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ARTICLE

Delivering '50 PLUS Choices' in the UK: how compatible are 'fuller working lives' with an increasing reliance on informal carers to deliver social care?

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Abstract
The past decade has been marked by cuts in public funding of adult social care alongside an increased policy focus within the UK on extending working lives through '50 PLUS Choices'. This study uses the UK Household Longitudinal Study (2009/10–2018/19) to examine the relationship between informal care provision and labour market participation. The analysis focusses on mid-life, a period of life course characterised by both the uptake of informal care provision responsibilities and withdrawal from the labour market. Across the observation period, employment increased amongst both mid-life carers and non-carers, but the gap widened – with carers being much less likely to be employed. Discrete-time survival models assess the effect of caregiving on the likelihood of changing from full-time to part-time work or leaving work altogether. A range of indicators of caregiving, including care intensity, type of care provided and relationship to the person cared for, are all associated with reduced employment. The analysis supports the argument that policies promoting higher labour force participation amongst older workers are incompatible with cuts in funding for adult social care; to realise '50 PLUS Choices', older working carers need to be better supported in juggling the competing demands of care and work.

Keywords: informal caregiving; leaving employment; mid-life; work–life balance

Background

Informal care remains a crucial component of the UK health and social care systems (Foley et al., 2022). Caregivers provide unpaid assistance to family members or friends who require support owing to ill health, advanced age, physical incapacity, a mental health issue or a combination of these. Owing to significant public budget reductions for adult social care since 2009, informal caregivers have continued to bear much of the burden of care provision (Brimblecombe et al., 2018; Thorlby et al.,

2018). Around 7% of the UK population is estimated to have provided unpaid care in 2019/2020, with more than half of informal adult carers being in paid employment, combining work and caring responsibilities (ibid).

In response to population ageing and rising pension, health and social care expenditures, many countries, including the UK, have adopted policies to lengthen working lives by raising the state pension age (SPA) or phasing out the default retirement age with significant legislation starting in 1995 to equalise and then increase the SPA for both genders, alongside the introduction of anti-age discrimination laws and the promotion of flexible working arrangements (Department for Work and Pensions (DWP), 2017; Thurley et al., 2021). As a result, employment rates amongst those aged 50 years and over increased in the UK, reaching a peak in 2019–2020 prior to the outbreak of the coronavirus disease 2019 (COVID-19) pandemic (Powell, 2021). Recent research by ONS (2022a), however, shows an increase in the proportion of people aged 50 years and over who have become economically inactive since the start of the pandemic, reversing the historical falling trend in inactivity for this age group. As a result, there has been renewed emphasis on support for older workers, including the appointment by the UK government of a '*Business Champion for Older Workers*' and a rebranding of the '*Fuller Working Lives*' (FWL) agenda (DWP, 2017) to '*50 PLUS Choices*' (DWP, 2021). FWL aimed to increase the retention, retraining and recruitment of older workers through flexible working, career training, self-employment, volunteering and phased retirement. Now called '50 PLUS: Choices', the policy recognises the unique challenges of over-50s in the job market, with initiatives to promote age-inclusive employment practices along with targeted support, and skills development to help over-50s stay in, progress in or return to work. In July 2022, a further package of new measures was announced to support people over 50 to get back into work, including '*Mid-Life MOTs*' to support older workers with financial planning, health guidance, and skills assessment, allowing them to take stock of their skills and finances, and consider jobs that could boost their income, available in jobcentres (DWP, 2022).

Given the policy emphasis on extended working lives, the effect of informal caregiving on the ability of working-age people to engage in the labour market has also risen up the policy agenda. The Care Act 2014 (DH, 2014) strengthened the roles and responsibilities of the state towards individuals and their carers, including needs assessments for carers. However, an evaluation of its impact 5 years after implementation argued that its impact had been limited by the need for local authorities to remain within strict budgets (Fernandez et al., 2020). The social care sector in the UK continues to rely heavily on provision of support from family, particularly women, with local authority-funded statutory services available to only those older people assessed to have the greatest level of incapacity, resulting in high levels of unmet need (Vlachantoni et al., 2024). In contrast, countries such as Sweden, Germany and France offer better public care services and labour protections, resulting in a more stable integration of care and employment (Triantafillou et al., 2010).

This study aims to provide new empirical evidence regarding the complex relationships between informal care provision and changes in labour market participation over the past decade among mid-life men and women in the UK. A key

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strength of this study is the use of large-scale national representative panel data. This enables the investigation of different dimensions of informal caregiving and their association with the risk of leaving employment or changing from full-time to part-time work, including the intensity and type of caregiving, the relationship between carers and recipients and the dynamics (or duration) of care. The study analyses data over the period from 2009/2010 to 2018/2019, a decade marked by real term cuts in public funding to adult social care, alongside an increased policy focus on extending working lives. This period also saw the largest population cohort of baby boomers reach their 50s and 60s (Sinclair, 2015). By focussing on working individuals aged between 50 and 64 years, a period of the life course characterised by both the uptake of informal care provision responsibilities and withdrawal from the labour market (DWP, 2019), the study aims to inform the design of policies that support mid-life women and men to combine the important roles of worker and carer.

