

# THE LANCET

## Public Health

### **Supplementary appendix**

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

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## Supplementary Information

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### **Supplement 1 – Description of covariates used in propensity score matching**

Age was measured in years and kept in continuous form. Ethnicity was categorised as: White, Black, Indian, Pakistani, Bangladeshi, or Other. Household income was monthly net income, equivalised by dividing by the OECD equivalence scale. Income was then divided into quintiles. Occupational social class was measured via the National Statistics Socio-economic Classification (NS-SEC) three-class version, categories as Managerial or Professional, Intermediate, Routine/Manual, or not working. Employment status was categorised as Working Full-time (30-40 hours/week), Working Full-time long hours (>40 hours/week), Working Part-time (<30 hours/week), Unemployed, Retired, Family care or home, Full-time Student, Long-term Sick or Other. Partnership status was grouped as Single, Married, Divorced/Separated, Cohabiting or Widowed. The number of children in the household the participant was responsible for under the age of 16 was categorised as 0, 1, 2, 3 or more, derived from the household grid. Parental occupational social class was based on the parent's occupation when the participant was aged 14 and categorised the same as the participant's own social class above. Urbanicity was categorised as Urban or Rural based on whether the participants' address fell within a settlement with a population of 10,000 ("Urban") or more or not ("Rural") by the Office of National Statistics (ONS) Rural and Urban Classification of Output Areas 2001. Educational attainment was the highest achieved qualification, categorised as Degree, Other Higher Qualification, Advanced (A)-level (typically taken at age 18), General Certificate of Secondary Education (GCSE)/CSE equivalent (typically taken at age 16), Other Qualification, or No Qualification. The total number of waves the cohort member participated in was categorised as 0 to 10.

## Supplement 2 – Process of sample selection in each age group and outcome dataset

### GHQ outcome

	Age 16-29	Age 30-49	Age 50-64	Age 65+
	N	N	N	N
<b>Yes/no caregiver within the age range</b>				
No	22730	24728	14430	11761
Yes	4479	9466	9466	6869
<b>Yes/no caregiver after excluding caregivers in prior age group</b>				
No	22730 (men: 11148) (women: 11582)	24329 (men: 12188) (women: 12141)	13511 (men: 7038) (women: 6473)	10836 (men: 5109) (women: 5727)
Yes	4479 (men: 1880) (women: 2599)	8900 (men: 3384) (women: 5516)	7837 (men: 3267) (women: 4570)	5450 (men: 2528) (women: 2922)
<b>Only select caregivers participated in the survey at least once before and once after caregiver transition</b>	2170	4886	4089	3229
<b>Caregivers after excluding missing data (mainly due to missing GHQ)</b>	1646	3630	3191	2553
<b>After propensity score matching</b>				
Caregivers	1646	3630	3191	2553
Matched non-caregivers	3004	4859	3705	2897
<b>Only select non-caregivers participated in the survey at least once before and once after matched caregiver transition</b>				
Caregivers	1646	3630	3191	2553
Matched non-caregivers	1379	1731	1635	1131
<b>FINAL ANALYTIC SAMPLE</b>	<b>3025</b>	<b>5361</b>	<b>4836</b>	<b>3684</b>

### SF-12 outcome

Process of sample selection for SF-12 analysis	Age 16-29	Age 30-49	Age 50-64	Age 65+
	N	N	N	N
<b>Yes/no caregiver within the age range</b>				
No	22730	24728	14430	11761
Yes	4479	9466	9466	6869
<b>Yes/no caregiver after excluding previous carers</b>				
No	22730 (men: 11148) (women: 11582)	24329 (men: 12188) (women: 12141)	13511 (men: 7038) (women: 6473)	10836 (men: 5109) (women: 5727)
Yes	4479 (men: 1880) (women: 2599)	8900 (men: 3384) (women: 5516)	7837 (men: 3267) (women: 4570)	5450 (men: 2528) (women: 2922)
<b>Only select caregivers participated in the survey at least once before and once after caregiver transition</b>	2170	4886	4089	3229
<b>Caregivers after excluding missing data (mainly due to missing SF 12)</b>	1758	4018	3373	2709
<b>After propensity score matching</b>				
Caregivers	1758	4018	3373	2709
Matched non-carers	3182	5302	3747	2974
<b>Only select non-caregivers participated in the survey at least once before and once after matched caregiver transition</b>				
Caregivers	1758	4018	3373	2709
Matched non-carers	1400	1767	1672	1212
<b>FINAL ANALYTIC SAMPLE</b>	<b>3158</b>	<b>5785</b>	<b>5045</b>	<b>3921</b>

