

Is caregiving bad for health? Trajectories of health and well-being among UK caregivers for parents or parents in law taking account of initial health status

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Introduction

Is caregiving bad for health? Evidence on this is contradictory. Numerous studies indicate that caregivers report poorer mental and physical health and more loneliness than non-caregivers (Coe & Van Houtven, 2009) and it has been suggested that these impacts may be particularly marked for caregivers who feel constrained to take on this role due to a lack of alternatives. However, other longitudinal research shows that caregivers' mortality is lower than of the non-caregiver population prompting some to suggest there may be a 'healthy carer' effect similar to the 'healthy worker' effect, i.e. taking on caregiving requires a certain level of health as people in very poor health themselves may not be able to take on the role (Ramsay, Grundy & O'Reilly, 2013). Moreover, other studies suggest that there may be psychological and physical health benefits - as well as strains- of undertaking caregiving. For some groups, caregiving may provide a recognised and valued role and purpose and have salutogenic impacts, associated with increased physical activity and possibly changes in health-related behaviours (Cohen, Colantonio & Vernich, 2002). Additionally, some studies indicate that the mental health of adult children is adversely affected by the disability of a parent regardless of whether or not they provide care, implying that some of the stress and mental health symptoms reported by caregivers may arise from worries about their parent's poor health, rather than specifically from caregiver strain (Wolf, Raissan, Grundy 2015).

The impacts of caregiving on health may depend on the intensity of the role and other commitments. Prior research suggests that providing intensive care (20 hours a week or more), co-residential care (sometimes involving around the clock assistance) or combining care and full-time employment has a detrimental effect on mental health but providing less intensive care may have fewer negative, or indeed, positive impacts. Consistent with this, a recent comparative study of the UK and Netherlands found that providing some care may have benefits for both mental and physical health while providing care when also in full-time employment, or providing intensive care, had a detrimental impact on mental health (Bom & Stöckel, 2021). This is supported by previous research that found that women providing in-home care to a parent or parent-in-law had more depressive symptoms than those who provided care to a non-co-resident (Caputo et al., 2016). In the same vein, Lacey et al. (2019) did not find differences between all UK caregivers and non-caregivers in metabolic markers, but found that providing intensive care (20 or more hours per week) was associated with high cholesterol risk for women only. Several potential mechanisms behind this increased metabolic risk have been proposed, including higher caloric intake, chronic stress, and higher BMI due to reduced frequency of sporting activities (Lacey et al., 2019).

In this study our aim is to extend our understanding of the impact of caregiving on the physical and mental health of caregivers taking account of initial health status. We focus on caregivers of parents or in-laws and analyse changes in indicators of health and well-being among both caregivers and non-caregivers, among those who have this living relative. Importantly we control for initial health status using objective data on grip strength, lung function, obesity, hypertension, waist circumference and medication intake collected in nurse assessments in Waves 2-3 of the survey. The use of objective measures of health might be a better indicator of health selection than PCS-12 as less influenced by subjective well-being. However, also an alternative hypothesis for which there is some evidence, is that caregivers may be drawn from those in poorer health with lower levels of education and less attachment to the labour market. Young et al (2008), for example, used data from a census based record linkage study of England & Wales to analyse variations in the provision of 20 or more hours per week of care and found associations with lower levels of education, reported poor health, and less labour market involvement over a 30-year retrospective period, however this study was not able to control for whether or not subjects had a parent alive. These two propositions are not mutually exclusive as selection

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into caregiving might depend on the degree of poor health and perhaps factors related to employability. In addition, we take into account other sociodemographic characteristics and the availability of various supports. Unravelling the complex associations between caring for parents and the health of their carer children is important in order to identify possible support mechanisms for those caregivers in most need and to re-evaluate impacts of caregiving on health.

