence of depression* – **51/202**	**Depression: major depressive and minor disorder (*also gives results from major depressive disorder only*)** **Standard cut-off ≥ 10** Sensitivity – 77.1% Specificity – 65.4%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				PPV – 37.5% NPV – 91.4% AUC – 0.79
Berard 1998 Quality assessed: +	BDI-21	DSM-IV	N=100 Age = 50 years, Gender: 13 males, 87 females Cancer patients, South Africa *Prevalence of depression* – **21/100**	**Depression:** Cut-off 14 Sensitivity: 0.90 Specificity 0.86
Craven 1998 Quality assessed: ++	BDI-21	DSM-III	N=99, Age = 51 years, gender: 63 males, 36 females Renal dialysis patients, Canada *Prevalence of depression* – **12/99**	**Depression** **Cut-off 10 – BDI-21** True Positive = 11 False Positive = 36 False Negative = 1 True Negative = 51
Golden 2007 Quality assessed: +	BDI-21	DSM-IV (SCID-CV)	N = 88 outpatients at a hepatitis C service Male = 74% *Prevalence of depression* – **25/88**	**Any depression** **BDI** AUC – 0.87 (0.80-0.95) **Cut-off ≥ 8 - BDI** Sensitivity – 88% (69-97) Specificity – 75% (62-85) PPV – 58% (41-74) NPV – 94% (83-99)
Hammer 2008 Quality assessed: +	BDI-21	DSM-IV (SCID)	N = 39 Patients with amyotrophic lateral sclerosis (ALS) Mean age – 57.62 years (SD – 8.86) Male – 49% *Prevalence of depression* – **7/39**	**Major Depression** **Standard cut-off ≥11** Sensitivity – 100% (63-100) Specificity – 43% (26 – 62) PPV – 35% (18 – 56) NPV – 100% (72-100) **Optimal cut-off ≥18** Sensitivity – 78% (40 – 96) Specificity – 80% (61- 92) PPV – 54% (26 – 80) NPV – 92 (73 – 99) **AUC** – 0.89 (0.79 – 1.0) **Any Depression** **Standard cut-off ≥11** Sensitivity – 100% (63 – 100)

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				Specificity – 43% (26 – 62) PPV – 35% (18 – 56) NPV – 100% (72 – 100) **Optimal cut-off ≥18** Sensitivity – 78% (40 – 96) Specificity – 80% (61 – 92) PPV – 54% (26 – 80) NPV – 92% (73 – 99) **AUC** – 0.89 (0.79 - 1.0)
Hedayati 2006 Quality assessed: ++	BDI-21	DSM-IV	N=98 age = 57 years, gender: 54 males, 44 females Haemodialysis patients _Prevalence of depression_ – **26/98**	**Depression** **Cut-off 12** Sensitivity = 65% Specificity = 72%
Hermanns 2006 Quality assessed: +	BDI-21	ICD-10	N =376; mean age = 52 years; 148 women, 228 male Diabetes patients; Germany, Merengentheim _Prevalence of depression_ - **53/376**	**Depression** **Cut-off ≥ 10** Sensitivity –86.8% Specificity – 81.4% PPV – 43.4% NPV – 97.4% AUC – 0.80
Leentjens 2000 Quality assessed: +	BDI-21	DSM-IV (SCID)	N= 53; 100% Parkinson's Disease; mean age 67 y/o (SD= 10.5) _Prevalence of depression_ – **12/53**	**Depression** **BDI** AUC – 0.857 **Optimal cut-off ≥ 14– BDI** Sensitivity – 67% Specificity – 88% PPV – 62% NPV – 90% **Cut-off ≥ 7 – BDI** Sensitivity –100% Specificity – 46% PPV – 35% NPV – 100% **Cut-off ≥ 8 – BDI** Sensitivity –100% Specificity – 54% PPV – 39% NPV – 96% **Cut-off ≥ 9 – BDI** Sensitivity – 92% Specificity – 59%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				PPV – 39% NPV – 96% **Cut-off ≥ 10 – BDI** Sensitivity – 75% Specificity – 63% PPV – 38% NPV – 90% **Cut-off ≥ 11 – BDI** Sensitivity – 75% Specificity – 71% PPV – 43% NPV – 91% **Cut-off ≥ 12 – BDI** Sensitivity – 75% Specificity – 76% PPV – 47% NPV – 91% **Cut-off ≥ 13 – BDI** Sensitivity – 67% Specificity – 78% PPV – 47% NPV – 89% **Cut-off ≥ 15 – BDI** Sensitivity – 58% Specificity – 93% PPV – 70% NPV – 88% **Cut-off ≥ 16 – BDI** Sensitivity – 50% Specificity – 93% PPV – 70% NPV – 88% **Cut-off ≥ 17 – BDI** Sensitivity – 42% Specificity – 98% PPV – 83% NPV – 85%
Lincoln 2003 Quality assessed: +	BDI	DSM-III-R /ICD-10	N=143 who had a stroke, 52% male, mean age 66 years (S.D. 13.5) _Prevalence of depression (DSM-II-R)=_ **21/143** _Prevalence of depression (ICD-10)=_ **12/143**	

Results table for Lincoln 2003:

	ICD-10	DSM-III-R
Cut-off ≥10		
Sensitivity	93%	95%
Specificity	24%	18%
Cut-off ≥11		
Sensitivity	88%	95%
Specificity	28%	24%
Cut-off ≥12		
Sensitivity	85%	91%
Specificity	37%	30%
Cut-off ≥13		
Sensitivity	83%	91%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				Specificity 44% 36% **Cut-off ≥14** Sensitivity 75% 91% Specificity 55% 48% **Cut-off ≥15** Sensitivity 73% 91% Specificity 56% 49% **Cut-off ≥16** Sensitivity 70% 91% Specificity 63% 56% **Cut-off ≥17** Sensitivity 60% 76% Specificity 69% 62% **Cut-off ≥18** Sensitivity 55% 71% Specificity 73% 67% **Cut-off ≥19** Sensitivity 47% 67% Specificity 79% 73% **Cut-off ≥20** Sensitivity 43% 62% Specificity 82% 77%
Low 2007 Quality assessment +	BDI-21	DSM-IV (SCID-I / NP)	N = 119 patients meeting criteria for either acute MI or unstable angina pectoris. Male = 75% Mean age = 62.97 (SD 11.61) Canada, British Columbia _Prevalence of depression_ – **7/119**	**MDD** **Cut-off ≥ 9 – BDI** Sensitivity – 100% Specificity – 72% PPV – 17% NPV – 100% **Cut-off ≥ 10 – BDI** Sensitivity – 100% Specificity – 75% PPV – 18% NPV – 100% **Cut-off ≥ 11 – BDI** Sensitivity – 83% Specificity – 76% PPV – 18% NPV – 99% **Cut-off ≥ 12 – BDI** Sensitivity – 83% Specificity – 80% PPV – 19% NPV – 99%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				Standard Cut-off ≥ 13 – BDI Sensitivity – 83% Specificity – 84% PPV – 23% NPV – 99% **Optimal cut-off ≥ 14 – BDI** Sensitivity – 83% Specificity – 88% PPV – 28% NPV – 99% **AUC** – 0.91 **Any Depression** **Cut-off ≥ 9 – BDI** Sensitivity – 100% Specificity – 72% PPV – 19% NPV – 100% **Cut-off ≥ 10 – BDI** Sensitivity – 100% Specificity – 75% PPV – 21% NPV – 100% **Cut-off ≥ 11 – BDI** Sensitivity – 86% Specificity – 77% PPV – 20% NPV – 99% **Cut-off ≥ 12 – BDI** Sensitivity – 86% Specificity – 81% PPV – 23% NPV – 99% **Standard Cut-off ≥ 13 – BDI** Sensitivity – 86% Specificity – 85% PPV – 27% NPV – 99% **Optimal cut-off ≥ 14 – BDI** Sensitivity – 86% Specificity – 89% PPV – 34% NPV – 99%

Beck Depression Inventory (BDI-21)				
Study	Identification tool	Comparator	Population	Results
				AUC – 0.92
Lustman1997 Quality assessment +	BDI-21	DSM-III DIS-revised	N = 172 diabetic outpatients with poor glycaemia control. Male = 52% Mean age = 48.1 (SD 13.6) US, Washington *Prevalence of depression* – **63/172**	**Any Depression** **Cut-off ≥ 8 – BDI** Sensitivity – 99% Specificity – 52% **Cut-off ≥ 10 – BDI** Sensitivity – 98% Specificity – 70% **Cut-off ≥ 12 – BDI** Sensitivity – 90% Specificity – 84% **Cut-off ≥ 14 – BDI** Sensitivity – 82% Specificity – 89% **Cut-off ≥ 16 – BDI** Sensitivity – 73% Specificity – 93% **Optimal cut-off ≥ 13 – BDI** AUC = 0.94 (0.02)
Snijders 2006 Quality assessed: +	BDI-21	DSM-IV	N=114, median age= 30 years, gender: 79 males, 35 females Tourette's patients, UK *Prevalence of depression* – **26/114**	**MDD** **cut-off 12 – BDI-21** Sensitivity - 0.96 Specificity - 0.56
Strik 2001 Quality assessed: +	BDI-21	DSM-IV (SCID-I)	N= 206 post myocardial infraction; 76.1% male Male – mean age = 59 (SD = 10.6); age range = 34 – 84 Female – mean age = 62.9 (SD = 10.7); age range = 38 – 78 *Prevalence of depression* – **39/206**	**Any depression (major or minor)** **Optimal cut-off ≥ 8 - BDI** AUC – 0.84 Sensitivity 83.8% Specificity – 71.7% PPV – 25.3 NPV – 98.3
Watnick 2005 Quality assessed: +	BDI-21	DSM-IV	N=62, Age = 63 years, Gender: 42 males, 20 females Dialysis patients	**MDD** **Cut-off 16 – BDI-21** PPV= 0.59

Beck Depression Inventory (BDI-21)				
Study	**Identification tool**	**Comparator**	**Population**	**Results**
			Prevalence of depression – **12/62 (MDD)**	NPV = 0.98 Sensitivity = 0.91 Specificity = 0.86
Community				
Viinamaki 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55 Mean age: 48 years Participants recruited from a wood factory *Prevalence of depression* – **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 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 *Prevalence of depression* – **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)

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Scheinthal 2001 Quality assessed: ++	BDI-Fast Screen	DSM-IV	N=75, Age: 74 years, Gender: 33 males, 42 females US geriatric medical setting *Prevalence of depression* – **8/75**	**Depression** **Cut-off 4** Sensitivity 1 Specificity 0.84
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 *Prevalence of depression* – **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 *Prevalence of depression (major depression)* – **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)
Physical health problems				
Furlanetto 2005 Quality assessed: ++	BDI-SF	ICD-10	N = 155 patients admitted to adult medical wards Male = 47% Mean age = 49.5 (S.D. 17) Brazil, Rio de Janeiro *Prevalence of depression* –	**Moderate and severe depressive episodes** **BDI-FS** AUC – 0.984 (0.97-1.00) **Cut-off ≥ 9 – BDI-FS** Sensitivity – 100% Specificity – 82.3% PPV – 58.5%