**Supplement 3 – Baseline characteristics of the study sample, stratified by age group, gender and care status**

	Early adulthood Age 16-29					Early mid-adulthood Age 30-49					Later mid-adulthood Age 50-64					Older age Age 65+				
Baseline characteristics <sup>a</sup>	Men n=1621 <sup>b</sup>	Women n=2258 <sup>c</sup>	Total n=3879 <sup>d</sup>	Non carers n=2086 <sup>e</sup>	Carers n=1793 <sup>f</sup>	Men n=2799 <sup>b</sup>	Women n=4345 <sup>c</sup>	Total n=7144 <sup>d</sup>	Non carers n=3078 <sup>e</sup>	Carers n=4066 <sup>f</sup>	Men n=2686 <sup>b</sup>	Women n=3315 <sup>c</sup>	Total n=6001 <sup>d</sup>	Non carers n=2578 <sup>e</sup>	Carers n=3423 <sup>f</sup>	Men n=2159 <sup>b</sup>	Women n=2454 <sup>c</sup>	Total n=4613 <sup>d</sup>	Non carers n=1837 <sup>e</sup>	Carers n=2776 <sup>f</sup>
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
<b>Age, mean (SD)</b>	18.93 (3.48)	19.60 (3.78)	19.32 (3.67)	18.83 (3.53)	19.89 (3.76)	37.61 (5.22)	37.25 (5.44)	37.39 (5.36)	36.84 (5.21)	37.80 (5.44)	53.89 (4.07)	53.72 (4.05)	53.79 (4.06)	53.48 (4.15)	54.03 (3.97)	69.61 (5.51)	69.58 (5.34)	69.59 (5.42)	68.01 (4.21)	70.64 (5.86)
<b>Ethnicity</b>																				
White	74.8	73.3	73.9	76.7	70.7	80.1	78.7	79.3	81.4	77.6	88.8	88.9	88.8	88.6	89.0	93.9	95.5	94.8	95.5	94.3
Black	6.3	8.6	7.6	7.4	7.9	4.9	6.7	6.0	5.5	6.3	3.5	5.1	4.4	4.6	4.2	2.2	1.6	1.9	1.6	2.0
Indian	5.1	3.2	4.0	3.5	4.7	4.6	4.3	4.4	3.9	4.8	3.4	2.4	2.8	2.9	2.8	2.0	1.2	1.6	1.5	1.6
Pakistani	6.5	7.0	6.8	5.8	7.9	4.0	3.8	3.9	3.3	4.3	1.5	0.9	1.2	1.0	1.3	0.6	0.3	0.4	0.3	0.5
Bangladeshi	4.3	5.1	4.8	3.8	5.9	2.9	2.3	2.5	2.1	2.9	0.7	0.6	0.7	0.6	0.7	0.1	0.3	0.2	0.2	0.2
Asian/other	3.0	2.8	2.9	2.8	3.0	3.5	4.3	4.0	3.9	4.1	2.2	2.2	2.2	2.3	2.1	1.3	1.1	1.2	0.9	1.3
<b>Parental occupational class</b>																				
Professional/ managerial	33.5	32.5	32.9	36.3	28.9	29.7	31.8	31.0	33.1	29.4	28.2	29.5	28.9	28.8	29.0	22.7	22.4	22.6	22.2	22.8
Intermediate	12.7	12.1	12.4	13.0	11.6	9.0	8.4	8.6	8.9	8.4	6.9	7.5	7.2	6.9	7.5	4.9	4.0	4.4	4.1	4.6
Routine/manual	34.9	37.6	36.5	35.5	37.7	52.7	51.4	51.9	50.4	53.1	61.2	58.7	59.8	60.3	59.5	67.1	68.1	67.6	69.5	66.4
Not working	18.9	17.9	18.3	15.2	21.9	8.7	8.4	8.5	7.6	9.2	3.8	4.2	4.0	4.0	4.0	5.2	5.6	5.4	4.3	6.2
<b>Household income quintiles</b>																				
Lowest	23.1	22.3	22.6	20.4	25.2	19.4	21.0	20.4	17.9	22.3	19.2	18.6	18.9	18.6	19.1	17.0	21.3	19.3	17.5	20.5
2	24.9	23.5	24.1	23.7	24.6	22.2	22.7	22.5	21.0	23.6	17.7	20.3	19.2	18.5	19.6	19.2	22.1	20.8	19.7	21.5
3	20.5	20.3	20.4	20.6	20.1	21.7	21.4	21.5	21.6	21.4	19.5	20.0	19.8	20.6	19.2	19.7	21.0	20.4	19.8	20.8
4	17.8	18.1	18.0	18.4	17.5	20.0	19.4	19.6	21.2	18.4	21.0	20.3	20.6	20.8	20.5	20.8	19.5	20.1	20.7	19.6
Highest	13.8	15.8	15.0	17.0	12.6	16.8	15.6	16.0	18.3	14.3	22.7	20.8	21.7	21.5	21.7	23.4	16.1	19.5	22.4	17.7
<b>Education qualification</b>																				
Degree	23.0	28.3	26.1	27.7	24.2	29.6	32.7	31.4	36.0	28.0	27.1	24.1	25.5	26.2	24.9	19.5	9.8	14.3	16.0	13.3
Other higher degree	9.1	10.3	9.8	9.3	10.4	11.8	15.4	14.0	13.5	14.3	11.5	14.7	13.3	12.5	13.9	10.6	13.0	11.8	10.8	12.5
A level etc	37.9	34.9	36.1	37.6	34.4	23.5	18.8	20.6	19.8	21.3	20.5	13.8	16.8	16.5	17.0	21.0	8.4	14.3	15.5	13.5
GCSE etc	24.4	21.4	22.7	21.4	24.2	22.2	22.1	22.1	20.6	23.2	19.1	22.2	20.8	20.7	20.9	12.9	16.3	14.7	15.6	14.1
Other qualification	3.1	2.3	2.6	1.9	3.5	8.7	6.3	7.2	6.3	7.9	11.5	12.3	12.0	12.5	11.6	13.3	16.9	15.2	14.4	15.7
No qualification	2.5	2.8	2.7	2.1	3.4	4.4	4.8	4.6	3.8	5.3	10.3	12.9	11.7	11.7	11.7	22.8	35.6	29.6	27.7	30.9
<b>Employment status</b>																				
Part time	8.8	11.8	10.6	10.0	11.3	17.2	34.9	28.0	28.3	27.7	20.3	32.6	27.1	27.2	27.0	8.1	7.0	7.5	8.1	7.2

