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Data supplement

Appendix DS1

Assessment of risk of bias

Each study was assessed (by two independent raters) on the following 13 items.

1 The source population is adequately described for key characteristics (choose one of the following possibilities)
1. A selected sample from the general population
2. Patients with heart disease
3. Patients with cancer
4. Patients with another somatic disorder
5. Other clearly defined sample
6. The source population is not clearly described

2 The sampling frame and recruitment are adequately described:
2(a) The participants are recruited through
1. the general population (with a clear description of the method)
2. a medical setting, number of hospitals/institutes
3. another clearly described method
4. a method not clearly described
2(b) The period of inclusion is clearly defined (at least the years are indicated)
1. True
2. Not true
2(c) The geographical location of recruitment is clearly indicated (e.g. the name and city of the hospital, the name of the area)
1. True
2. Not true

3 Inclusion and exclusion criteria are clearly described
1. True
2. Not true

4 Is the study sample an adequate representation of the target population?
1. Yes
2. No

5 The baseline study sample (individuals entering the study) is adequately described for key characteristics
1. Yes
2. No

6 Mortality data at follow-up are available for at least 90% of the baseline sample
1. True
2. Not true
3. Unclear

7 Attempts to collect information on participants who dropped out of the study are described
1. Yes
2. No drop-out
3. No
4. Unclear

8 Reasons for drop-out from baseline to follow-up are provided
1. Yes
2. No drop-out
3. No
4. Unclear

9 Participants who dropped out are adequately described in terms of key characteristics (including at least the number with depression)
1. Yes
2. No drop-out
3. No
4. Unclear

10 Mortality
10(a) It is clearly reported what was done to establish the mortality status of participants
1. True
2. Not true
10(b) The follow-up period for which mortality is measured is clearly described
1. True
2. Not true

11 Have the following confounders been measured?
11(a) Demographic variables
1. Yes
2. No
11(b) One or more lifestyle variables (smoking, body mass index, exercise)
1. Yes
2. No
11(c) One or more illness-related variables (severity of the illness, somatic comorbidity, characteristics of the illness, etc.)
1. Yes
2. No

12 Have analyses been conducted to examine the influence of the confounders described in item 11 on the association between depression and mortality (usually through multivariable analyses)?
1. Yes, all three groups of relevant confounders have been examined in multivariable analyses
2. One or two groups of confounders have been examined in multivariable analyses
3. No confounder was included in the analyses
4. No confounder was reported in question 11

13 The analyses have been conducted adequately. There are two possibilities:
This is a prospective study in a population. In these studies survival analyses are conducted.
This is a case–control study. In these studies logistic regression analyses have been conducted.
Have these analyses been conducted?
1. Yes
2. No

Scoring

After the rating the studies were scored on the main five main areas using the following rules.

Study participation (items 1–5)

Does the study sample represent the population of interest on key characteristics, sufficient to limit potential bias to the results?
Yes (5 items are positive)
Partly (3 or 4 items are positive)
No (0–2 items are positive)
Item 1 is positive if one of the answers 1–5 is given (6 is negative)
Item 2 is positive if 2(a) to 2(c) are all positive
Item 3 is positive when 1 is chosen
Item 4 is positive when 1 is chosen
Item 5 is positive when 1 is chosen

Study attrition (items 6–9)

Loss to follow-up (from sample to study population) is not associated with key characteristics (i.e. the study data adequately represent the sample), sufficient to limit potential bias
Yes (4 items are positive)
Partly (2 or 3 items are positive)
No (0 or 1 item is positive)
Unclear
Item 6 is positive when 1 is chosen
Item 7 is positive when 1 or 2 is chosen
Item 8 is positive when 1 or 2 is chosen
Item 9 is positive when 1 or 2 is chosen

Outcome measurement (item 10)

The outcome of interest is adequately measured in study participants to sufficiently limit potential bias
Yes (2 sub-items are positive)
Partly (1 sub-item is positive)
No (0 sub-item is positive)
Unclear
Item 10(a) is positive when 1 is chosen
Item 10(b) is positive when 1 is chosen