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Study	Identification tool	Comparator	Population	Results
			31/193	NPV – 82% **Cut-off ≥ 10– BDI-FS** Sensitivity – 100% Specificity – 83.1% PPV – 59.6% NPV – 100% **Cut-off ≥ 11 – BDI-FS** Sensitivity – 96.8% Specificity – 85.5% PPV – 62.5% NPV – 99.1% **Cut-off ≥ 12 – BDI-FS** Sensitivity – 93.5% Specificity – 89.5% PPV – 69.0% NPV – 98.2% **Cut-off ≥ 13 – BDI-FS** Sensitivity – 93.5% Specificity – 94.4% PPV – 85.3% NPV – 98.3% **Cut-off ≥ 14 – BDI-FS** Sensitivity – 93.5% Specificity – 96.0% PPV – 85.3% NPV – 98.3% **Cut-off ≥ 15 – BDI-FS** Sensitivity – 90.3% Specificity – 96.0% PPV – 84.8% NPV – 97.5%
Golden 2007 Quality assessed: +	BDI-FS	DSM-IV (SCID-CV)	N = 88 outpatients at a hepatitis C service Male = 74% *Prevalence of depression* – **25/88**	**Any depression** **BDI-FS** AUC – 0.85 (0.77-0.93) **Cut-off ≥ 4 – BDI-FS** Sensitivity – 84% (64-95) Specificity – 67% (54-78) PPV – 50% (34-66) NPV – 91% (34-66)

The top header bar reads: Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);

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Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
Healey 2008 Quality assessed: ++	BDI-SF	DSM-IV (SCID)	N = 49 stroke patients recruited from inpatient rehabilitation units Mean age = 78.9 (6.79) Male = 43% *Prevalence of MDD-* **7/49** *Prevalence of minor depression* – **6/49** *Prevalence of any depression* – **13/49**	**Any depression** **Cut-off ≥ 4 – BDI-FS** Sensitivity – 62% (36-82) Specificity – 78% (62-88) PPV – 50% (28-72) NPV – 85% (69-93) **MDD** **Cut-off ≥ 4 – BDI-FS** Sensitivity – 71% (36-92) Specificity – 74% (59-85) PPV – 31% (14-56) NPV – 94% (80-98)
Love 2004 Quality assessed: +	BDI-SF	DSM-IV	N= 227 women with stage IV breast cancer involved in RCT; mean age = 52 y/o (SD = 9) Australia *Prevalence of depression* – **74/227**	**Any depression (major and minor)** **AUC =** 0.82 **Cut-off ≥ 4 – BDI** Sensitivity –84% Specificity – 63% PPV – 52% NPV – 89% **Cut-off ≥ 5 – BDI** Sensitivity –73% Specificity – 74% PPV – 58% NPV – 85% **Cut-off ≥ 6 – BDI** Sensitivity –65% Specificity – 84% PPV – 66% NPV – 83% **Cut-off ≥ 7 – BDI** Sensitivity –47% Specificity – 86% PPV – 62% NPV – 77% **Cut-off ≥ 8 – BDI** Sensitivity –40% Specificity – 89% PPV – 64% NPV – 76%

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Study	Identification tool	Comparator	Population	Results
				Major depression **Cut-off ≥ 4 – BDI** Sensitivity –100% Specificity – 52% PPV – 14% NPV – 100% **Cut-off ≥ 5 – BDI** Sensitivity –94% Specificity – 63% PPV – 16% NPV – 99% **Cut-off ≥ 6 – BDI** Sensitivity –75% Specificity – 71% PPV – 16% NPV – 97% **Cut-off ≥ 7 – BDI** Sensitivity –69% Specificity – 79% PPV – 20% NPV – 97% **Cut-off ≥ 8 – BDI** Sensitivity –62% Specificity – 82% PPV – 21% NPV – 97%
Patterson 2006 Quality assessed: +	Beck Depression Inventory – Cognitive-Affective subscale	DSM-IV (SCID)	N = 310 people with HIV infection Male = 88% Mean age = 39.7 (S.D. 9.0) US, California *Prevalence of depression* – **52/310**	**Major Depressive Disorder** **BDI-Cognitive-affective subscale** AUC – 0.80 (S.E. 0.04) **Cut-off ≥ 10 – BDI-Cognitive-affective subscale** Sensitivity – 61% Specificity – 80% PPV – 37% NPV – 91%
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	**Any depression** **BDI** AUC – 0.82(SE .06) **Mild Depression**

Beck Depression Inventory- Short Form (BDI-SF); Beck Depression Inventory- Fast Screen (BDI-FS);				
Study	Identification tool	Comparator	Population	Results
			33% male *Prevalence of depression (any)*– **27/178**	**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 1995 Quality assessed: +	BDI-13	DSM-III-R	N=55 Mean age: 48 years Participants recruited from a wood factory *Prevalence of depression* – **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%

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	**Major depression** **Primary care sample**

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			(N=85) settings (analysis presented separately for each group). All participants were aged >60 years Mean age – 77 years Male = 37% _Prevalence of major depression –_ **9%** _Prevalence of any depression –_ **16%** _Prevalence of major depression in primary care –_ **11%** _Prevalence of major depression in hospital –_ **8%** _Prevalence of major depression in nursing homes –_ **9%**	**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** **Cut-off ≥16** Sensitivity – 75% (44-93) Specificity - 76% (73-78) AUC – 0.91 (0.84- 0.98) **Cut-off ≥14 – recommended** Sensitivity – 100% (70-100) Specificity - 70% (62-78)
Klinkman 1997 Quality assessed: +	CES-D	DSM-III-R	N=425 weighted sub-sample of 1580 people attending primary care. Mean age – 39.6 years Male – 23.3% _Prevalence of depression –_ **57/425**	**Depression** **Cut-off ≥ 16 – CES-D** Sensitivity - 0.807 Specificity - 0.717 PPV – 0.307 **Cut-off ≥ 22 – CES-D** Sensitivity - 0.614 Specificity - 0.848 PPV – 0.385
Robison 2002 Quality assessed:	CES-D	CIDI	N=303, Primary care, Hispanic population in US	**Depression** **Standard cut-off – CES-D**

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

Study	Identification tool	Comparator	Population	Results
+			Mean Age = 61 years gender: 88 males, 215 females *Prevalence of depression* - **67/303**	Sensitivity - 0.73 Specificity - 0.72
Schein 1997 Quality assessed: +	CES-D	DSM-III-R	N=76, Age = 70 years Gender= 41 males, 35 females US, Medically ill inpatients *Prevalence of depression -*: **26/76**	**Depression** Sensitivity 0.73 Specificity 0.84 **Major Depression** Sensitivity 0.90 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 *Prevalence of depression* – **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 *Prevalence of depression* – **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**

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				Sensitivity – 90% Specificity - 68% **Cut-off ≥ 9** Sensitivity – 90% Specificity - 69% **Cut-off ≥ 10** Sensitivity – 90% Specificity - 72% **Cut-off ≥ 11** Sensitivity – 80% Specificity - 77% **<u>Cut-off ≥ 12</u>** Sensitivity – 80% Specificity - 78% ROC analysis – captured 80% of cases **Cut-off ≥ 13** Sensitivity – 70% Specificity - 81% **Cut-off ≥ 14** Sensitivity – 70% Specificity - 86% **Cut-off ≥ 15** Sensitivity – 70% Specificity - 88% **Cut-off ≥ 16** Sensitivity – 60% Specificity - 89% **Cut-off ≥ 17** Sensitivity – 60% Specificity - 93% **Cut-off ≥ 18** Sensitivity – 50% Specificity - 97% **Cut-off ≥ 21** Sensitivity – 40% Specificity - 99% **Minor depression** **CES-D** **Standard cut-off ≥ 16**

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
				Sensitivity –50% (39, 61) Specificity –86% (79.93) PPV – 21% NPV – 96% AUC – 0.72
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) Male = 97% USA, San Francisco *Prevalence of depression –* **97/536**	**Major depression** **Standard cut-off ≥ 16 – CES-D** AUC – 89% (85-92) Sensitivity –93% (85-97) 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 *Prevalence of depression:* **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] *Prevalence of depression –* **3/31**	**Depressive disorders** **Cut-off ≥ 16 – CES-D** Sensitivity – 100% Specificity – 53%
Physical health problems				
Agrell 1989 Quality assessed: +	CES-D	Psychiatric interview	N = 40 adults attending an outpatient clinic following a stroke. Mean age – 80 years Male – 45% *Prevalence of depression:-* **17/40**	**Depression** **Recommended cut-off ≥ 20 – CES-D** Sensitivity – 56% Specificity – 91% PPV – 82% NPV – 75%

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
Hedayati 2006 Quality assessed: ++	CES-D	DSM-IV	N=98 age = 57 years, gender: 54 males, 44 females Haemodialysis patients *Prevalence of depression* - **26/98**	**Depression** Sensitivity = 73% Specificity = 76%
Hermanns 2006 Quality assessed: +	CES-D	ICD-10	N =376; mean age = 52 years; 148 women, 228 male Diabetes patients; Germany, Merengentheim *Prevalence of depression* - **53/376**	**Depression** **Cut-off ≥ 23** Sensitivity – 79.2% Specificity – 88.8% PPV – 53.8% NPV – 96.3% AUC – 0.85
Kuptniratsaikul 2002 Quality assessed: +	CES-D	DSM-IV	N = 83; mean age = 33 years; 66 male Spinal cord injury patients; Thailand. *Prevalence of depression:* - **20/83**	**Depression: depressed mood or adjustment disorder** **Cut-off ≥ 19** Sensitivity – 80.0% Specificity – 69.8% PPV – 45.7% NPV – 91.7%
McManus 2005 Quality assessed: +	CES-D– 10 items	DSM-IV	N=1,024 who have CHD Mean age = 67 years Men 82% *Prevalence of depression* – **224/1024**	**Depression** *AUC* – 0.87 (0.84, 0.89) *Cut-off point ≥ 10* Sensitivity – 76% Specificity – 79%
McQuillan 2003 Quality assessed: +	CES-D	DSM-IV	N= 415 Age = 58 years Gender: 71 males, 344 females US, Rheumatoid Arthritis *Prevalence of depression* - **37/415**	**Depression** Sensitivity 0.89 Specificity 0.24
Parikh 1988 Quality assessed: ++	CES-D	DSM-III	N=80, age = 58 years gender: 40 males, 40 females Stroke patients	**Depression** **Standard cut-off – CES-D** True Positive = 48 False Positive = 12 False Negative =8 True Negative = 112
Community				