Full time	15.0	15.0	15.0	13.7	16.6	55.1	33.9	42.2	45.1	40.0	45.0	34.9	39.4	40.8	38.4	7.9	3.0	5.3	5.9	4.9
Full time long hours	2.5	1.3	1.8	1.5	2.2	12.2	3.1	6.7	6.6	6.7	11.0	2.9	6.5	6.4	6.6	0.0	0.0	0.0	0.0	0.0
Unemployed	12.7	8.8	10.4	8.3	12.8	9.5	5.4	7.0	6.0	7.8	7.4	4.2	5.6	5.6	5.7	0.0	0.0	0.0	0.0	0.0
Retired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	10.4	9.4	8.8	9.9	83.0	86.6	84.9	83.7	85.7
Family care	0.1	7.7	4.5	3.3	6.0	0.6	18.0	11.2	10.1	12.0	0.4	7.7	4.4	3.7	5.0	0.5	2.8	1.7	1.7	1.7
Full-time student	58.9	53.5	55.8	62.0	48.5	0.5	1.5	1.1	1.1	1.1	0.2	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Long term sick	1.1	1.1	1.1	0.6	1.6	4.4	2.9	3.5	2.6	4.2	6.8	6.9	6.8	7.0	6.7	0.5	0.5	0.5	0.6	0.5
Something else	0.9	0.8	0.9	0.6	1.2	0.5	0.4	0.4	0.3	0.5	0.7	0.4	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
<b>Occupational class</b>																				
Professional/ managerial	6.3	7.3	6.9	6.5	7.3	36.8	34.5	35.4	39.1	32.5	36.4	31.2	33.5	34.1	33.1	6.9	3.2	4.9	5.6	4.5
Intermediate	5.1	6.4	5.8	5.2	6.5	18.3	16.3	17.1	17.5	16.8	16.8	17.3	17.1	17.5	16.7	4.1	2.5	3.3	3.6	3.0
Routine/manual	14.9	14.5	14.7	13.4	16.2	29.5	21.1	24.4	23.3	25.2	23.2	21.8	22.4	22.8	22.1	5.1	4.3	4.7	4.8	4.6
Not working	73.7	71.8	72.6	74.9	70.0	15.5	28.1	23.2	20.0	25.6	23.6	29.7	27.0	25.6	28.0	84.0	90.0	87.2	86.1	87.9
<b>Marriage</b>																				
Single	87.9	79.8	83.1	85.6	80.3	16.2	16.2	16.2	15.8	16.5	8.5	7.1	7.7	8.2	7.3	3.4	3.2	3.3	3.9	3.0
Married	3.2	8.5	6.3	4.9	7.8	57.1	56.6	56.8	57.7	56.1	70.4	64.9	67.4	66.7	67.9	79.1	62.5	70.3	69.6	70.8
Separated	0.0	0.0	0.0	0.0	0.0	4.6	9.8	7.8	6.7	8.5	9.7	16.7	13.6	14.4	13.0	6.4	12.2	9.5	10.7	8.7
Live as couple	9.0	11.7	10.6	9.4	11.9	21.9	17.1	19.0	19.6	18.5	9.6	7.7	8.5	8.2	8.8	4.7	3.3	4.0	3.8	4.1
Widowed	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.2	0.4	1.8	3.6	2.8	2.5	3.0	6.4	18.8	13.0	12.1	13.6
<b>Number of children in the household</b>																				
0	93.9	82.8	87.5	90.5	83.9	44.7	31.0	36.3	36.9	35.9	80.6	86.8	84.0	82.7	85.0	99.6	100.0	99.8	99.8	99.8
1	4.0	10.9	8.0	6.5	9.7	19.4	26.4	23.7	23.4	23.9	11.1	9.8	10.4	11.3	9.6	0.1	0.0	0.1	0.1	0.1
2	1.7	5.1	3.7	2.3	5.2	23.9	27.9	26.3	26.9	25.9	6.8	3.0	4.7	5.0	4.5	0.3	0.0	0.1	0.1	0.1
3+	0.5	1.2	0.9	0.7	1.2	12.0	14.7	13.7	12.8	14.3	1.5	0.5	0.9	1.0	0.9	0.0	0.0	0.0	0.0	0.0
<b>Urban/rural</b>																				
Urban	82.1	83.9	83.2	82.1	84.4	81.2	80.6	80.9	80.8	80.9	73.3	72.4	72.8	75.0	71.2	71.6	70.6	71.1	71.5	70.8
Rural	17.9	16.1	16.8	17.9	15.6	18.8	19.4	19.1	19.2	19.1	26.7	27.6	27.2	25.0	28.8	28.4	29.4	28.9	28.5	29.3

<sup>a</sup>Baseline is defined as first observation in the study

<sup>b</sup>N from those who have either GHQ or SF-12 propensity score. Both male caregivers and matched male non-caregivers were included.

<sup>c</sup>N from those who have either GHQ or SF-12 propensity score. Both female caregivers and matched female non-caregivers were included.

<sup>d</sup>N from those who have either GHQ or SF-12 propensity score. Both caregivers and matched non-caregivers were included.

<sup>e</sup>N from those who have either GHQ or SF-12 propensity score. Only matched non-caregivers were included.

<sup>f</sup>N from those who have either GHQ or SF-12 propensity score. Only caregivers were included.