Informal care provision and labour market participation

Previous research has identified a negative relationship between care and work, with caregiving associated with reducing working hours or leaving paid work altogether (Lilly et al., 2007). A recent study of individuals born in 1958 in Britain found that providing care for more personal tasks and for a higher number of hours were associated with exiting employment between ages 50 and 55 for both men and women carers (Gomez-Leon et al., 2019). However, the relationship is not clear cut. Research employing data from the British Household Panel Study (1991–2002) found that a negative impact on employment only applied to some types of caregiving such as co-residential or intensive care, and amongst those with lower-intensity caring commitments no link between care provision and employment was found (Heitmueller, 2007). More recent research using the UK Household Longitudinal Study (UKHLS) (2009–2014) found no association between caregiving intensity and exit from paid work, although employees who provided care within the household, cared for a partner/spouse or entered a new caregiving role were more likely to stop working (Carr et al., 2018). There may also be a 'selection effect' into the caring role; Aldridge and Hughes (2016) found that the majority of caregivers who offer intensive care assistance have low or no educational qualifications and thus may face a lower 'opportunity cost' of reducing their working hours to provide care. The type of care provided also matters. Analyses from the Survey of Health, Ageing and Retirement in Europe found that 'upward caregiving' towards parents had less impact on the carer's labour market participation than 'lateral care', e.g. to siblings, friends and neighbours, and 'downward', grandchild care (Bertogg et al., 2020). A study from the Dutch Labour Supply Panel (2004–2018) found that taking up informal caring responsibilities reduced women's working hours when the care they provided was intensive, but this was not the case with men's working hours (Josten et al., 2022). In contrast, a study in the UK found that the negative impact of more intense caregiving on reducing working hours (rather than leaving work altogether) was statistically significant only for men but not for women (Gomez-Leon et al., 2019). Candon et al. (2023), using

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data from the Survey of Adult Carers in England, found that carers who perform tasks that are time-bound, such as providing physical help with dressing or bathing or providing medicine, have a lower probability of working compared with carers who do not perform these tasks.

The different definitions of informal caregiving used and different age ranges selected as the study population may in part account for the mixed findings in the studies discussed above. For instance, one study restricted caregiving to that provided to older parents or parents-in-law (Gomez-Leon et al., 2019); other studies included unpaid care for a wider set of older or dependent family members, friends, acquaintances or neighbours (Carr et al., 2018; Josten et al., 2022). Several investigations were conducted among the general working-age population aged 16 to retirement age (Heitmueller, 2007; Josten et al., 2022), whereas others concentrated on mid-life and later-life working individuals, e.g. those aged 50–75 years (Carr et al., 2018), whilst another study focussed on a single birth cohort born in 1958 at ages 50–55 (Gomez-Leon et al., 2019).

Theories and hypotheses of informal caregiving and employment

Previous research has frequently applied the 'role strain' theory, along with the life course perspective and a gender lens, to explain the relationship between informal caregiving and employment decisions. According to the 'role strain' theory, the role of carer may directly conflict with the role of worker, reflecting the challenges around combining and fulfilling all the requirements in both roles owing to time constraints and stress spill-over from one role to the other (Greenhaus & Beutell, 1985). Research has found that caregiver employment rates fall as caregiving hours rise (Aldridge & Hughes, 2016). The number of hours that a caregiver devotes to caregiving rises with age (Muller & Volkov, 2009), placing older carers at risk of quitting their jobs. If carers are responsible for intensive dementia care support arrangements, they have a considerably lower likelihood of remaining employed (Milne et al., 2013). Against this background, we outline Hypothesis 1 (H1): Mid-life working individuals who provide intensive informal care are more likely to leave employment or reduce working time.

Similarly, co-residential carers provide significantly more hours of care than non-resident carers (Michaud et al., 2010), which increases their likelihood of leaving work to provide care. According to several previous studies, caregivers who live with the person they provide care for are much more likely to leave the labour market than those who do not (Brimblecombe et al., 2018; Gomez-Leon et al., 2019). This leads us to outline Hypothesis 2 (H2): Mid-life working individuals who provide informal care to co-residential members are more likely to exit employment or reduce working time.