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

Study	Identification tool	Comparator	Population	Results
Papassotiropoulos 1999 Quality assessed: +	CES-D	ICD-10	N = 287; mean age = 76 years; 171 female, 116 Older people from the community; Germany *Prevalence of depression* = **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% *Prevalence of major depression-:* **19/206** *Prevalence of any depression-:* **62/206**	**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)
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 *Prevalence of depression -* **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 *Prevalence of depression -* **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 *Prevalence of depression -*	**Depression: major depressive disorder** **Standard cut-off ≥ 16- CES-D** Sensitivity – 95.1% Specificity – 85.0% PPV – 10.7%

Center for Epidemiological Studies-Depression Scale (CES-D)				
Study	Identification tool	Comparator	Population	Results
			49/2219	NPV – 99.9% AUC – 0.96

Depression in the Medically Ill Scale (DMI)

Depression in the medically ill				
Study	Identification tool	Comparator	Population	Results
Physical health problems				
Hilton 2006 Quality assessed: +	DMI-10 DMI-18	CIDI	N=322, Mean age = 66 years, gender: 229 males, 93 females Coronary syndrome or heart failure *Prevalence of depression -* **36/322**	**MDD** **DMI-10** Cut-off 6 Sensitivity = 0.80 Specificity = 0.70 **DMI-18** Cut-off 14 Sensitivity = 0.756 Specificity = 0.773
Wilhelm 2004 Quality assessed: +	DMI -10	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 *Prevalence of depression (major depression) –* **49/212**	**Major depression** **DMI** AUC – 0.85 (78, 91) Sensitivity – 87% (68, 95) Specificity – 66% (55, 69) **Any depression (major or minor)** **DMI** AUC – 0.88 (83, 93) Sensitivity - 0.87 (75, 94) Specificity – 74 (67, 80) **Affective disorder** **DMI** AUC – 0.91 (87, 95) Sensitivity – 89% (77, 95) Specificity – 77% (70, 83)

Distress Thermometer

Distress Thermometer				
Study	Identification tool	Comparator	Population	Results
Physical health problems				

Akizuki 2003 Quality assessed: +	Distress Thermometer	DSM-IV	N = 275; mean age = 52 years; 164 female, 111 male Cancer patients; Japan, Tokyo and Kashiwa *Prevalence of depression -* **168/275**	**Depression: major depression and adjustment disorder** **Standard cut-off ≥ 5** Sensitivity – 84% Specificity – 61% PPV – 35% NPV – 68%
Akizuki 2005 Quality assessed: +	Distress Impact Thermometer	DSM-IV	N = 295; mean age = 51; 164 female, 131 male Cancer patients; Japan *Prevalence of major depression* – **53/295**	**Depression: major depressive disorder** **Optimal cut-off ≥ 5 on distress score & ≥ 4 on impact score** Sensitivity – 89% Specificity – 70%

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 *Prevalence of depression –* **52/136**	**Depression** **GHQ** Sensitivity – 0.7692 Specificity – 0.7619
Goldberg1997 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%

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General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				Bangalore – threshold 6/7: Sensitivity – 86.7% Specificity – 88.9% PPV – 71.2% **Berlin – threshold 2/3:** Sensitivity – 72.6% Specificity – 75.0% PPV – 47.8% **Groningen – threshold 2/3:** Sensitivity - 80.3% Specificity – 86.4% PPV – 65.1% **Ibadan – threshold 1/2:** Sensitivity – 77.8% Specificity – 79.4% PPV – 54.4% **Mainz – threshold 2/3:** Sensitivity – 73.5% Specificity – 81.2% PPV – 55.2% **Manchester – threshold 3/4:** Sensitivity – 84.6% Specificity – 89.3% PPV – 71.4% **Nagasaki – threshold 1/2:** Sensitivity – 76.2% 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%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				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 _Prevalence of depression_ – **35/204**	**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%
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%) _Prevalence of depression_ – **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;	**Any depression** **GHQ** AUC – 0.72 (0.68, 0.76)

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
			Mean age 54; Age range 22-83 *Prevalence of depression* – **59/130**	**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 *Prevalence of depression (any)* - **82/431** *Prevalence of depression (major)* - **50/431** *Prevalence of depression (dysthymia disorder)* – **24/431** *Prevalence of depression (minor)* - **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:** **Major depression** AUC – 0.874 **Dysthymia disorder** AUC – 0.832 **Minor depression** AUC – 0.755
MaGPIe Group 2005 Quality assessed: +	GHQ-12	CIDI	N = 775 1151 were selected for interview, with 788 completing interviews *Prevalence of depression:-* *136/775*	**Depression** **Cut-off ≥3** Sensitivity – 66.3% Specificity - 71.8% PPV – 34.0% NPV – 90.7% **Cut-off ≥4** Sensitivity – 59.9% Specificity - 80.5%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				PPV – 40.2% NPV – 90.2% **Cut-off ≥5** Sensitivity – 53.5% Specificity - 85.1% 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 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% *Prevalence of common mental disorders –* **92/598**	**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	GHQ-12	DSM-III-R (SCID)	N = 572 outpatients attending primary care practices in Dusseldorf, Germany. Of these 421 completed the GHQ-12	**Common mental disorders** **Cut-off 11/12** Sensitivity –0.70 Specificity - 0.68

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
Schmitz 2001 – secondary study Quality assessed: +			Mean age – 42.7years (SD – 15.7 years) Male – 31.3% *Prevalence of common mental disorder –* **36.8%**	PPV – 0.56 **Cut-off 7/8** Sensitivity – 0.88 Specificity - 0.41 AUC – 0.76 (SD=0.026)
Physical health problems				
Aydin 2001 Quality assessed: +	GHQ-12 Turkish version (validated)	CIDI	N= 157 males; Recently diagnosed TB (n=42), defaulted TB (n= 380, multi drug resistant TB (n=39), COPD (n=38) *Prevalence of depression –* **8/100**	**Depression** *Cut-off 1/2* Sensitivity – 87.5% Specificity – 79.4% *Cut-off 2/3* Sensitivity – 87.5% Specificity – 94.1% *Cut-off 3/4* Sensitivity – 75% Specificity – 100% *Cut-off 4/5* Sensitivity – 75% Specificity – 100% *Cut-off 5/6* Sensitivity – 12.5% Specificity – 100% **dTB** *Cut-off 1/2* Sensitivity – 100% Specificity – 41.3% *Cut-off 2/3* Sensitivity – 75% Specificity – 63.3% *Cut-off 3/4* Sensitivity – 63.3% Specificity – 80% *Cut-off 4/5* Sensitivity – 20% Specificity – 93.3% *Cut-off 5/6* Sensitivity – 0% Specificity – 93.3%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				MdrTB *Cut-off 1/2* Sensitivity – 100% Specificity – 41.3% *Cut-off 2/3* Sensitivity – 100% Specificity – 62.1% *Cut-off 3/4* Sensitivity – 100% Specificity – 79.3% *Cut-off 4/5* Sensitivity – 70% Specificity – 73.1% *Cut-off 5/6* Sensitivity – 60% Specificity – 100% **COPD** *Cut-off 1/2* Sensitivity – 100% Specificity – 25% PPV – 54.6% NPV- 100% *Cut-off 2/3* Sensitivity – 100% Specificity – 40% PPV – 60% NPV- 100% *Cut-off 3/4* Sensitivity – 94.4% Specificity – 55% PPV – 65.4% NPV- 91.7% *Cut-off 4/5* Sensitivity – 88.8% Specificity – 70% PPV – 72.7% NPV- 87.5% *Cut-off 5/6* Sensitivity – 83.3% Specificity – 80% PPV – 78.9%

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				NPV- 84.1%
Chatuverdi 1994 Quality assessed: +	GHQ-12	ICD-9	N=100 age= 25-49 years, gender: all females Gynaecological patients, India *Prevalence of depression:-* **36/100**	**Depression** **Optimal cut-off** Sensitivity: 1.00 Specificity: 0.78
Picardi 2005 Quality assessed: +	GHQ-12	SCID	N=141, Age = 38 years, Gender: 62 males, 79 females Dermatology patients, Italy *Prevalence of depression:-*: **44/141** (any depression); **12/141** (MDD)	Sensitivity = 0.73 Specificity = 0.78
Reuter 2000 Quality assessed: +	GHQ-12	DSM-IV	N=188, Mean age = 54 years, gender: 137 males, 51 females Cancer patients, Germany *Prevalence of depression:-*: **14/188**	**Depression:** **Cut-off 2** Sensitivity = 0.93 Specificity = 0.49
Community				
Costa 2006 Quality assessed: +	GHQ-12	ICD-10	N=126 age = 81 years, gender: 36 males, 90 females Elderly people, Brazil *Prevalence of depression:-*: **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% *Prevalence of affective or anxiety disorder – 7.3%*	**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)

General Health Questionnaire-12				
Study	Identification tool	Comparator / caseness	Population	Results
				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 _Prevalence of depression –_ **10/287**	**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 _Prevalence of depression –_ **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				
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% PPV – 50.7% **Athens – threshold 5/6:** Sensitivity – 89.5%

General Health Questionnaire-28				
Study	Identification tool	Comparator / caseness	Population	Results
				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% PPV – 47.9% **Santiago – threshold 6/7:** Sensitivity – 89.0%

General Health Questionnaire-28				
Study	Identification tool	Comparator / caseness	Population	Results
				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%
Physical health problems				
Ibbotson 1994 Quality assessed: +	GHQ 28	DSM-III	N=161 (no data for GHQ-28 on whole sample n=546) Disease free cancer patients, UK *Prevalence of depression* – **20/161**	**Depression:** **Cut-off 8** Sensitivity: 0.75 Specificity 0.92
Johnson 1995 Quality assessed: +	GHQ-28	DSM-III (SCID)	N=204 (who received at least one screen and underwent the psychiatric assessment). GHQ-26: N = 66 HADS N = 93 GDS: N= 120 Mean age (whole sample) = 71 years. Male : Female = 1.27 : 1 *Prevalence of depression (whole sample)* – **26/204** *Prevalence of major depression (whole sample)-* **17/204**	**Any depression** **Threshold 4/5** Sensitivity – 89% Specificity – 75% PPV – 47% NPV – 96% **Threshold 5/6** Sensitivity – 78% Specificity – 81% PPV – 50% NPV – 94% **Threshold 6/7** Sensitivity – 44% Specificity – 86% PPV – 44% NPV – 86%