Data and Methods

We use data from the UK Household Longitudinal Survey (UKHLS), a large nationally representative study of the UK population followed up annually. We analyse changes in indicators of health and well-being among caregivers and non-caregivers over a seven-year follow-up period using subjective well-being variables and self-reported health indicators. We estimate linear fixed effects models for both the Physical and Mental Components of the SF-12 (PCS-12 and MCS-12). PCS-12 and MCS-12 were derived from the Short-Form Health Survey (SF-12) and were constructed to be independent of each other. SF-12 is a multidimensional self-reported measure of health and quality of life including 12 items and a shorter version of SF-36. SF-12 has been validated to capture mental (MCS-12) and physical (PCS-12) scores consistently (Ware, Kosinski & Keller, 1996), both across-countries (Gandek et al, 1998) and over time in longitudinal studies (Salvatore & Grundy, 2021). Both indicators range from 0 to 100 -higher values for better health- and have been normalised and have a mean of 50 and a standard deviation of 10 (Ware, Kosinski & Keller, 1996). We use PCS-12 score as an indicator of physical health and MCS-12 score as an indicator of depressive symptoms. The SF-12 is available in all UKHLS waves.

Importantly, we control for initial health status using objective measures from the nurse health assessment in Waves 2-3 of the survey. These include data on grip strength, lung function, obesity, hypertension, metabolic risk associated with waist circumference, and medication intake collected in nurse assessments in Waves 2-3 of the survey. We will also take account of other socio-demographic characteristics and health variables, such as long-standing illness, activity limitation, health condition before the age of 15, previous clinical depression, PCS-12 and MCS-12 at baseline, and other relevant life course information. Finally, we will include other information about potential sources of support and distress. Among the availability of various supports, we include having siblings and other family network indicators, and perception neighbourhood of social cohesion. Among the sources of potential care burden, we consider intense care (20 hours a week or more), co-residential care, full-time employment, children under 14 they are responsible for, or multiple care.

Our analysis sample includes all individuals who were aged 40 to 69 at the time of the nurse health assessment and who had any natural, step or adoptive parent or parent in-law alive during the follow-up period. We constrain the sample to those respondents who were observed at least 4 times between the nurse health assessment (wave 2 or 3) and wave 9, which is the last available wave with information about living relatives. Finally, we drop those respondents who were providing care to parents at baseline or have missing information for the dependent variables PCS12 and MCS12. The final sample consists of 4,647 respondents (21.71% women) and 34,107 observations.

Preliminary results

Table 1 shows the characteristics of the sample at baseline, together with an indicator of whether respondents became a caregiver for a parent or parent in-law during the follow-up period. Mean age at baseline was 50 with just over half the sample being female. Over a third of respondents reported a long-standing illness or impairment. 29% of men and 31% of women became a caregiver for a parent over the follow-up period. Table 2 presents results from regression analyses of differences in baseline health indicators for care-givers/non caregivers and shows no differences. However, low lung function among women and some limitation for moderate activity among men are negatively associated with caregiving. This provides little support for the 'health caregiver' hypothesis. We will further investigate it by deriving a latent variable from objective health measures to capture actual health, as proposed by Ploubidis and Grundy (2011). Also, we will investigate differences between sub groups, such as between providers of 20 or more hours of care/co-resident care and

other caregivers to test the other hypotheses. In the main analyses in progress we examine trajectories of mental and physical health, as indicated by PCS/MCS score and interactions with baseline characteristics, as well as by differences in duration and extent of care provision.

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Table 1. Sample description of demographic and health variables at baseline, by gender (N = 4647).