Confounding measurement and account (items 11 and 12)

Important potential confounders are appropriately accounted for, limiting potential bias with respect to the prognostic factor of interest
Yes (all three groups of confounders have been measured and accounted for; items 11(a)–(c) are positive and 1 is selected for item 12)
Partly (one or two groups of confounders have been measured and accounted for; at least one of items 11(a)–(c) is positive and 2 is selected for item 12)
No (all other ratings)
Item 11(a) is positive when 1 is chosen
Item 11(b) is positive when 1 is chosen
Item 11(c) is positive when 1 is chosen

Analysis (item 13)

The statistical analysis is appropriate for the design of the study, limiting potential for presentation of invalid results
Yes (adequate analyses)
No
Unsure
Item 13 is positive when 1 is chosen

Table DS1 Quality scores for the included studies[a]

	Study participation	Study attrition	Outcome measurement	Confounding measurement	Analysis	Total quality score
Bush, 2001[36]	+	+	+		-	3.5
Frasure-Smith, 1995[37]	+	+	+	+	-	4.0
Fredman, 1989[38]	+	+	+		-	3.5
Gallo, 1997[39]	+	-			+	3.0
Janzing, 1999[40]		-			-	1.5
Jiang, 2001[41]	+	+	+	-	+	4.0
Jorm, 1991[42]			+	-	-	2.0
McCusker, 2006[43]	+	+	+		+	4.0
Morris, 1993a[44]	+	-	+	+	-	3.0
Morris, 1993b[45]	+	-	+	-	-	2.0
Nakaya, 2006[46]	+	-		+	+	3.5
Parakh, 2008[47]	+	+	+	+	+	5.0
Penninx, 1999[35]	+	-	+	+	+	4.0
Prieto, 2005[48]	+	+		+	+	4.5
Rovner, 1991[49]	+	+			+	4.0
Ryan, 2008[50]	+			+	+	4.0
Schleifer, 1989[51]	+		+	-	-	2.0
Sharma, 1998[52]	-			-	-	1.0
Sullivan, 2003[53]	+	-	+		+	3.5
Von Ammon, 2001[55]		+			-	2.5
Tilvis, 1998[54]	-	-	-		+	1.5
Winkley, 2007[56]		+	+	+	+	4.5

a. Key: +, positive (score 1); -, negative (score 0); , partly positive (score 0.5).

Table DS2 Selected characteristics of studies examining excess mortality in major depressive disorder and subthreshold depression