General Health Questionnaire-28				
Study	**Identification tool**	**Comparator / caseness**	**Population**	**Results**
Lincoln 2003 Quality assessed: +	GHQ-28	ICD-10 DSM-III-R	N=143; 100% stroke patients; 52% men; mean age 66 Y/O (SD 13.5) N= 20 patients recruited from hospital + 123 recruited from an RCT on CBT *Prevalence of depression* (DSM-III-R)- **21/143** *Prevalence of depression* (ICD-10)- **12/143**	**Depression according to ICD-10** **Optimal cut-off ≥ 8 – GHQ** Sensitivity – 85% Specificity – 61% **Depression according to DSM-II-R** **Optimal cut-off ≥ 12 – GHQ** Sensitivity – 81% Specificity – 68%
Lykouras 1996 Quality assessed: +	GHQ-28 (Greek version)	DSM-III-R (SCID-R)	N=107, Neurological inpatients, Greece Mean age =43 years Gender: 50 males, 57 females *Prevalence of common mental disorder* - **56/107**	**Common mental disorders** **Optimal cut-=off 5/6 – GHQ-28** Sensitivity = 0.87 Specificity = 0.77

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% *Prevalence of major depression –* **9%** *Prevalence of any depression –*	**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**

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
			16% _Prevalence of major depression in primary care –_ **11%** _Prevalence of major depression in hospital –_ **8%** _Prevalence of major depression in nursing homes –_ **9%**	**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 1992 Quality assessed: +	GDS-30	DSM-III-R	N = 67 cognitively intact outpatients Mean age = 77.2 (SD 6.5) Male = 34% _Prevalence of depression –_ **16/67**	**Depression** **Cut-off ≥ 11** Sensitivity – 81% Specificity – 61% **Cut-off ≥ 14** Sensitivity – 44% Specificity – 75% **Cut-off ≥ 17** Sensitivity – 31% Specificity – 94%
Evans 1993 Quality assessed: +	GDS-30	Geriatric Mental State (GMS)	N = 408, older adults attending primary care, London. N = 144 randomly selected for analysis of GDS Mean age of total sample – 73 years (SD – 8.4) Male – 38% of total sample _Prevalence of depression –_ **59/144**	**Depression** **GDS** Sensitivity – 0.8475 Specificity – 0.7176

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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 *Prevalence of depression -* **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 *Prevalence of depression -*: **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 *Prevalence of depression –* **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 *Prevalence of depression –* **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)	**Major depression** **Cut-off 10 GDS-30** Sensitivity = 100% Specificity = 84%

Geriatric Depression Scale – 30 item

Study	Identification tool	Comparator/ caseness	Population	Results
			Male – 41.5% *Prevalence of major depression –* **14/130** *Prevalence of any depression –* **24/130**	AUC – 0.936 (0.031)
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 *Prevalence of depression (MDD and dysthymia) –* **67/220** *MDD only –* **18/220**	**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% *Prevalence of major depression::-* **6/66** *Prevalence of any depression::-* **30/66**	**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%	**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
			Prevalence of depression – **62/154**	
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% *Prevalence of depression:-* **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) *Prevalence of depression –* **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%

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
Robison 2002 Quality assessed: +	GDS-30	CIDI	N=303 Age = 61 years gender: 88 males, 215 females Primary care, Hispanic population in US Prevalence: 67/303	Sensitivity = 0.81 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 *Prevalence of major depression –* **12/69** *Prevalence of any depression –* **15/69**	**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 *Prevalence of depression -* **33/586**	**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 *Prevalence of depression -:* **210/484**	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	**Major Depression** **GDS-30**

FINAL DRAFT

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
+			Communities in US. Mean age 82 Male – 26% *Prevalence of depression* – **10/78**	**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% Specificity - 97% **Cut-off ≥ 14**

FINAL DRAET?

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
				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
Physical health problems				
Agrell 1989 Quality assessed: +	GDS-30	Psychiatric interview	N = 40 adults attending an outpatient clinic following a stroke. Mean age – 80 years Male – 45% *Prevalence of depression:-* **17/40**	**Depression** **Recommended cut-off ≥ 10 – GDS-30** Sensitivity – 88% Specificity – 64% PPV – 58% NPV – 88%
Jackson 1993 Quality assessed: +	GDS-30	GMSS - AGECAT	N = 59 hospitalised medially ill older adults. Mean age – 77.4 years Male – no reported *Prevalence of depression –* **21/59 (36%)**	**Depression** **Cut-off ≥ 9 – GDS-30** Sensitivity – 100% Specificity – 55% PPV – 56% **Cut-off ≥ 10 – GDS-30** Sensitivity – 91% Specificity – 63% PPV – 58% **Cut-off ≥ 11 – GDS-30** Sensitivity – 86% Specificity – 76% PPV – 67% **Cut-off ≥ 12 – GDS-30** Sensitivity – 81% Specificity – 74% PPV – 74% **Cut-off ≥ 13 – GDS-30**

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
				Sensitivity – 62% Specificity – 87% PPV – 72%
Johnson 1995 Quality assessed: +	GDS-30	DSM-III (SCID)	N=204 (who received at least one screen and underwent the psychiatric assessment). GHQ-26: N = 66 HADS N = 93 GDS: N= 120 Mean age (whole sample) = 71 years. Male : Female = 1.27 : 1 _Prevalence of depression (whole sample) – **26/204**_ _Prevalence of major depression (whole sample)-_ **17/204**	**Any depression** **Threshold 13/14** Sensitivity – 84% Specificity – 50% PPV – 44% NPV – 87% **Threshold 10/11** Sensitivity – 84% Specificity – 66% PPV – 53% NPV – 90% **Threshold 11/12** Sensitivity – 74% Specificity – 70% PPV – 53% NPV – 85%
Low 2007 Quality assessment +	GDS-30	DSM-IV (SCID-I / NP)	N = 119 patients meeting criteria for either acute MI or unstable angina pectoris. Male = 75% Mean age = 62.97 (SD 11.61) Canada, British Columbia _Prevalence of depression –_ **7/119**	**MDD** **Cut-off ≥ 10 – GDS** Sensitivity – 100% Specificity – 79% PPV – 21% NPV – 100% **Standard cut-off ≥ 11 – GDS** Sensitivity – 100% Specificity – 83% PPV – 25% NPV – 100% **Cut-off ≥ 12 – GDS** Sensitivity – 100% Specificity – 88% PPV – 32% NPV – 100% **Cut-off ≥ 13 – GDS** Sensitivity – 100% Specificity – 90% PPV – 35% NPV – 100% **Cut-off ≥ 14 – GDS**

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
				Sensitivity – 100% Specificity – 94% PPV – 50% NPV – 100% **Cut-off ≥ 14 – GDS** Sensitivity – 67% Specificity – 94% PPV – 40% NPV – 98% **AUC** – 0.97 **Any Depression** **Cut-off ≥ 9 – GDS** Sensitivity – 100% Specificity – 74% PPV – 21% NPV – 100% **Cut-off ≥ 10 – GDS** Sensitivity – 100% Specificity – 80% PPV – 25% NPV – 100% **Standard cut-off ≥ 11 – GDS** Sensitivity – 100% Specificity – 84% PPV – 29% NPV – 100% **Cut-off ≥ 12 – GDS** Sensitivity – 100% Specificity – 89% PPV – 37% NPV – 100% **Cut-off ≥ 13 – GDS** Sensitivity – 100% Specificity – 91% PPV – 41% NPV – 100% **Cut-off ≥ 14 – GDS** Sensitivity – 86% Specificity – 94% PPV – 50% NPV – 99%

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
				AUC – 0.96
Rovner 1997 Quality assessed: +	GDS-30	DSM-IV	N=70, Mean Age = 77 years, Gender: 41 females, 29 males *Prevalence of depression* **27/70**	**Depression** **Standard cut-off - GDS** Sensitivity = 63% Specificity = 77%
Tang 2004B Quality assessed: +	GDS–30 Chinese version	DSM-IV	N= 127 Chinese geriatric stroke patients; Mean age = 75.7 (SD = 6.2) Male - 53.5% *Prevalence of depression* – **8/100**	**Any depression** **Optimal cut-off ≥ 7** AUC – 0.90 Sensitivity – 89% Specificity – 73% PPV – 37% NPV – 97%
Ertan 2005 Quality assessed: +	GDS– 30 (Turkish version)	DSM-IV	N – 109 patients with Parkinson's Disease Male = 67% Mean age = 66.5; age range 29-84 Turkey, Istanbul *Prevalence of depression* – **56/109**	**Depression** **Cut-off ≥ 10** Sensitivity – 89% Specificity – 62% PPV – 71% NPV – 84%
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 *Prevalence of depression* - **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	**GDS** Sensitivity = 0.733 Specificity = 0.654

Geriatric Depression Scale – 30 item				
Study	Identification tool	Comparator/ caseness	Population	Results
			Prevalence of depression - **65/126**	
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 *Prevalence of depression-* **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 clinical assessment. Mean age – 71.5 years (SD 7.0years) Male – 32% *Prevalence of major depression-:* **19/206** *Prevalence of any depression-:* **62/206**	**Any depression** **Standard cut-off GDS** 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)

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 *Prevalence of depression* – **22/82** *Prevalence of depression based on whole sample* – **20%**	**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%

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			(95%CI 17-23)	
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 _Prevalence of depression_ - **12/201 – 6%**	**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% 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	**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)

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			Male = 37% *Prevalence of major depression –* **9%** *Prevalence of any depression –* **16%** *Prevalence of major depression in primary care –* **11%** *Prevalence of major depression in hospital –* **8%** *Prevalence of major depression in nursing homes –* **9%**	**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** **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% *Prevalence of depression: -* **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)

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
				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 *Prevalence of depression -* **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 years) Male – 25.4% *Prevalence of depression: -* **124/960 (12.9%)**	**Depression** **Standard Cut-off ≥6** Sensitivity – 81.45% Specificity – 75.36% AUC – 0.858 (SE – 0.018)
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% *Prevalence of depression –* **34 / 74 (46%)**	**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 *Prevalence of depression -*: **74/333**	**Any depression** **Cut-off 5** Sensitivity - 0.81 Specificity - 0.63

Geriatric Depression Scale – 15 item (and Brief GDS)

Study	Identification tool	Comparator/ caseness	Population	Results
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% *Prevalence of major depression –* **14/130** *Prevalence of any depression –* **24/130**	**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 impairment were excluded from the study. (492 cases used in the analysis due to missing data) Mean age = 78.3years (SD – 7.5 years) Male – 34.9% *Prevalence of depression: -* **81/526 (15.4%)**	**Depression** **Optimal cut off ≥ 5 – GDS-15** Sensitivity – 71.8% Specificity – 78.2% AUC – 0.7933 (SE – 0.0308) **Standard cut off ≥ 5 – GDS-15** Sensitivity – 60.6% Specificity – 86.2%
Nam Bae 2004 Quality assessed: ++	Short GDS – Korean version (SGDG-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% *Prevalence of depression –*	**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