**Supplement 4 - Results of interactions between slope change and caregiving**

<b>GHQ-12</b>	<b>Care#transition-slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post-transition-slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years	0.37	0.01	0.72	0.041	-0.35	-0.76	0.06	0.095
30-49 years	0.39	0.15	0.63	0.0015	-0.44	-0.71	-0.16	0.0018
50-64 years	0.39	0.16	0.61	0.00079	-0.43	-0.68	-0.17	0.0012
65+ years	0.33	0.11	0.55	0.0034	-0.35	-0.61	-0.10	0.0064
	<b>Care#transition-slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post-transition-slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years women	-0.19	-0.91	0.53	0.61	0.18	-0.66	1.02	0.68
30-49 years women	-0.10	-0.59	0.39	0.69	0.07	-0.50	0.63	0.82
50-64 years women	0.18	-0.27	0.63	0.44	-0.16	-0.68	0.35	0.54
65+ years women	-0.17	-0.61	0.27	0.45	0.19	-0.32	0.70	0.47
	<b>Care-intensity#transition-slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care-intensity#post-transition-slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years								
5-9 hrs/week	0.20	-0.47	0.87	0.55	-0.32	-1.09	0.46	0.42
10-19 hrs/week	0.31	-0.49	1.11	0.45	-0.16	-1.08	0.76	0.73
20+ hrs/week	0.19	-0.52	0.90	0.60	-0.16	-0.98	0.65	0.70
30-49 years								
5-9 hrs/week	0.30	-0.10	0.70	0.14	-0.33	-0.78	0.12	0.15
10-19 hrs/week	0.04	-0.40	0.48	0.86	-0.03	-0.53	0.47	0.90
20+ hrs/week	1.43	1.04	1.82	<0.0001	-1.59	-2.03	-1.14	<0.0901
50-64 years								
5-9 hrs/week	0.18	-0.16	0.53	0.30	-0.21	-0.60	0.18	0.30
10-19 hrs/week	0.49	0.08	0.91	0.019	-0.54	-1.00	-0.08	0.021
20+ hrs/week	1.12	0.71	1.53	<0.0001	-1.16	-1.62	-0.70	<0.0001
65+ years								
5-9 hrs/week	0.25	-0.11	0.61	0.18	-0.34	-0.75	0.07	0.10
10-19 hrs/week	0.28	-0.12	0.67	0.17	-0.35	-0.80	0.09	0.12
20+ hrs/week	0.75	0.43	1.07	<0.0001	-0.83	-1.20	-0.47	<0.0001



	<b>Care- location#transition- slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care- location#transition- slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 year inside household	0.56	0.06	1.06	0.027	-0.42	-1.00	0.15	0.15
30-49 years inside household	0.81	0.50	1.12	<0.0001	-0.83	-1.18	-0.48	<0.0001
50-64 years inside household	0.44	0.13	0.75	0.0052	-0.42	-0.77	-0.07	0.018
65+ years inside household	0.86	0.62	1.11	<0.0001	-0.91	-1.19	-0.62	<0.0001

<sup>1</sup>Interaction tested within caregivers only

<b>SF-12 MCS</b>	<b>Care#transition- slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post- transition-slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years	-0.07	-0.69	0.56	0.83	-0.01	-0.73	0.72	0.99
30-49 years	-0.54	-0.95	-0.13	0.0093	0.55	0.08	1.02	0.021
50-64 years	-0.46	-0.84	-0.07	0.020	0.49	0.05	0.92	0.030
65+ years	-0.17	-0.61	0.27	0.45	0.13	-0.38	0.64	0.61
	<b>Care#transition- slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post- transition- slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years women	-0.04	-1.31	1.23	0.95	0.17	-1.30	1.64	0.82
30-49 years women	-0.64	-1.48	0.20	0.13	0.91	-0.05	1.87	0.062
50-64 years women	-0.19	-0.97	0.58	0.63	0.19	-0.69	1.07	0.68
65+ years women	0.23	-0.66	1.11	0.62	-0.30	-1.32	0.73	0.57
	<b>Care- intensity#transition- slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care- intensity#post- transition-slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years								
5-9 hrs/week	-0.42	-1.58	0.73	0.47	0.64	-0.69	1.98	0.35
10-19 hrs/week	-0.25	-1.61	1.10	0.72	0.25	-1.30	1.81	0.75
20+ hrs/week	-1.03	-2.27	0.20	0.10	1.10	-0.32	2.51	0.13

30-49 years								
5-9 hrs/week	-0.40	-1.05	0.25	0.23	0.38	-0.36	1.11	0.31
10-19 hrs/week	0.40	-0.34	1.13	0.29	-0.57	-1.39	0.25	0.18
20+ hrs/week	-2.49	-3.14	-1.83	<0.0001	2.78	2.04	3.52	<0.0001
50-64 years								
5-9 hrs/week	-0.47	-1.05	0.12	0.12	0.58	-0.08	1.24	0.087
10-19 hrs/week	-0.58	-1.28	0.12	0.10	0.50	-0.28	1.28	0.21
20+ hrs/week	-1.52	-2.21	-0.83	<0.0001	1.44	0.67	2.22	<0.0001
65+ years								
5-9 hrs/week	-0.42	-1.16	0.32	0.26	0.58	-0.26	1.43	0.17
10-19 hrs/week	-0.96	-1.76	-0.16	0.019	1.08	0.16	1.99	0.021
20+ hrs/week	-2.28	-2.93	-1.62	<0.0001	2.37	1.62	3.11	<0.0001
	<b>Care- location#transition- slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care- location#transition- slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 year inside household	-0.72	-1.58	0.15	0.10	0.55	-0.44	1.54	0.28
30-49 years inside household	-1.42	-1.94	-0.91	<0.0001	1.40	0.82	1.98	<0.0001
50-64 years inside household	-0.85	-1.38	-0.32	0.0017	0.80	0.21	1.39	0.0083
65+ years inside household	-1.88	-2.39	-1.37	<0.0001	1.96	1.38	2.54	<0.0001