	Patient group	Recruitment	Women %	Depressive disorder	Subthreshold depression	*n*	Follow-up period years	Country
Bush, 2001[36]	Myocardial infarction patients	Consecutive patients admitted to hospital	41.7	MDD (SCID, DSM-III-R)	BDI ⩾10	271	0.33	USA
Frasure-Smith, 1995[37]	Hospitalised MI patients	Patients admitted to hospital	21.6	MDD (DIS)	BDI ⩾10	222	1.5	Canada
Fredman, 1999[38]	Adults	Community sample	65.0	MDD (DIS, DSM-III)	Minor depression (DIS)	1606	2	USA
Gallo, 1997[39]	Adults (⩾50 years)	Community sample (ECA Baltimore)	62.6	MDD (DIS, DSM-III)	Depression with sadness	1612	13	USA
Janzing, 1999[40]	Dementia patients	Inhabitants of residential homes for the elderly	87.7	Depressive disorder (GMS/AGECAT)	Subthreshold depression (GMS/AGECAT)	73	1	The Netherlands
Jiang, 2001[41]	Congestive heart failure patients	Patients admitted to cardiology service at hospital	37.5	MDD (DIS)	BDI ⩾10	374	1	USA
Jorm, 1991[42]	Older adults (⩾70 years)	Community sample	NR	MDD (GMS/DSM-III)	Dysphoric mood (GMS)	228	5	Australia
McCusker, 2006[43]	Older medical in-patients (⩾65 years)	Patients admitted to intensive care or cardiac units of two hospitals	63.0	MDD (DIS, DSM-IV)	Minor depression (DIS, DSM-IV)	715	2.8	Canada
Morris, 1993a[44]	Stroke patients	Consecutive patients	40.7	MDD (PSE/DSM-III)	Minor depression (PSE, DSM-III)	91	10	USA
Morris, 1993b[45]	Stroke patients	Consecutive patients undergoing rehabilitation	52.9	MDD (CIDI, DSM-III)	Minor depression (CIDI, DSM-III)	82	1.25	Australia
Nakaya, 2006[46]	Lung cancer patients	Patients with postoperative cancer	39.7	MDD (DSM-III-R, SCID)	POMS-d ⩾7	229	5.75	Japan
Parakh, 2008[47]	Hospitalised MI patients	Patients with acute MI admitted to cardiology service at hospital	43.0	MDD and dysthymia (SCID, DSM-IV)	BDI ⩾10	208	8	USA
Penninx, 1999[35]	Older adults (55–85 years)	Community sample (LASA)	51.7	MDD (DIS, DSM-III)	CES-D ⩾16	3056	4.2	The Netherlands
Prieto, 2005[48]	Haematological cancer patients	Patients recruited through hospital	41.7	MDD and minor depression (clinical interview; modified DSM-IV)	Minor depression (clinical interview)	199	5	Spain
Rovner, 1991[49]	Nursing home residents	Consecutive admissions	77.3	Depressive disorder (M-PSE, DSM-III-R)	Depressive symptoms (M-PSE)	454	1	USA
Ryan, 2008[50]	Older adults (⩾65 years)	Community sample	60.8	MDD (DSM-IV, MINI)	CES-D ⩾16	7363	4	France
Schleifer, 1989[51]	Patients with MI	Consecutive patients with MI admitted to one hospital	36.0	MDD (RDC criteria)	Minor depression (RDC)	283	0.25	USA
Sharma, 1998[52]	Patients with depression compared with subthreshold and people without depression	Selection from community sample	70.6	Depressive disorder (GMS/AGECAT)	Subthreshold depression (GMS/AGECAT)	245	5	UK
Sullivan, 2003[53]	Patients with stable coronary disease	HMO patients	17.2	MDD (DIS, DSM-IV)	Minor depression (DIS, DSM-IV)	199	5	USA
Tilvis, 1998[54]	Older adults (65, 75, 80, 85 years)	Community sample	NR	Depressive disorder (interview according to DSM-III)	SDS ⩾40	1330	5	Finland
Von Ammon Cavanaugh, 2001[55]	Medical in-patients	Consecutive admissions to one hospital	34.9	MDD (SADS/DSM-IV)	Minor depression (SADS/DSM-IV)	151	NR	Brazil
Winkley, 2007[56]	Patients with first diabetic foot ulcer	Community chiropody and hospital foot clinics	36.4	MDD (SCAN, DSM-IV)	Minor depression (SCAN, DSM-IV)	253	1.5	UK

AGECAT, Automated Geriatric Examination for Computer Assisted Taxonomy; BDI, Beck Depression Inventory; CES-D, Center for Epidemiological Studies Depression scale; CIDI, Composite International Diagnostic Interview; DIS, Diagnostic Interview Schedule; ECA, Epidemiologic Catchment Area; GMS, Geriatric Mental State; HMO, health maintenance organisation; LASA, Longitudinal Aging Study Amsterdam; M-PSE, Modified Present State Examination; MDD, major depressive disorder; MI, myocardial infarction; MINI, Mini International Neuropsychiatric Interview; NR, not reported; POMS-d, Profile of Mood States Depression scale; PSE, Present State Examination; RDC, Research Diagnostic Criteria; SADS, Schedule for Affective Disorders and Schizophrenia; SCAN, Schedules for Clinical Assessment in Neuropsychiatry; SCID, Structured Clinical Interview for DSM; SDS, Self-rating Depression Scale.