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			62/154	
Neal 1994 Quality assessed: +	GDS-15	DSM (GMS)	N=45, Age = 77years, Gender: 18 males, 27 females _Prevalence of depression -_ **8/45**	**Depression** **Optimal cut-off - GDS-15** Sensitivity 0.67 Specificity 0.80
Pomeroy 2001 Quality assessed: +	GDS - 4 GDS - 15	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) _Prevalence of depression –_ **17/87**	**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 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) _Prevalence of depression –_ **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 _Prevalence of depression –_ **8/75**	**Cut-off ≥ 7** Sensitivity 1 Specificity 0.79

Geriatric Depression Scale – 15 item (and Brief GDS)

Study	Identification tool	Comparator/ caseness	Population	Results
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 *Prevalence of depression -* **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%
Physical health problems				
Galaria 2000 Quality assessed: +	GDS-15	DSM-III-R	N = 70 older adults aged over 65, with visual impairments attending a low vision specialist clinic. Mean age – 77.4 years (SD = 6.6 years) Male – 41.6% *Prevalence of depression: -* **27/70 (38.6%)**	**Depression** **Standard Cut-off ≥ 5** Sensitivity – 0.74 Specificity – 0.72
Haworth 2007 Quality assessed: +	GDS-15	DSM-IV (SCID)	N=88, Heart failure patients, US Mean Age = 70 years Gender: 73 males, 15 females *Prevalence of depression -*: **22/88** depression **13/88** MDD	**Depression** **Cut-off 5 (recommended and optimal)** Sensitivity 81.8% Specificity 83.3% PPV 62.1% NPV 93.2%
Jackson 1993 Quality assessed: +	GDS-15	GMSS - AGECAT	N = 59 hospitalised medially ill older adults. Mean age – 77.4 years Male – no reported *Prevalence of depression –* **21/59 (36%)**	**Depression** **Cut-off ≥ 4 – GDS-15** Sensitivity – 100% Specificity – 50% PPV – 53% **Cut-off ≥ 5 – GDS-15** Sensitivity – 86% Specificity – 66% PPV – 58%

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Cut-off ≥ 6 – GDS-15 Sensitivity – 67% Specificity – 79% PPV – 64%
Koenig 1992B (followed on from Koenig 1992 A but used a difference sample in the validation study) Quality assessed: +	GDS-11	DSM-III-R	N = 78 males completed GDS-11 and psychiatric interview out of 117 participants who completed the GDS-11 (only those in the first two months of the study had a psychiatric interview). Participants were all recruited from a neurology unit. Mean age (of whole 117 sample) = 34.4 years (SD4.7 years) Male – 100% _Prevalence of depression –_ **12/78**	**Depression** **Cut-off ≥ 3 - GDS-11** Sensitivity – 83% Specificity - 77%
Lee 2008 Quality assessed: +	GDS-15 - Chinese version	DSM-IV	N = 253 Stroke patients 1 month after admission to the stroke unit. Mean age – not reported Male – 62.8% _Prevalence of depression –_ **116/253**	**Depression** **Cut-off ≥ 5 – GDS-15** Sensitivity – 83.6% Specificity – 76.6% PPV – 75.2% NPV – 84.7%
Tang 2004A Quality assessed: +	GDS–15 Chinese version	DSM-III-R	N = 60 Chinese patients received rehabilitation after stroke _Prevalence of depression –_ **14/60**	**Any depression** **Optimal cut-off ≥ 6** AUC – 0.758 Sensitivity – 64% Specificity – 83% PPV – 53% NPV – 88%
Weintraub 2006 Quality assessed: +	GDS -15	DSM-IV	N=148 with idiopathic PD receiving specialist care Mean age = 71 years	**AUC** – 0.92 (0.87, 0.93) **Cut-off 1/2** Sensitivity – 100% Specificity – 35%

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
			MMSE = 27	PPV – 30% NPV – 100% **Cut-off 2/3** Sensitivity – 97% Specificity – 51% PPV – 35% NPV – 98% **Cut-off 3/4** Sensitivity – 91% Specificity – 71% PPV – 46% NPV – 96% **Cut-off 4/5** Sensitivity – 88% Specificity – 85% PPV – 61% NPV – 96% **Cut-off 5/6** Sensitivity – 78% Specificity – 91% PPV – 69% NPV – 93% **Cut-off 6/7** Sensitivity – 66% Specificity – 97% PPV – 84% NPV – 91% **Cut-off 7/8** Sensitivity – 50% Specificity – 97% PPV – 84% NPV – 88%
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 Netherlands	**Cut-off 3** True Positive = 7 False Positive = 17 False Negative =1 True Negative =54
Orcos 2007	GDS-15	DSM-IV	N= 301, non-selected older community dwelling adults.	**Depression** **GDS-15**

Geriatric Depression Scale – 15 item (and Brief GDS)				
Study	Identification tool	Comparator/ caseness	Population	Results
Unable to quality assess as full translation required - (Detailed English abstract containing information on population and all results)	GDS-5		*Prevalence of depression: -* **14.6%**	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 *Prevalence of depression -* : **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 13 rehabilitation inpatient clinics in Germany *Prevalence of depression –*	**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
			35/204	
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%)

Prevalence of depression – **10/206** | **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

Prevalence of depression – **59/130** | **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%

Prevalence of MDD- **7/49**

Prevalence of minor depression – **6/49**

Prevalence of any depression – **13/49** | **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 2003

Quality assessed: + | HADS | DSM-IV (SCID) | N=385, Mean age = 38 years, gender: 204 males, 181 females

General Hospital – all participants were outpatients | Cut-off 7
Sensitivity = 0.92
Specificity = 0.644 |

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
			with severe medical pathology, from neurosurgery, pulmonary, cardiology, neurology and infectious illness settings, Spain _Prevalence of depression -_ **87/385**	
Lam 1995 Quality assessed: +	HADS	DSM-III-R	N=100, age = 69 years, gender: 44 males, 56 females Elderly primary care patients, Hong Kong _Prevalence of depression –_ **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 _Prevalence of depression –_ **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)
Parker 2002 Quality assessed: +	HADS	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%),	**Depression** **Cut-off ≥ 2 – BDI-PC** AUC – 0.892 Sensitivity - 100% (not calculated] Specificity – 20.5% (5.5, 32.4) **Cut-off ≥ 5 – BDI-PC**

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
			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 _Prevalence of depression_ – **14/160**	AUC – 0.892 Sensitivity - 100% (not calculated] Specificity – 50.0% (35.2, 64.8) **Cut-off ≥ 6 – BDI-PC** AUC – 0.892 Sensitivity - 100% (not calculated] Specificity – 65.9% (51.9, 79.9) **Cut-off ≥ 8 – BDI-PC** AUC – 0.892 Sensitivity - 75% (32.6, 100] 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)
Upadhyaya1997 Quality assessed: +	HADS	GMS-AGECAT	N = 72, attendees over 65years old at a medical centre (80 approached to take part in study) UK, Liverpool Age = 71.2, 37 males, 35 females _Prevalence of depression –_ **20/72**	**Depression** **Optimal cut-off 8/9** Sensitivity 70% Specificity 87%
Physical health problems				
Aben 2002 Quality assessed: +	HADS-D	DSM-IV	N = 202 (N=176 completed HADS-D); mean age = 68 years; 91 female, 111 male Stroke patients; Netherlands, Maastricht _Prevalence of major and minor depression_ – **51/202**	**Depression: major depressive and minor disorder (***also gives results from major depressive disorder only***)** **Standard cut-off ≥ 8** Sensitivity – 72.5% Specificity – 78.9% PPV – 50.9% NPV – 90.5% AUC – 0.83

Hospital Anxiety and Depression Scale (HADS – Depression only)

Study	Identification tool	Comparator/ caseness	Population	Results
Akizuki 2003 Quality assessed: +	HADS	DSM-IV	N = 275; mean age = 52 years; 164 female, 111 male Cancer patients; Japan, Tokyo and Kashiwa *Prevalence of major depression and adjustment disorder* - **168/275**	**Depression: major depression and adjustment disorder** **Standard cut-off ≥ 8** Sensitivity – 96% Specificity – 45% PPV – 30% NPV – 63%
Akizuki 2005 Quality assessed: +	HADS	DSM-IV	N = 295; mean age = 51; 164 female, 131 male Cancer patients; Japan *Prevalence of depression* – **53/295**	**Depression: major depression** **Optimal cut-off ≥ 15** Sensitivity – 77% Specificity 74%
Berard 1998 Quality assessed: +	HADS	DSM-IV	N=100 Age = 50 years, Gender: 13 males, 87 females Cancer patients, South Africa *Prevalence of depression :-* **21/100**	**Depression:** Cut-off 8 Sensitivity: 0.71 Specificity 0.95
Golden 2007 Quality assessed: +	HADS	DSM-IV (SCID-CV)	N = 88 outpatients at a hepatitis C service Male = 74% *Prevalence of depression* – **28/88**	**Any depression** **HADS-D** AUC – 0.78 (0.68-0.88) **Cut-off ≥ 8 - HADS-D** Sensitivity – 52% (31-72) Specificity – 83% (71-91) PPV – 54 (33-74) NPV – 81% (70-90) **Cut-off ≥ 8 - HADS-A** Sensitivity – 88% (69-97) Specificity – 68% (55-79) PPV – 52 (36-68) NPV – 93% (82-99)
Hall 1999 Quality assessed: +	HADS	DSM-IV	N=266 age:<75 years, gender: all female Women with early breast cancer, UK *Prevalence of depression* - **99/266**	**Depression:** **Cut-off 8** Sensitivity: 0.333 Specificity: 0.934

Depression in chronic health problems: full guideline appendix 20

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
Haworth 2007 Quality assessed: +	HADS	DSM-IV (SCID)	N=88, Age = 70 years Gender: 73 males, 15 females Heart failure patients, US _Prevalence of any depression –_ **22/88** _Prevalence of MDD -_ **13/88**	**Depression** **Cut-off 6** Sensitivity 77.3% Specificity 89.4%
Ibbotson 1994 Quality assessed: +	HADS	DSM-III	N=513, Median Age = 50-59, Gender: 231 males, 282 females Cancer patients, UK _Prevalence of depression –_ **20/161**	**Anxiety and Depression** **Optimal cut-off >14 – HADS** Sensitivity – 80% Specificity – 76% PPV – 41%
Johnson 1995 Quality assessed: +	HADS	DSM-III (SCID)	N=204 (who received at least one screen and underwent the psychiatric assessment). GHQ-26: N = 66 HADS N = 93 GDS: N= 120 Mean age (whole sample) = 71 years. Male : Female = 1.27 : 1 _Prevalence of depression (whole sample) –_ **26/204** _Prevalence of major depression (whole sample)-_ **17/204**	**Any depression** **Threshold 3/4** Sensitivity – 94% Specificity – 32% PPV – 25% NPV – 96% **Threshold 4/5** Sensitivity – 83% Specificity – 44% PPV – 26% NPV – 92% **Threshold 5/6** Sensitivity – 61% Specificity – 50% PPV – 23% NPV – 84%
Love 2004 Quality assessed: +	HADS	DSM-IV	N= 227 women with stage IV breast cancer involved in RCT; mean age = 52 y/o (SD = 9) Australia _Prevalence of depression –_ **74/227**	**Any depression (major and minor)** **Cut-off ≥ 7– HADS** Sensitivity – 50% Specificity – 88% PPV – 67% NPV – 79% **Cut-off ≥ 8– HADS** Sensitivity – 46%