<sup>1</sup>Interaction tested within caregivers only

<b>SF-12 PCS</b>	<b>Care#transition- slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post- transition-slope</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years	-0.22	-0.68	0.24	0.36	0.17	-0.37	0.70	0.54
30-49 years	0.08	-0.27	0.42	0.67	-0.15	-0.54	0.25	0.46
50-64 years	0.26	-0.09	0.62	0.15	-0.20	-0.60	0.20	0.33
65+ years	-0.16	-0.61	0.30	0.50	0.08	-0.44	0.60	0.76
	<b>Care#transition- slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care#post- transition- slope#gender (ref is men)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>

16-29 years women	0.50	-0.43	1.44	0.29	-0.55	-1.63	0.54	0.32
30-49 years women	-0.25	-0.96	0.45	0.48	0.09	-0.72	0.89	0.84
50-64 years women	0.32	-0.39	1.03	0.38	-0.38	-1.18	0.42	0.35
65+ years women	-0.15	-1.05	0.76	0.76	-0.08	-1.12	0.96	0.88
	<b>Care-intensity#transition-slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care-intensity#post-transition-slope<sup>1</sup> (ref is &lt;5hrs/wk)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 years								
5-9 hrs/week	-0.33	-1.21	0.55	0.46	0.26	-0.75	1.28	0.61
10-19 hrs/week	-0.11	-1.14	0.92	0.84	-0.18	-1.37	1.00	0.76
20+ hrs/week	0.31	-0.63	1.26	0.51	-0.90	-1.97	0.18	0.10
30-49 years								
5-9 hrs/week	0.00	-0.55	0.56	0.99	-0.20	-0.83	0.42	0.52
10-19 hrs/week	-0.51	-1.14	0.11	0.11	0.41	-0.30	1.11	0.26
20+ hrs/week	-0.41	-0.97	0.15	0.15	0.24	-0.39	0.87	0.45
50-64 years								
5-9 hrs/week	-0.19	-0.73	0.35	0.49	0.36	-0.24	0.97	0.24
10-19 hrs/week	0.28	-0.36	0.92	0.39	-0.33	-1.05	0.38	0.37
20+ hrs/week	0.08	-0.55	0.72	0.80	-0.19	-0.90	0.52	0.60
65+ years								
5-9 hrs/week	0.64	-0.12	1.40	0.10	-0.59	-1.44	0.27	0.18
10-19 hrs/week	0.18	-0.64	1.01	0.66	-0.33	-1.26	0.60	0.49
20+ hrs/week	0.75	0.08	1.42	0.03	-0.73	-1.49	0.03	0.061
	<b>Care-location#transition-slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>	<b>Care-location#transition-slope<sup>1</sup> (ref is outside household)</b>	<b>Lower 95% CI</b>	<b>Upper 95% CI</b>	<b>P value</b>
16-29 year inside household	-0.43	-1.09	0.22	0.20	0.26	-0.49	1.02	0.50
30-49 years inside household	-0.29	-0.73	0.15	0.20	0.22	-0.27	0.72	0.38
50-64 years inside household	-0.05	-0.54	0.43	0.83	-0.15	-0.70	0.39	0.58
65+ years inside household	0.07	-0.45	0.59	0.79	-0.15	-0.74	0.44	0.62

<sup>1</sup>Interaction tested within caregivers only

**Supplement 5 – Predicted mean GHQ-12 & SF-12 scores (95% CIs) in each year**

GHQ-12 16-29y				GHQ-12 30-49y				GHQ-12 50-64y				GHQ-12 65+y			
Year	AME	95% CI		Year	AME	95% CI		Year	AME	95% CI		Year	AME	95% CI	
<i>Carers</i>															
-8	10.84	9.33	12.35	-8	12.47	11.87	13.06	-8	12.02	11.50	12.54	-8	10.23	9.73	10.72
-7	9.84	8.74	10.94	-7	11.66	11.18	12.13	-7	11.64	11.23	12.06	-7	10.40	10.02	10.79
-6	10.57	9.69	11.44	-6	11.50	11.10	11.90	-6	11.18	10.82	11.54	-6	10.13	9.81	10.45
-5	11.12	10.47	11.77	-5	11.61	11.27	11.94	-5	11.43	11.12	11.74	-5	10.18	9.90	10.45
-4	10.73	10.21	11.26	-4	11.53	11.24	11.82	-4	11.30	11.02	11.57	-4	9.95	9.70	10.19
-3	10.95	10.49	11.40	-3	11.78	11.52	12.04	-3	11.41	11.17	11.66	-3	9.99	9.77	10.22
-2	11.08	10.69	11.46	-2	11.65	11.42	11.88	-2	11.32	11.09	11.54	-2	10.06	9.85	10.27
-1	11.28	10.95	11.61	-1	11.68	11.47	11.89	-1	11.43	11.23	11.64	-1	10.12	9.92	10.31
0	11.70	11.39	12.01	0	12.23	12.03	12.43	0	11.53	11.33	11.73	0	10.33	10.14	10.51
1	12.11	11.74	12.47	1	12.11	11.89	12.33	1	11.34	11.13	11.56	1	10.33	10.13	10.53
2	11.94	11.55	12.33	2	12.09	11.86	12.32	2	11.09	10.87	11.31	2	10.55	10.34	10.76
3	11.94	11.51	12.37	3	11.99	11.75	12.23	3	11.13	10.90	11.37	3	10.45	10.23	10.67
4	12.30	11.82	12.77	4	12.11	11.85	12.37	4	10.81	10.57	11.06	4	10.38	10.14	10.62
5	12.42	11.88	12.96	5	12.20	11.92	12.48	5	10.81	10.55	11.08	5	10.54	10.28	10.81
6	12.78	12.15	13.40	6	12.34	12.03	12.65	6	10.92	10.64	11.21	6	10.72	10.43	11.02
7	13.71	12.96	14.47	7	12.30	11.94	12.65	7	11.11	10.78	11.44	7	10.53	10.19	10.87
8	13.46	12.29	14.64	8	12.37	11.86	12.87	8	10.72	10.26	11.17	8	10.54	10.07	11.02
<i>Non-carers</i>															
-8	8.99	7.83	10.15	-8	10.57	9.97	11.17	-8	11.59	10.94	12.23	-8	10.46	9.83	11.08
-7	10.12	9.13	11.10	-7	11.11	10.61	11.61	-7	11.42	10.92	11.92	-7	10.09	9.58	10.60
-6	10.28	9.53	11.03	-6	10.62	10.20	11.04	-6	11.68	11.25	12.10	-6	10.24	9.82	10.66
-5	10.49	9.88	11.10	-5	10.89	10.53	11.25	-5	11.49	11.11	11.88	-5	10.31	9.94	10.67
-4	10.93	10.45	11.41	-4	11.20	10.87	11.53	-4	11.35	11.01	11.70	-4	10.11	9.78	10.44
-3	10.69	10.27	11.10	-3	11.18	10.88	11.48	-3	11.25	10.93	11.57	-3	10.15	9.84	10.46
-2	10.65	10.28	11.01	-2	10.96	10.68	11.24	-2	11.13	10.83	11.43	-2	10.00	9.71	10.29
-1	10.72	10.41	11.04	-1	10.89	10.63	11.15	-1	11.32	11.03	11.60	-1	10.06	9.79	10.34