Variable	Total					Men					Women				
	Obs	Mean /Pct.	Std. Dev.	Min	Max	Obs	Mean /Pct.	Std. Dev.	Min	Max	Obs	Mean /Pct.	Std. Dev.	Min	Max
nurse assessment	4,647	100.00				2,244	100.00		2	3	2,403	100.00			
wave 2	3,438	73.98				1,647	73.4				1,791	74.53			
wave 3	1,209	26.02				597	26.6				612	25.47			
nobs	4,647	7.34	0.75	4	8	2,244	7.34	0.74	4	8	2,403	7.34	0.76	4	8
subsequent parental carer	4,647	29.07				2,244	26.43				2,403	31.54			
female	4,647	51.71		0	1	2,244	0.00				2,403	100.00			
age	4,647	50.43	7.43	40	69	2,244	51.22	7.64	40	69	2,403	49.69	7.16	40	69
hhsz	4,647	2.93	1.28	1	9	2,244	2.90	1.33	1	9	2,403	2.95	1.23	1	9
partner in hh	4,647	80.59				2,244	83.29				2,403	0.78			
children under 14	4,647	18.31				2,244	1.78				2,403	33.75			
Body Mass Index (BMI)	4,547	24.97	5.84	1	40	2,194	25.43	5.24	1	40	2,353	24.55	6.32	1	40
Lung function within-gender quartile (FVC)	3,917	2.65	1.03	1	4	1,902	2.64	1.04	1	4	2,015	2.65	1.01	1	4
Grip strength within-gender quintile	4,377	3.31	1.34	1	5	2,118	3.33	1.32	1	5	2,259	3.28	1.37	1	5
Hypertension	3,323	19.08				1,568	23.79				1,755	14.87			
Number of medication type taken	4,647	0.97	1.24	0	5	2,244	0.87	1.18	0	5	2,403	1.07	1.29	0	5
Medication for certain chronic conditions	4,647	40.07				2,244	39.26				2,403	40.82			
Metabolic risk related to waist circumf.	4,590	1.72	0.75	1	3	2,215	1.65	0.61	1	3	2,375	1.79	0.85	1	3
PCS-12 (0-100 higher value better health)	4,212	50.78	10.44	5.68	72.44	2,037	50.96	9.82	5.68	71.08	2,175	50.62	10.99	7.52	72.44
MCS-12 (0-100 higher value better health)	4,212	49.91	9.42	4.20	73.27	2,037	50.81	8.92	10.81	73.27	2,175	49.07	9.78	4.2	69.66
Health limits moderate activities	4,356	1.28	0.57	1	3	2,101	1.26	0.56	1	3	2,255	1.29	0.58	1	3
Health limits several flights of stairs	4,293	1.32	0.59	1	3	2,067	1.27	0.56	1	3	2,226	1.35	0.62	1	3
Long-standing illness or impairment	4,644	35.98				2,243	36.25				2,401	35.74			

Table 2. Summary of univariate logistic regressions of health indicators at baseline for care-givers/non care-givers, adjusted for age and age square.

	Total		Men			Women			
	N	Coef.	P> z	N	Coef.	P> z	N	Coef.	P> z
Body Mass Index (ref. under 18.5)	4,547								
18.5 and below 25		-0.197	0.650						
25 and below 30		-0.206	0.634						
30 and below 40		-0.082	0.851						
40 and above		-0.146	0.749						
Lung function within-gender quartile (FVC)	3,917								
2nd quartile		0.196	0.078				2,015	0.287	0.067
3rd quartile		0.188	0.099					0.350	0.028
4th quartile (best health)		0.128	0.290					0.315	0.064
Grip strength within-gender quintile	4,377								
2nd quartile		-0.019	0.874						
3rd quartile		-0.046	0.697						
4th quartile		-0.164	0.179						
5th quartile (best health)		0.000	0.997						
Treated or untreated hypertension (ref. normotensive untreated)	3,323								
normotensive treated		-0.087	0.489						
hypertensive treated		-0.099	0.735						
hypertensive untreated		-0.160	0.322						
Hypertension (ref. normotensive untreated)	3,323	-0.113	0.260						
Number of medication type taken (0 to 5+)	4,647	0.035	0.187						
Medication for certain chronic conditions	4,647	0.032	0.639						
Metabolic risk related to waist circumf.	4,590								
Increased risk		-0.139	0.057						
Greatly increased risk		-0.069	0.449						
PCS-12 (0-100 higher value better health)	4,212	-0.002	0.593						
MCS-12 (0-100 higher value better health)	4,212	0.004	0.277						
Health limits moderate activities	4,356			2,215					
yes, limited a little		0.048	0.607		-0.269	0.007			
yes, limited a lot		-0.065	0.645		-0.333	0.106			
Health limits several flights of stairs	4,293								
yes, limited a little		0.067	0.446						
yes, limited a lot		-0.161	0.248						
Long-standing illness or impairment	4,644	-0.087	0.199						