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Specificity – 94% PPV – 79% NPV – 78% **Cut-off ≥ 9– HADS** Sensitivity – 35% Specificity – 95% PPV – 76% NPV – 75% **Cut-off ≥ 10– HADS** Sensitivity – 24% Specificity – 96% PPV – 75% NPV – 72% **Cut-off ≥ 11– HADS** Sensitivity – 16% Specificity – 97% PPV – 75% NPV – 71% **Major depression** **Cut-off ≥ 7– HADS** Sensitivity – 81% Specificity – 81% PPV – 24% NPV – 98% **Cut-off ≥ 8– HADS** Sensitivity – 75% Specificity – 85% PPV – 28% NPV – 98% **Cut-off ≥ 9– HADS** Sensitivity – 63% Specificity – 89% PPV – 29% NPV – 97% **Cut-off ≥ 10– HADS** Sensitivity – 50% Specificity – 92% PPV – 33% NPV – 96% **Cut-off ≥ 11– HADS** Sensitivity – 38% Specificity – 95%

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
				PPV – 37% NPV – 95%
Poole 2006 Quality assessed: +	HADS	DSM-III-R (SCID)	N = 115 patients from a Hypertrophic Cardiomyopathy clinic Male = 59.1% Median age = 43; age range = 23 – 63 England, London _Prevalence of depression_ – **18/115**	**Any depression** **HADS-Anxiety subscale** AUC – 0.78 **HADS-Depression subscale** AUC – 0.94 **Cut-off ≥ 8 - HADS-Anxiety subscale** Sensitivity – 96% Specificity – 79% PPV – 74% NPV – 96% **Cut-off ≥ 8 - HADS-Depression subscale** Sensitivity – 100% Specificity – 87% PPV – 67% NPV – 100% **Cut-off ≥ 10 - HADS-Anxiety subscale** Sensitivity – 27% Specificity – 86% PPV – 55% NPV – 65% **Cut-off ≥ 10 - HADS-Depression subscale** Sensitivity – 46% Specificity – 95% PPV – 69% NPV – 87% **Optimal cut-off ≥ 14 - HADS-total** Sensitivity – 73% Specificity – 77% PPV – 74% NPV – 75%
Reuter 2000	HADS	DSM-IV	N=188, Mean age = 54 years, gender: 137 males, 51 females	**HADS** **Cut-off 17**

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
Quality assessed: +			Cancer patients, Germany *Prevalence of depression* – **14/188**	Sensitivity = 0.79 Specificity = 0.76
Stafford 2007 Quality assessed: ++	HADS – depression subscale	DSM-IV	N = 193 patients hospitalized for percutaneous transluminal coronary angioplasty or coronary artery bypass graft surgery Male = 80.8% Mean age = 64.14 (S.D. = 10.37); age range 38 – 91 Australia, Geelong *Prevalence of depression* – **54/193**	**Any depression** **HADS-Depression subscale** AUC – 0.85 (S.E. 0.03) **Cut-off ≥ 5 - HADS-Depression subscale** Sensitivity – 77.8% Specificity – 80.6% PPV – 60.9% NPV – 90.3% **Cut-off ≥ 8 - HADS-Depression subscale** Sensitivity – 38.9% Specificity – 94.2% PPV – 72.4% NPV – 79.9%
Strik 2001 Quality assessed: +	HADS	DSM-IV (SCID-I)	N= 206 post myocardial infraction; 76.1% male Male – mean age = 59 (SD = 10.6); age range = 34 – 84 Female – mean age = 62.9 (SD = 10.7); age range = 38 – 78 *Prevalence of depression* – **39/206**	**Any depression (major or minor)** **Optimal cut-off ≥ 8 - HADS-Depression** AUC – 0.85 Sensitivity 75.0% Specificity – 77.6% PPV – 32.1% NPV – 98.4%
Tang 2004A Quality assessed: +	HADS –Chinese version	DSM-III-R	N = 100 first acute stroke patients, recruited from consecutive admissions to the Stroke Recovery Unit. Age = 74 years, 55% male *Prevalence of depression – All disorders* – **17/100** *Prevalence of MDD –* **8/100**	**Any depression** **Cut-off 5/6** Sensitivity – 0.88 Specificity – 0.51 PPV – 0.27 NPV – 0.96 **Cut-off 6/7** Sensitivity – 0.88 Specificity – 0.53 PPV – 0.28 NPV – 0.96 **Cut-off 7/8**

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Sensitivity – 0.82 Specificity – 0.58 PPV – 0.29 NPV – 0.95 **Cut-off 5/6** Sensitivity – 0.76 Specificity – 0.63 PPV – 0.30 NPV – 0.93
Tang 2004B Quality assessed: +	HADS –Chinese version	DSM-III-R	N = 60 Chinese patients received rehabilitation after stroke _Prevalence of depression -_ **14/60**	**All depressive disorders** **Optimal cut-off ≥ 4** AUC – 0.838 Sensitivity - 86% Specificity – 78% PPV – 55% NPV – 93%
Walker 2007 Quality assessed: +	HADS (total; depression subscale; anxiety subscale)	SCID	N= 361 cancer patients; 69.3% breast cancer, 12.5% prostate and bladder cancer; 78.9% had no active disease present 33.5% males Outpatients in clinic in Edinburgh _Prevalence of depression_ – **30/361**	**Major depressive disorder** **Optimal cut-off ≥ 7 – HADS-depression subscale** AUC – 0.93 (0.88-0.98) Sensitivity – 90% (74-97) Specificity – 88% (84-91) PPV – 40% **Optimal cut-off ≥ 9 – HADS-anxiety subscale** AUC – 0.90 (0.85-0.95) Sensitivity – 87% (70-95) Specificity – 83% (78-86) PPV – 31% **Cut-off ≥ 13 – HADS-total** Sensitivity – 90% (74-97) Specificity – 80% (75-84) PPV – 29% **Cut-off ≥ 14 – HADS-total** Sensitivity – 87% (70-95) Specificity – 83% (78-86) PPV – 31% **Cut-off ≥ 15 – HADS-total** Sensitivity – 87% (70-95) Specificity – 85% (81-89) PPV – 35%

Hospital Anxiety and Depression Scale (HADS – Depression only)				
Study	Identification tool	Comparator/ caseness	Population	Results
				Cut-off ≥ 16 – HADS-total Sensitivity – 80% (70-0.95) Specificity – 90% (86-93) PPV – 41% **Cut-off ≥ 17 – HADS-total** Sensitivity – 77% (59-88) Specificity – 92% (89-95) PPV – 48%

Hamilton Depression Rating Scale (HDRS)

Hamilton Depression Rating Scale (HDRS)				
Study	Identification tool	Comparator/ caseness	Population	Results
Physical health problems				
Aben 2002 Quality assessed: +	HDRS	DSM-IV	N = 202 (N=171 completed BDI); mean age = 68 years; 91 female, 111 male Stroke patients; Netherlands, Maastricht *Prevalence of major and minor depression* – **51/202**	**Depression: major depressive and minor disorder** **Standard cut-off ≥ 12** Sensitivity – 78.4% Specificity – 81.3% PPV – 58.8% NPV – 91.7% AUC – 0.86
Agrell 1989 Quality assessed: +	HRSD	Psychiatric interview	N = 40 adults attending an outpatient clinic following a stroke. Mean age – 80 years Male – 45% *Prevalence of depression:-* **17/40**	**Depression** **Recommended cut-off ≥ 10 – HRSD** Sensitivity – 71% Specificity – 87% PPV – 60% NPV – 80%
Leentjens 2000 Quality assessed: +	HDRS	DSM-IV (SCAN)	N = 63 patients with Parkinson's Disease (without the presence of dementia). Mean age - 68 years Male – 63% *Prevalence of depression –* **16/63**	**Depressive Disorder** **Standard cut-off 11/12 - HDRS** Sensitivity – 94% Specificity – 75% PPV – 56% NPV – 97% **Optimal cut-off 13/14 - HDRS**

				Sensitivity – 88% Specificity – 89% PPV – 74% NPV – 96% **AUC –** 0.9497
Serrano-Duenas 2008 Quality assessed: +	HDRS – 21 item HDRS – 6 Item	DSM-IV	N = 115 patients with Parkinson's Disease, Quito, Ecuador. Mean age – 70.33 (SD = 10.31) Male – 71.3% *Prevalence of depression –* **49/115**	**Major depressive episode** **Optimal cut-off 18/19 – HDRS-21** Sensitivity – 86% (76 – 92) Specificity – 95% (83 – 98) **AUC –** 0.94 (0.90 - 0.98) **Optimal cut-off 7/8 – HDRS-6** Sensitivity – 79% (69 – 87) Specificity – 91% (78 – 97) **AUC –** 0.92 (0.87 - 0.97)
Strik 2001 Quality assessed: +	HDRS	DSM-IV (SCID-I)	N= 206 post myocardial infraction; 76.1% male Male – mean age = 59 (SD = 10.6); age range = 34 – 84 Female – mean age = 62.9 (SD = 10.7); age range = 38 – 78 *Prevalence of depression –* **39/206**	**Any depression (major or minor)** **Optimal cut-off ≥ 12 - HDRS** AUC – 0.89 Sensitivity 76.3% Specificity – 86.0% PPV – 40.7 NPV – 99.3
Weintraub 2006 Quality assessed: +	HDRS	DSM-IV	N=148 with idiopathic PD receiving specialist care Mean age = 71 years MMSE = 27 *Prevalence of depression –* **32/148**	**Optimal cut-off 9/10** Sensitivity = 0.88 Specificity = 0.78 PPV = 0.52 NPV = 0.96
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 *Prevalence of depression –*	**Any depression** **HDRS** AUC – 0.85(SE .05)