0	11.01	10.69	11.33	0	11.15	10.89	11.41	0	10.95	10.66	11.23	0	9.95	9.67	10.23
1	10.98	10.64	11.32	1	11.09	10.82	11.37	1	11.03	10.74	11.32	1	10.12	9.83	10.41
2	11.13	10.75	11.51	2	11.00	10.71	11.29	2	10.74	10.43	11.05	2	10.19	9.88	10.49
3	11.38	10.95	11.80	3	11.32	11.01	11.62	3	10.62	10.30	10.94	3	10.12	9.79	10.45
4	11.45	10.98	11.92	4	11.25	10.92	11.59	4	10.56	10.21	10.90	4	10.07	9.72	10.42
5	11.32	10.77	11.87	5	11.56	11.20	11.93	5	10.72	10.35	11.08	5	10.48	10.08	10.87
6	11.77	11.12	12.41	6	11.28	10.86	11.70	6	10.88	10.47	11.29	6	10.34	9.88	10.80
7	12.21	11.37	13.04	7	11.46	10.95	11.97	7	10.49	10.00	10.98	7	10.16	9.58	10.75
8	12.90	11.71	14.10	8	11.68	10.88	12.48	8	10.61	9.96	11.26	8	11.02	10.06	11.97
<b>SF12-MCS 16-29y</b>			<b>SF12-MCS 30-49y</b>			<b>SF12-MCS 50-64y</b>			<b>SF12-MCS 65+y</b>						
<b>Year</b>	<b>AME</b>	<b>95% CI</b>		<b>Year</b>	<b>AME</b>	<b>95% CI</b>		<b>Year</b>	<b>AME</b>	<b>95% CI</b>		<b>Year</b>	<b>AME</b>	<b>95% CI</b>	
<i>Carers</i>															
-8	51.10	48.45	53.74	-8	49.62	48.63	50.60	-8	49.76	48.87	50.65	-8	53.59	52.58	54.60
-7	51.31	49.40	53.23	-7	48.70	47.91	49.50	-7	50.39	49.69	51.10	-7	53.64	52.86	54.42
-6	50.11	48.59	51.63	-6	48.50	47.83	49.17	-6	50.69	50.08	51.30	-6	53.39	52.76	54.03
-5	49.81	48.68	50.95	-5	48.48	47.92	49.04	-5	50.24	49.71	50.76	-5	53.06	52.51	53.60
-4	49.64	48.71	50.57	-4	48.58	48.09	49.07	-4	50.40	49.93	50.87	-4	53.17	52.68	53.65
-3	47.86	47.06	48.66	-3	47.96	47.52	48.40	-3	50.04	49.61	50.46	-3	53.09	52.66	53.53
-2	48.20	47.53	48.87	-2	48.13	47.74	48.53	-2	50.05	49.66	50.43	-2	52.75	52.35	53.14
-1	47.48	46.90	48.06	-1	47.82	47.46	48.18	-1	49.83	49.47	50.18	-1	52.48	52.12	52.85
0	46.46	45.92	47.00	0	46.82	46.48	47.16	0	49.52	49.17	49.86	0	52.09	51.74	52.45
1	45.61	44.98	46.24	1	46.76	46.39	47.13	1	49.35	48.98	49.72	1	51.72	51.34	52.11
2	45.28	44.59	45.96	2	46.85	46.46	47.23	2	49.99	49.61	50.36	2	51.75	51.35	52.16
3	45.04	44.30	45.79	3	47.02	46.61	47.42	3	49.65	49.26	50.05	3	51.56	51.13	51.98
4	43.91	43.11	44.72	4	46.66	46.23	47.09	4	49.94	49.53	50.36	4	51.60	51.14	52.06
5	43.70	42.78	44.62	5	45.99	45.52	46.46	5	49.91	49.46	50.36	5	51.79	51.28	52.30
6	43.99	42.93	45.05	6	46.02	45.51	46.54	6	49.94	49.46	50.43	6	51.14	50.57	51.70
7	42.40	41.15	43.65	7	46.02	45.44	46.61	7	49.32	48.77	49.88	7	51.25	50.58	51.92
8	43.07	41.19	44.95	8	45.93	45.11	46.75	8	49.22	48.46	49.98	8	50.31	49.37	51.25
<i>Non-carers</i>															

