

Data supplement to Holwerda et al. Impact of loneliness and depression on mortality: results from the Longitudinal Ageing Study Amsterdam. Br J Psychiatry doi: 10.1192/bjp.bp.115.168005

**Table DS1** Characteristics of participants LASA 1992 – 1993,  $n=2878$  (this is a more detailed version of Table 1)

Characteristic	Total	Men	Women	$P^a$
Gender, $n$ (%)	2978 (100)	1397 (48.5)	1481 (51.5)	
Age, years: mean	70.35	70.49	70.23	
Education, years: mean	8.82	9.57	8.11	
Marital status, $n$ (%)				
Never married	158 (5.5)	65 (4.7)	93 (6.3)	0.06
Married	1849 (64.2)	1086 (77.3)	769 (51.9)	0.001
Divorced	147 (5.1)	73 (5.2)	74 (5.0)	0.78
Widowed	724 (25.2)	179(12.8)	545 (36.8)	0.001
Number of people in personal network, mean	13.82	13.73	13.92	
Living together with partner, $n$ (%)	1877 (65.2)	1103 (79.)	774 (52.3)	0.001
Living together with other, $n$ (%)	429 (14.9)	241 (17.3)	208 (14.0)	0.19
Lonely, $n$ (%)	873 (30.3)	397 (28.4)	476 (32.1)	0.03
Emotional loneliness, $n$ (%)	799 (27.8)	317(22.7)	482 (32.5)	0.001
Social loneliness, $n$ (%)	664 (23.1)	353 (25.3)	311(21.0)	0.007
Depressive disorder, $n$ (%)	390 (13.6)	139 (9.9)	251(16.9)	0.001
Severe depressive disorder, $n$ (%)	129 (4.5)	41 (2.9)	88 (5.9)	0.001
Pulmonary disease, $n$ (%)	329 (11.4)	182 (13.0)	147 (9.9)	0.009
Cardiovascular disease, $n$ (%)	568 (19.7)	345 (24.7)	223 (15.1)	0.001
Peripheral artery disease, $n$ (%)	276 (9.6)	138 (9.9)	138 (9.3)	0.61
Diabetes, $n$ (%)	219 (7.6)	102 (7.3)	117 (7.9)	0.55
Cerebrovascular disease, $n$ (%)	145 (5.0)	90 (6.4)	55 (3.7)	0.001
Osteoarthritis	938(32.6)	319 (22.8)	619 (41.8)	0.001
Rheumatoid arthritis, $n$ (%)	194 (6.7)	61 (4.4)	133 (9.0)	0.001
Cancer, $n$ (%)	261 (9.1)	92(6.6)	169 (11.4)	0.001
Other diseases <sup>b</sup>	947 (32.9)	395 (28.3)	552 (37.3)	0.001
Number of chronic diseases, <sup>c</sup> mean	1.38	1.27	1.49	
Mini Mental State Examination score, mean	27.11	27.15	27.1	
Functional limitations, $n$ (%)				
No difficulties with tasks	1734 (60.3)	936 (67.0)	898 (60.6)	0.001

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Tasks with difficulty	547 (19.0)	253 (18.1)	294 (19.9)
Tasks with help	324 (11.3)	128 (9.2)	196 (13.2)
Tasks not possible	273 (9.5)	80 (5.7)	193 (13.0)

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a. Differences between men and women.

b. Other diseases include hypertension, kidney and thyroid disease and epilepsy.

c. Chronic diseases: pulmonary diseases (including asthma, chronically bronchitis and pulmonary emphysema), heart disease (including cardiac arrhythmias, congestive heart failure, angina pectoris and narrowing of coronary arteries or myocardial infarction), peripheral artery disease, osteoarthritis, rheumatoid arthritis, cancer.

**Table DS2** Bivariate associations between risk factors and mortality.

Mortality	MHR men	MHR women
Lonely	<b>1.50 (1.32-1.72)</b>	<b>1.49 (1.29-1.71)</b>
Emotional lonely	<b>1.52(1.32-1.76)</b>	<b>1.61 (1.40-1.85)</b>
Social lonely	<b>1.17 (1.02-1.35)</b>	<b>1.33 (1.13-1.56)</b>
Depression	<b>1.43 (1.17-1.74)</b>	<b>1.44 (1.21-1.70)</b>
Severe depression	<b>1.90 (1.34-2.69)</b>	<b>1.43 (1.09-1.87)</b>
Pulmonary disease	<b>1.70(1.43-2.02)</b>	<b>1.72 (1.41-2.11)</b>
Cardiovascular disease	<b>1.54 (1.34-1.76)</b>	<b>2.18 (1.84-2.57)</b>
Peripheral artery disease	<b>1.98 (1.63-2.39)</b>	<b>1.93 (1.57-2.36)</b>
Diabetes	<b>2.21 (1.78-2.74)</b>	<b>2.56 (2.08-3.19)</b>
Osteoarthritis	1.04 (0.90-1.21)	<b>1.18 (1.03-1.36)</b>
Rheumatoid Arthritis	1.24 (0.92-1.66)	0.89 (0.69-1.13)
Cerebrovascular disease	<b>2.02 (1.61-2.53)</b>	<b>2.79 (2.08-3.75)</b>
Cancer	<b>1.82 (1.45-2.30)</b>	<b>1.34 (1.10-1.64)</b>
Other diseases	1.08(0.94-1.24)	1.08 (0.94-1.24)

19 year Mortality Hazard Ratios in participants with condition. Significance mortality ratio ( $p < 0.05$ ). Significant Hazard Ratios bold.