			27/178	
Mixed community and consultation sample				
Mottram 2000 Quality assessed: +	HDRS	DSM-IV	N=414 mean age = 77 years, gender: 111 males, 303 males *Prevalence of depression -* **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 *Prevalence of depression -* **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
Physical health problems				
Laska 2007 Quality assessed: +	MADRS	DSM-IV	N= 89; 100% aphasic stroke patients; 56% male; mean age = 74 y/o, age range 45-94 Aphasic stroke patients involved in a randomized placebo-controlled trial of myoclobemide *Prevalence of depression –* **7/60**	**Depression** **Cut-off ≥ 10 – MADRS** Sensitivity – 66% Specificity – 93% PPV – 29%
Leentjens 2000 Quality assessed: +	MADRS	DSM-IV (SCAN)	N = 63 patients with Parkinson's Disease (without the presence of dementia). Mean age - 68 years	**Depressive Disorder** **Optimal cut-off 14/15-MADRS** Sensitivity – 88%

			Male – 63% *Prevalence of depression –* **16/63**	Specificity – 89% PPV – 74% NPV – 96% **AUC –** 0.8976
Lightbody 2007 Quality assessed: +	MADRS (10 item)	ICD-10 (psychiatric assessment)	N = 28 currently in hospital for a second week post stroke. (although 36 participants originally consented to the study but only 28 were seen by both the psychiatrist and the nurse to complete both assessments) Median age – 72years (interquartile range 61-78) Male – 50% *Prevalence of depression –* **7/28**	**Depression** **Standard cur-off (not specified in paper)** Sensitivity – 100% Specificity – 65% PPV – 54% NPV – 100%
Mixed community and consultation				
Mottram 2000 Quality assessed: +	MADRS	DSM-IV	N=414 older adults mean age = 77 years, gender: 111 males, 303 males *Prevalence of depression -* **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				
Kroenke2001, Spitzer 1999, Kroenke2003, Huang 2005 – All use same participants. Kroenke2001, Huang2005 – PHQ-9 Spitzer1999, Kroenke2003 –	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 professionals	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. The total sample was recruited from 5 general	**MDD** Sensitivity = 0.88 Specificity = 0.88 **Major Depressive disorder** **PHQ-2** **Cut-off ≥ 1** Sensitivity – 97.6% Specificity – 59.2% PPV – 15.4% **Cut-off ≥ 2**

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
PHQ-2 Quality assessed: +			practices, 3 family practices and 7 obstetrics-gynecology sites) *Prevalence of depression -* **41/580**	Sensitivity – 92.7% Specificity – 73.7% PPV – 21.1% **Cut-off ≥ 3** Sensitivity – 82.9% Specificity – 90.0% PPV – 38.4% **Cut-off ≥ 4** Sensitivity – 73.2% Specificity – 93.3% PPV – 45.5% **Cut-off ≥ 5** Sensitivity – 53.7% Specificity – 96.8% PPV – 56.4% **Cut-off ≥ 6** Sensitivity – 26.8% Specificity – 99.4% PPV – 78.6% **AUC** **PHQ-2** 0.93 The AUC was greater for those aged <60 (0.94 vs. 0.86) **Any Depressive disorder – N = 106/580** **PHQ-2** **Cut-off ≥ 1** Sensitivity – 90.6% Specificity – 65.4% PPV – 36.9% **Cut-off ≥ 2** Sensitivity – 82.1% Specificity – 80.4% PPV – 48.3% **Cut-off ≥ 3** Sensitivity – 62.3% Specificity – 95.4% PPV – 75.0% **Cut-off ≥ 4** Sensitivity – 50.9% Specificity – 97.9%

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
				PPV – 81.2%
				Cut-off ≥ 5 Sensitivity – 31.1% Specificity – 98.7% PPV – 84.6%
				Cut-off ≥ 6 Sensitivity - 12.3% Specificity – 99.8% PPV – 92.6%
				AUC **PHQ-2** 0.90 The AUC was lower for those aged <60 (0.88 vs. 0.95)
				MDD Sensitivity = 0.88 Specificity = 0.88
				Major Depressive disorder
				PHQ-9 **Cut-off ≥ 9** Sensitivity – 95% Specificity – 84%
				Cut-off ≥ 10 Sensitivity – 88% Specificity – 88%
				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%

Patient Health Questionnaire-2 item (PHQ-2)				
Study	Identification tool	Comparator/ caseness	Population	Results
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 *Prevalence of major depression -* **71/520** *Prevalence of any depressive disorder –* **132/520**	**Any depression** **Standard cut-off ≥ 3– PHQ** Sensitivity – 79% Specificity – 86% **Major depression** **Standard cut-off ≥ 3– PHQ** Sensitivity – 87% Specificity – 78%
Physical health problems				
Williams 2005 Quality assessed: +	Patient Health Questionnaire 2 (PHQ-2)	DSM-IV	N= 316; 100% stroke patients Post-stroke depressed patients recruited from an RCT; non-depressed stoke patients from longitudinal cohort study *Prevalence of depression -* **145/316**	**Major depression** **Cut-off ≥ 3 – PHQ-2** Sensitivity – 83.0% (75.9, 90.2) Specificity – 83.8% (78.8, 88.8) **Any depression** **Cut-off ≥ 3 – PHQ-2** Sensitivity – 77.9% (71.2, 84.7) Specificity – 94.7% (91.4, 90.1)
McManus 2005 Quality assessed: ++	Patient Health Questionnaire – 2 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? Patient Health Questionnaire - 9	DSM-IV	N=1,024 who have CHD Mean age = 67 years Men 82% *Prevalence of depression -* **224/1024**	**Depression** **PHQ-2** *AUC* – 0.84 (0.82, 0.87) *Cut-off point ≥ 3* Sensitivity – 39% Specificity – 92% **PHQ-9** *AUC* – 0.86 (0.84, 0.89) *Cut-off point ≥ 10* Sensitivity – 54% Specificity – 90% **Depression** **AUC** – 0.84 (0.81, 0.86)

Patient Health Questionnaire-2 item (PHQ-2)

Study	Identification tool	Comparator/ caseness	Population	Results
				Cut-off point ≥ 1 Sensitivity – 90% Specificity – 69%
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. *Prevalence of depression –* **323/8205**	**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-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 *Prevalence of depression -* **29/421**	**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	Composite International Diagnostic	N=1025 Primary care patients	**Depression** **Help question alone –**

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/ caseness	Population	Results
+	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?	Interview	*Prevalence of depression* - **29/421**	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 Quality assessed: +	PHQ-2 Whooley	DSM-IV	N = 226 People presenting to an urgent care clinic. Mean age – 40 years (SD =19 years) Male – *Prevalence of depression –* **31/226**	**Depression** 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 *Prevalence of depression* - **97/536**	**Major Depression** **Two Questions:** AUC – 82% (78-86) Sensitivity – 96% (90-99) Specificity – 57% (53-62)

FINAL DRAFT

Patient Health Questionnaire-Whooley questions				
Study	Identification tool	Comparator/ caseness	Population	Results
Physical health problems				
Mohr 2007

Quality assessed: + | PHQ-2 Whooley | DSM-IV, SCID | N = 260

Age = 51 (S.D. 10.5)

Multiple Sclerosis

Prevalence of depression – **67/260** | **Major depression**

Two Questions:
Sensitivity – 0.51 (0.38 – 0.63)
Specificity – 0.98 (0.94 – 0.99)

Question 1 or 2:
Sensitivity – 0.99 (0.91 – 0.00)
Specificity – 0.87 (0.81– 0.91) |
| McManus 2005

Quality assessed: ++ | Patient Health Questionnaire – 2

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? | DSM-IV | N=1,024 who have CHD

Mean age = 67 years

Men 82%

Prevalence of depression - **224/1024** | **Depression**

PHQ-2

AUC – 0.84 (0.82, 0.87)

Cut-off point ≥ 3
Sensitivity – 39%
Specificity – 92%

PHQ-9

AUC – 0.86 (0.84, 0.89)

Cut-off point ≥ 10
Sensitivity – 54%
Specificity – 90%

Depression

AUC – 0.84 (0.81, 0.86)

Cut-off point ≥ 1
Sensitivity – 90%
Specificity – 69% |

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. | **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
			Mean age (of whole sample) – 38.7 (SD = 13.8) Male (of whole sample) – 38.3% *Prevalence of depression: -* **97/180**	
Corapcioglu 2004 Quality assessed: +	PHQ-9	DSM-IV	N=1387, Age = 29 years Gender: 857 males, 530 females Primary care, Turkey *Prevalence of depression -* **267/1387** *Prevalence of major depression -* **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 *Prevalence of depression*: **263/1003** *Prevalence of major depression -* **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 *Prevalence of depression: -* **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	**MDD** **Standard cut-off – PHQ-9** Sensitivity = 0.917 Specificity = 0.783

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Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/caseness	Population	Results
			Prevalence of Major depression - **36/96**	
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 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 *Prevalence of depression -* **35/204**	**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 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 *Prevalence of depression (any) -* **82/431** *Prevalence of depression (major) -* **50/431** *Prevalence of depression (dysthymia disorder) –* **24/431** *Prevalence of depression (minor) -* **54/431**	**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,	PHQ-9	DSM-III-R (SCID and diagnostic	N = 580 (6000 in total study) The total sample screened =	**Major Depressive disorder** **PHQ-9**