-8	52.30	49.86	54.74	-8	50.65	49.60	51.70	-8	49.20	48.09	50.31	-8	52.65	51.47	53.83
-7	51.31	49.58	53.05	-7	49.77	48.92	50.62	-7	50.37	49.49	51.25	-7	52.32	51.38	53.26
-6	51.16	49.85	52.46	-6	49.53	48.81	50.25	-6	50.00	49.26	50.75	-6	53.14	52.34	53.94
-5	51.20	50.12	52.28	-5	49.01	48.37	49.64	-5	49.68	49.01	50.34	-5	53.28	52.57	53.98
-4	49.77	48.87	50.68	-4	49.15	48.57	49.73	-4	50.31	49.70	50.92	-4	52.32	51.68	52.96
-3	49.62	48.85	50.39	-3	48.78	48.25	49.32	-3	50.30	49.73	50.87	-3	52.61	52.01	53.21
-2	48.92	48.23	49.60	-2	49.01	48.50	49.51	-2	49.69	49.16	50.22	-2	52.71	52.15	53.27
-1	48.33	47.75	48.90	-1	48.91	48.43	49.39	-1	50.06	49.57	50.55	-1	52.67	52.14	53.20
0	47.48	46.90	48.07	0	48.30	47.83	48.78	0	49.79	49.30	50.29	0	51.81	51.27	52.34
1	46.89	46.26	47.52	1	48.08	47.58	48.57	1	50.23	49.72	50.75	1	51.85	51.30	52.41
2	46.03	45.35	46.71	2	48.22	47.70	48.74	2	49.98	49.45	50.51	2	52.44	51.86	53.03
3	45.74	44.97	46.50	3	48.16	47.61	48.72	3	50.14	49.58	50.69	3	51.89	51.27	52.51
4	45.34	44.50	46.18	4	48.29	47.70	48.89	4	50.49	49.90	51.08	4	52.04	51.37	52.72
5	45.86	44.91	46.81	5	47.55	46.88	48.21	5	49.80	49.17	50.43	5	51.35	50.59	52.11
6	46.45	45.31	47.59	6	47.87	47.12	48.62	6	49.91	49.20	50.61	6	51.09	50.21	51.96
7	44.56	43.12	46.00	7	46.60	45.67	47.53	7	49.67	48.85	50.48	7	50.99	49.90	52.08
8	44.51	42.54	46.49	8	46.88	45.56	48.20	8	49.83	48.73	50.92	8	50.51	48.78	52.24
<b>SF12-PCS 16-29y</b>				<b>SF12-PCS 30-49y</b>				<b>SF12-PCS 50-64y</b>				<b>SF12-PCS 65+y</b>			
<b>Year</b>															
<b>Carers</b>															
-8	53.36	51.37	55.36	-8	52.25	51.39	53.12	-8	50.85	49.97	51.73	-8	46.58	45.45	47.70
-7	53.61	52.17	55.06	-7	52.54	51.84	53.25	-7	49.94	49.23	50.65	-7	46.32	45.43	47.21
-6	53.10	51.96	54.25	-6	52.85	52.26	53.45	-6	49.57	48.94	50.20	-6	46.30	45.55	47.05
-5	53.26	52.41	54.12	-5	51.58	51.08	52.08	-5	49.57	49.02	50.12	-5	45.64	44.98	46.30
-4	52.89	52.20	53.59	-4	51.92	51.47	52.36	-4	49.34	48.83	49.84	-4	45.20	44.60	45.81
-3	53.38	52.79	53.98	-3	52.03	51.62	52.43	-3	49.02	48.55	49.49	-3	44.60	44.03	45.17
-2	52.83	52.33	53.33	-2	51.44	51.07	51.80	-2	48.62	48.18	49.05	-2	44.46	43.93	44.99
-1	53.10	52.67	53.53	-1	51.39	51.05	51.73	-1	48.49	48.08	48.90	-1	44.01	43.51	44.51
0	53.08	52.68	53.48	0	51.29	50.96	51.61	0	48.45	48.05	48.85	0	43.81	43.32	44.30
1	52.91	52.44	53.37	1	50.84	50.49	51.18	1	48.02	47.59	48.44	1	43.28	42.76	43.79