**Table DS3** Log rank values of depression and severe depression in subgroups of loneliness, emotional loneliness and social loneliness in men and women

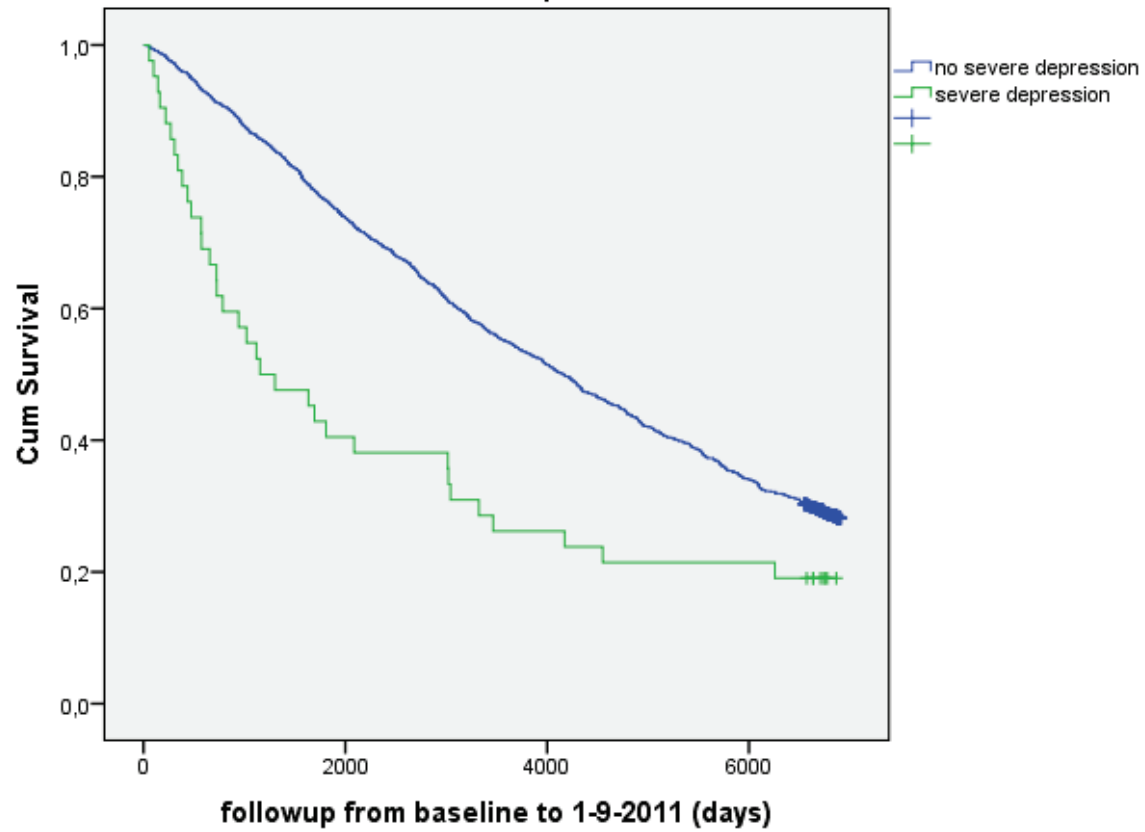
Condition	X2/df/p men	X2/df/p women
No depression in not lonely participants (n=1000/1005)	.96 / 1 / .33	2.69 / 1 / .10
No depression in lonely participants (n=397/476)	1.59 / 1 / .21	2.93 / 1 / .09
No depression in emotional lonely participants (n=317/482)	2.37 / 1 / .12	2.43 / 1 / .12
No depression in social lonely participants (n=353/311)	2.16 / 1 / .14	2.21 / 1 / .14
Depression in not lonely Participants (n=38/82)	0.96 / 1 / .33	2.70 / 1 / .10
Depression in lonely Participants (n=101/169)	1.59 / 1 / .20	2.93 / 1 / .09
Depression in emotional lonely participants (n=96/176)	2.37 / 1 / .12	2.43 / 1 / .12
Depression in social lonely participants (n=57/111)	2.16 / 1 / .14	2.21 / 1 / .14
Severe depression in not lonely Participants (n=5/21)	0.02 / 1 / .89	3.59 / 1 / .06
Severe depression in lonely Participants (n=36/67, figure 2)	<b>6.16 / 1 / .02</b>	0.19 / 1 / .66
Severe depression in emotional lonely participants (n=36/68)	<b>5.67 / 1 / .02</b>	.63 / 1 / .43
Severe depression in social lonely participants (n=22/40)	<b>13.68 / 1 / .001</b>	.006 / 1 / .80

Log rank test (Chi square/df/p)

**Fig. DS1** (a) Kaplan Meier survival plot for severe depression in men (proportion of participants who survived); cumulative survival. MHR (Mortality hazard ratio) 1.90 (1.34-2.69), Log rank test: 13.63/1/.000 (Chi square/df/p), severe depression N=41. 2000 days : 5,5 years, 4000 days: 11 years, 6000 days: 16.5 years. (b) Kaplan Meier survival plots for severe depression in women(proportion of participants who survived); cumulative survival. MHR 1.43 (1.09-1.87), Log rank test: 6.90/1/.009 (Chi square/df/p), depression N=88. 2000 days : 5,5 years, 4000 days: 11 years, 6000 days: 16.5 years

### Survival Functions

sex respondent: male



(a)

(b)