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/caseness	Population	Results
Huang 2005 – All use same participants. Kroenke2001, Huang2005 – PHQ-9 Spitzer1999, Kroenke2003 – PHQ-2 Quality assessed: +		questions from the PRIME-MD conducted over the telephone by mental health professionals	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. The total sample was recruited from 5 general practices, 3 family practices and 7 obstetrics-gynecology sites) _Prevalence of depression_ - **41/580**	**Cut-off ≥ 9** Sensitivity – 95% Specificity – 84% **Cut-off ≥ 10** Sensitivity – 88% Specificity – 88% **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) _Prevalence of major depression –_ **13/279** _Prevalence of any depression –_ **69/279**	**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-9	DSM-IV (SCID)	N= 501; medical outpatients: 21% musculo-skeletal disease, 16% endocrine, nutritional & metabolic disease, 10% cardiovascular/circulatory disease, 7% gastrointestinal	**Any depression** **Cut-off ≥ 9– PHQ** Sensitivity – 87% (79, 92) Specificity – 76% (72, 80)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
PHQ-2 data Quality assessed: +			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 *Prevalence of depression -* **66/501**	**Cut-off ≥10– PHQ** Sensitivity – 81% (73, 87) Specificity – 82% (78, 86) **Cut-off ≥11– PHQ** Sensitivity – 79% (70, 85) Specificity – 85% (81, 89) **Major depression** **Cut-off ≥11– PHQ** Sensitivity – 98% (92, 100) Specificity – 80% (76, 83) **Cut-off ≥12– PHQ** Sensitivity – 95% (87, 99) Specificity – 84% (80, 87) **Cut-off ≥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 *Prevalence of depression –* **42/184**	**MDD** **PHQ-9 optimal cut-off ≥10** Sensitivity – 81% Specificity – 98% PPV – 92% NPV – 95% AUC – 97 (SE 0.01)
Physical health problems				
Lamers 2008 Quality assessed: +	PHQ-9	DSM-IV (MINI)	N = 713, chronically ill older adults attending primary care with a diagnosis of diabetes and/ or COPD. Primary care clinics, Netherlands – recruited as part of the Delta RCT Mean age = 71.4 years Male – 51.8% *Prevalence of major depression –* **10.7%**	**Any depression** **PHQ-9 – summed score** **Cut-off point ≥ 5** Sensitivity – 100% (99.5 – 100) Specificity – 75.1% (73.6 – 76.6) PPV – 54.9% (52.6 – 57.2) NPV – 100.0% (99.8 – 100) **Cut-off point ≥ 6** Sensitivity – 95.6% (94.1 – 96.8) Specificity – 81.0% (79.6 – 82.3)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
			Prevalence of any depression – **19.3**%	PPV – 60.4% (57.9 – 62.8) NPV – 98.4% (97.8 – 98.8) **Cut-off point ≥ 7** Sensitivity – 89.0% (86.9 – 90.8) Specificity – 85.1% (83.9 – 86.3) PPV – 64.4% (61.8 – 66.9) NPV – 96.2% (95.5 – 96.9) **Optimal cut-off point ≥ 6** AUC – 0.94 (0.93-0.94) **Major depression** **PHQ-9 – summed score** **Cut-off point ≥ 6** Sensitivity – 96.7% (94.9 – 97.9) Specificity – 73.4% (71.9 – 74.8) PPV – 38.0% (35.6 – 40.5) NPV – 99.2% (98.8 – 99.5) **Cut-off point ≥ 7** Sensitivity – 92.2% (89.8 – 94.1) Specificity – 78.1% (76.7 – 79.4) PPV – 41.6% (39.0– 44.2) NPV – 98.3% (97.8– 98.8) **Cut-off point ≥ 8** Sensitivity – 87.8% (84.9 – 90.2) Specificity – 81.8% (80.5 – 83.0) PPV – 44.9% (42.1 – 47.7) NPV – 97.5% (96.9 – 98.0) **Optimal cut-off point ≥ 7** AUC – 0.92 (0.92-0.93) **Any depression** **PHQ-9 Algorithm scoring** Sensitivity – 49.4% (46.7 – 52.2) Specificity – 92.4% (91.5 – 93.3) PPV – 71.8% (68.7 – 74.6)

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
				NPV – 82.4% (81.1– 83.6) **Major depression** **PHQ-9 Algorithm scoring** Sensitivity – 41.3% (37.9 – 44.7) Specificity – 95.8% (95.1 – 96.4) PPV – 67.2% (62.9 – 71.2) NPV – 88.6% (87.6 – 89.5)
McManus 2005 Quality assessed: ++	PHQ-9	DSM-IV	N=1,024 who have CHD Mean age = 67 years Men 82% *Prevalence of depression -* **224/1024**	**Depression** **PHQ-9** *AUC* – 0.86 (0.84, 0.89) *Cut-off point ≥ 10* Sensitivity – 54% Specificity – 90%
Picardi 2005 Quality assessed: +	PHQ-9	SCID	N=141, Age = 38 years, Gender: 62 males, 79 females Dermatology patients, Italy *Prevalence of depression:-* **44/141** *Prevalence of major depression -* **12/141**	**Depression (MDD)** **Standard cut-off –PH-9** Sensitivity= 0.55 Specificity = 0.91
Stafford 2007 Quality assessed: ++	PHQ-9	DSM-IV	N = 193 patients hospitalized for percutaneous transluminal coronary angioplasty or coronary artery bypass graft surgery Male = 80.8% Mean age = 64.14 (S.D. = 10.37); age range 38 – 91 Australia, Geelong *Prevalence of depression –* **54/193**	**Any depression** **PHQ-9** AUC – 0.85 (S.E. 0.03) **Cut-off ≥ 5 – PHQ-9** Sensitivity – 81.5% Specificity – 80.6% PPV – 62.0% NPV – 91.8%
Watnick 2005	PHQ-9	DSM-IV	N=62, Age = 63 years, Gender: 42 males, 20 females	**Any depression**

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
Quality assessed: +			Dialysis patients *Prevalence of major depression -* **12/62**	**Cut-off 10 – PHQ-9** Sensitivity = 0.91 Specificity = 0.92 PPV= 0.71 NPV = 0.98
Williams 2005 Quality assessed: +	PHQ-9	DSM-IV	N= 316; 100% stroke patients Post-stroke depressed patients recruited from an RCT; non-depressed stoke patients from longitudinal cohort study *Prevalence of depression -* **145/316**	**Major depression – N =145/316** **PHQ-9** AUC – 0.96 **Cut-off ≥ 10 – PHQ-9** Sensitivity – 90.6% (85.0, 96.1) Specificity – 88.6% (84.3, 92.9) **Cut-off ≥ 3 – PHQ-2** Sensitivity – 83.0% (75.9, 90.2) Specificity – 83.8% (78.8, 88.8) **Any depression** **PHQ-9** AUC – 0.96 **Cut-off ≥ 10 – PHQ-9** Sensitivity – 77.9% (71.2, 84.7) Specificity – 95.9% (92.9, 98.9) **Cut-off ≥ 3 – PHQ-2** Sensitivity – 77.9% (71.2, 84.7) Specificity – 94.7% (91.4, 90.1)
Community				
Adewuya 2006 Quality assessed: +	PHQ-9	Mini International Neuropsychi atric Interview (MINI)	N = 512, Age = 25, Males: 59% Nigeria, student sample at university *Prevalence: major depression –* **13/512**	**MDD only** **Cut-off ≥ 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 *Prevalence of depression -* **175/1060** *Prevalence of major depression -*	**Any depression:** **Cut-off 5 – PHQ-9** Sensitivity = 0.80 Specificity = 0.78

Patient Health Questionnaire-9 item (PHQ-9)				
Study	Identification tool	Comparator/ caseness	Population	Results
			62/1060	

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 *Prevalence of depression -* **29/421**	**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	Composite International Diagnostic Interview	N=1025 Primary care patients *Prevalence of depression -* **29/421**	**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)

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Single Question and two-item screens				
Study	Identification tool	Comparator/ caseness	Population	Results
	with?			
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 Prevalence: 30/100	**Depression:** Sensitivity = 0.67 Specificity = 0.60
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 _Prevalence of depression_ - **41/115**	**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) _Prevalence of depression_ – **17/87**	**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
Physical Health Problems				
Akizuki 2003 Quality assessed: +	"Please grade your mood during the past week by assigning it a score from 0 to	DSM-IV	N = 275; mean age = 52 years; 164 female, 111 male Cancer patients; Japan, Tokyo and Kashiwa	**Depression: major depression and adjustment disorder** **Standard cut-off 60/65** Sensitivity – 80%

Single Question and two-item screens				
Study	Identification tool	Comparator/ caseness	Population	Results
	100"		*Prevalence of depression -* **168/275**	Specificity – 61% PPV – 34% NPV – 67%
Kawase 2006 Quality assessed: +	"Are you depressed?"	DSM-IV	N = 305; mean age = 62 Cancer patients; Japan Prevalence of depression = 26/305	**Depression: major or minor depression** Standard cut-off ≥1 Sensitivity – 42% Specificity – 86%
Mohr 2007 Quality assessed: +	Two screening questions (dichotomous): 1. During the past two weeks, have you been bothered by feeling down, depressed or hopeless? 2. During the past two weeks, have you often been bothered by little interest or pleasure in doing things	DSM-IV (SCID)	N = 260 (502 patients contacted). 73% female, age = 51 Patients with MS attending the KP medical care group US, California *Prevalence of depression –* **67/260**	**Depression** **Item one only** Sensitivity – 75% Specificity – 94% PPV – 73% NPV – 91% **Item two only** Sensitivity – 75% Specificity – 94% PPV – 81% NPV – 91% **Item one and two** Sensitivity – 51% Specificity – 98% PPV – 90% NPV – 85% **Item one or two** Sensitivity – 99% Specificity – 87% PPV – 72% NPV – 99%
Vahter 2007 Quality assessed: +	Are you depressed?	ICD-10	N = 134 inpatients from Multiple Sclerosis Mean age = 43.8 *Prevalence of depression –* **72/77**	**Depression** Sensitivity – 81% Specificity – 89% PPV – 94% NPV – 70%

Zung's Self-Rating Depression Scale

Zung's Self-Rating Depression Scale

Study	Identification tool	Comparator	Population	Results
Physical health problems				
Agrell 1989 Quality assessed: +	Zung	Psychiatric interview	N = 40 adults attending an outpatient clinic following a stroke. Mean age – 80 years Male – 45% *Prevalence of depression:-* **17/40**	**Depression** **Recommended cut-off ≥ 45 – Zung** Sensitivity – 76% Specificity – 96% PPV – 93% NPV – 84%
Leung 1998 Quality assessed: +	SDS – 20 item Quality assessed:	DSM-IV	N = 268 (N = 50 who completed DSM-IV; mean age = 54 years) Medical outpatients, patients with chronic medical diseases. Participants had to have one of the following diseases: hypertension, diabetes, cerebrovascular accident, CVD, arthritis, COPD, renal diseases (without uraemia) or chronic liver diseases; Taiwan *Prevalence of depression –* **3/50**	**Depression:** **Cut-off ≥ 50** Sensitivity – 100% Specificity – 70.7% **Cut-off ≥ 55** Sensitivity – 66.7% Specificity – 90.2% **Cut-off ≥ 60** Sensitivity – 44.4% Specificity – 90.2%
Passik 2001 Quality assessed: +	SDS-20 item BSDS – 11 item	DSM-IV (SCID)	N = 60 oncology patients attending 25 community care cancer inc. oncology clinics in Indiana, USA Mean age = 58.3 years (SD-11.9) Male – 47% *Prevalence of depression –* **25/60**	**Major depression** **Cut-off ≥ 40** Sensitivity – 100% Specificity – 55.56% **Cut-off ≥ 48** Sensitivity – 66.67% Specificity – 86.11% **Cut-off ≥ 56** Sensitivity – 33.33% Specificity – 100% **Major depression and adjustment disorder** **Cut-off ≥ 40** Sensitivity – 93.94% Specificity – 66.67% **Cut-off ≥ 48** Sensitivity – 57.58%

				Specificity – 92.60% **Cut-off ≥ 56** Sensitivity – 24.24% Specificity – 100%
Community				
Adalberto 2006 Quality assessed: +	SDS (20 item)	DSM-IV	N = 266; mean age = 37.4 years Community sample; Colombia, Bucaramanga _Prevalence of depression -_ **44/266**	**Depression: major depressive disorder** **Standard cut-off ≥ 40** Sensitivity – 88.6% Specificity – 74.8% PPV – 41.1% NPV – 97.1% AUC – 0.901

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