2	52.62	52.11	53.13	2	50.65	50.30	51.01	2	47.84	47.40	48.27	2	42.67	42.14	43.21
3	52.79	52.23	53.34	3	50.56	50.19	50.94	3	47.32	46.87	47.76	3	42.06	41.51	42.62
4	53.08	52.48	53.68	4	50.23	49.83	50.62	4	47.25	46.79	47.71	4	41.69	41.10	42.27
5	52.12	51.43	52.81	5	49.95	49.53	50.38	5	47.26	46.77	47.75	5	41.03	40.40	41.66
6	52.07	51.27	52.86	6	50.10	49.64	50.57	6	46.65	46.13	47.16	6	40.57	39.88	41.25
7	52.11	51.16	53.05	7	49.51	48.98	50.03	7	46.30	45.72	46.88	7	40.08	39.30	40.86
8	51.19	49.77	52.61	8	49.63	48.91	50.35	8	46.56	45.80	47.32	8	39.81	38.76	40.86
<i>Non-carers</i>															
-8	52.86	51.18	54.54	-8	54.02	53.14	54.90	-8	51.05	49.96	52.14	-8	45.96	44.63	47.30
-7	54.08	52.88	55.28	-7	53.91	53.19	54.63	-7	50.49	49.60	51.38	-7	45.90	44.80	46.99
-6	54.13	53.23	55.02	-6	53.34	52.72	53.95	-6	49.71	48.93	50.49	-6	45.99	45.02	46.96
-5	54.39	53.65	55.13	-5	53.52	52.97	54.08	-5	49.26	48.54	49.97	-5	45.45	44.56	46.33
-4	54.65	54.03	55.27	-4	53.13	52.62	53.64	-4	48.95	48.28	49.62	-4	45.07	44.24	45.90
-3	54.28	53.75	54.81	-3	53.12	52.65	53.60	-3	49.15	48.51	49.79	-3	44.25	43.46	45.05
-2	54.36	53.89	54.83	-2	52.61	52.16	53.06	-2	48.89	48.28	49.49	-2	44.21	43.45	44.97
-1	54.67	54.28	55.06	-1	53.07	52.64	53.50	-1	48.67	48.09	49.25	-1	44.04	43.31	44.78
0	54.64	54.24	55.04	0	52.63	52.20	53.05	0	48.32	47.73	48.90	0	43.83	43.09	44.57
1	54.64	54.21	55.07	1	52.36	51.91	52.80	1	47.73	47.13	48.32	1	43.33	42.57	44.08
2	54.61	54.14	55.07	2	52.24	51.77	52.70	2	47.44	46.83	48.05	2	42.47	41.69	43.25
3	54.46	53.94	54.98	3	51.77	51.28	52.26	3	46.97	46.35	47.60	3	42.55	41.73	43.36
4	54.58	54.00	55.15	4	51.53	51.01	52.05	4	46.54	45.88	47.19	4	42.15	41.29	43.01
5	54.13	53.48	54.78	5	51.63	51.06	52.21	5	46.51	45.82	47.20	5	41.28	40.34	42.21
6	54.17	53.39	54.96	6	51.53	50.89	52.18	6	46.28	45.54	47.03	6	40.87	39.83	41.90
7	54.30	53.31	55.29	7	51.74	50.95	52.52	7	45.79	44.95	46.62	7	40.50	39.26	41.74
8	53.01	51.64	54.37	8	50.99	49.89	52.09	8	45.09	44.01	46.17	8	39.46	37.58	41.34

AME = Average Marginal Effect

**Supplement 6 – Characteristics of the UKHLS sample across time by caregiving status**

	<b>W1 caregivers</b>	<b>W1 non- caregivers</b>	<b>W1 total</b>	<b>W10 caregivers</b>	<b>W10 non- caregivers</b>	<b>W10 total</b>
	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
<b>Gender</b>						
Men	38.1	46.9	45.50	38.7	46.0	44.8
Women	61.9	53.1	54.50	61.3	54.0	55.2
<b>Parental occupational class</b>						
Professional/ managerial	23.7	30.3	29.2	26.7	33.0	31.9
Intermediate	6.7	8.2	8.0	8.5	10.4	10.1
Routine/manual	59.4	52.2	53.4	54.2	48.2	49.2
Not working	10.3	9.2	9.4	10.6	8.4	8.8
<b>Ethnicity</b>						
White	84.5	78.5	79.5	84.0	82.0	82.3
Black	4.4	7.1	6.7	4.3	4.9	4.8
Indian	3.1	4.3	4.1	3.4	4.1	4.0
Pakistani	3.2	3.1	3.2	4.3	3.8	3.9
Bangladeshi	2.5	2.5	2.5	2.1	2.0	2.1
Asian/other	2.3	4.5	4.1	2.0	3.2	3.0
<b>Education qualification</b>						
Degree	18.9	25.6	24.5	24.4	28.7	28.0
Other higher degree	13.5	11.4	11.7	14.6	11.9	12.3
A level etc	18.6	18.5	18.5	20.8	21.4	21.3
GCSE etc	20.6	18.7	19.0	20.8	19.8	20.0
Other qualification	12.5	9.9	10.3	9.3	8.4	8.5
No qualification	16.0	16.0	16.0	10.2	9.9	10.0
<b>Household income quintiles</b>						
Lowest	18.8	20.2	19.9	20.0	20.0	19.96
2	22.3	19.6	20.0	22.1	19.6	19.99
3	21.6	19.7	20.0	21.0	19.8	20.02
4	19.5	20.1	20.0	19.0	20.2	20.02
Highest	17.8	20.4	20.0	18.0	20.4	20
<b>Occupational class</b>						
Professional/ managerial	33.8	36.4	36.1	35.9	41.2	40.4
Intermediate	22.4	20.9	21.1	23.2	22.0	22.2
Routine/manual	31.7	32.2	32.1	32.3	30.5	30.8
Not working	10.3	9.2	9.4	8.6	6.3	6.7
<b>Marriage</b>						
Single	17.7	24.7	23.6	17.0	24.0	22.8
Married	60.1	49.1	50.9	60.3	52.1	53.5
Separated	9.1	8.4	8.5	9.2	7.6	7.9
Live as couple	9.4	11.5	11.2	9.4	9.9	9.8
Widowed	3.8	6.3	5.9	4.3	6.4	6.0
<b>Mean age (yrs)</b>	49.80	44.80	45.64	53.5	49.1	49.8
<b>Mean GHQ</b>	11.64	10.92	11.05	12.12	11.21	11.37
<b>Mean SF-12 MCS</b>	49.49	50.69	50.49	46.83	48.09	47.87
<b>Mean SF-12 PCS</b>	48.73	49.64	49.49	47.52	49.60	49.25



**Proportion of caregivers and non-caregivers in waves 1-10 of the UKHLS**

	Wave 1 (n=11,526)	Wave 2 (n=11,577)	Wave 3 (n=10,213)	Wave 4 (n=9,665)	Wave 5 (n=9,152)	Wave 6 (7,930)	Wave 7 (n=8,325)	Wave 8 (n=7,437)	Wave 9 (n=6,694)	Wave 10 (n=6,219)
% caregivers	9.1	9.1	9.0	9.2	9.0	8.9	9.2	9.2	9.2	9.0