Individuals who provide care to their parent (or parent-in-law) may have other family members to share the caregiving duties with, e.g. siblings, partners and their other parent, and as a result their caregiving responsibilities may have a more limited impact upon their decision to leave the labour market (Bertogg et al., 2020). However, spousal caregivers are often solo caregivers, which makes it more challenging to reconcile caregiving and employment, as the caring burden often falls

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on few shoulders (ibid). Furthermore, the spouse of the carer is typically the recipient of intensive care. In the UK, only 17% of those who provide intense care support parents, while more than 70% of intensive carers support a spouse (Colombo et al., 2011). Against this evidence, we specify Hypothesis 3 (H3): Mid-life working individuals who provide informal care to their spouses are more likely to exit employment or reduce work hours.

According to the life course perspective, transitions, such as the transition from work to retirement, are embedded within multiple interdependent trajectories, i.e. within the life spheres of health, work and family (Elder et al., 2003). Working carers at different life stages may experience diverse care demands and differ in their ability to reconcile their caregiving and job, with adults in their mid-life tending to have more responsibilities and being more likely to be occupying multiple roles (Evandrou et al., 2002; Infurna et al., 2020).The life course perspective also emphasises the social embeddedness of transitions by pointing to the principle of 'timing', which refers to the age at which an experience occurs and how it is experienced (Elder et al., 2003). Stresses arise around transitions during the 'caring journey', with qualitative research highlighting that changing circumstances on taking up a new caring role, such as the need to adapt the times of arriving at or leaving the workplace, may create additional conflicts and increase the risk of withdrawing from paid employment because of exhaustion and stress from 'juggling everything' (DWP, 2019). This evidence leads us to develop Hypothesis 4 (H4): The transition into becoming a carer increases the risk of leaving employment or reducing working time among mid-life working individuals.

Adopting a gender lens highlights theories such as 'economic bargaining' and 'gender ideology' as offering potential explanations for the disparity between men's and women's engagement in the workforce, domestic caregiving and the decisions they make when faced with care and employment conflicts (McMunn et al., 2020). Men tend to earn more and can negotiate less domestic care work. In addition, gender norms regard men as traditional family breadwinners who are less responsible for, or exempt from, family caregiving obligations. Previous research has suggested that women were more likely to provide care during their working age (Evandrou et al., 2002; Vlachantoni, 2010). In terms of the types of care duties performed, women are also more likely than men to take on those tasks which are more physically and psychologically demanding, such as intimate personal care, and thus are more likely to exit employment (Doebler et al., 2017) or to reduce their working time and work part-time (Gomez-Leon et al., 2019). This evidence is behind Hypothesis 5 (H5): Mid-life working female carers are more likely to exit employment or reduce working time than male carers.

A range of other factors may confound the relationship between informal care and labour force participation decisions, including familial structure, individual socioeconomic circumstances, health status and geographic disparity (Vlachantoni et al., 2021). Care decisions can be negotiated in an individual or family context depending on the household size and care relationship (Heitmueller, 2007). Changing family patterns such as lower marriage rates, fewer children and a decline in intergenerational co-residence are also likely to contribute to changes in informal care patterns over time (Glaser et al., 2022). As noted above, individuals' socioeconomic status, such as education and housing tenure, are associated with

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employment decisions and thus may 'select' some people into caring (ibid). Health status has been found to predict early retirement (de Boer et al., 2018), as does the possibility of retiring early owing to financial considerations (Kuhn et al., 2021), but there is also an association between caring and health (Vlachantoni et al., 2013). Occupational class has also been found to influence working beyond the SPA (Virtanen et al., 2017). Finally, it is important to recognise contextual factors such as regional variations in labour market conditions when investigating the relationship between informal caregiving and employment decisions (Heitmueller, 2007).

Methods

Data and analytical sample

The UKHLS is a nationally representative panel study which began in 2009, with sample size of about 40,000 households and 100,000 individuals (at wave 1). This study uses ten waves of UKHLS (wave 1–10) (University of Essex, 2022). The fieldwork of each UKHLS wave lasts about 2 years. All individuals aged 16 years or above living in a target household are interviewed yearly. Here, the study population is restricted to those aged 50–64 years in each of the waves, potentially allowing up to ten observations by the same person between 2009/2010 (wave 1) and 2018/2019 (wave 10), and with the overall analytical sample being constrained to those born between 1946 and 1968.

A key advantage of longitudinal data is that they permit the identification of changes in caregiving and employment status over time, informing the relationship between these roles. For this study, the analytical sample comprises of all individuals who provided valid data in at least two consecutive waves and who were employed or self-employed in the first of these waves (t – 1) (i.e. were at risk of leaving employment or changing from full-time to part-time work). First, to assess the relationship between caregiving and leaving employment, individuals are followed through the subsequent consecutive waves until they leave employment, they are lost to follow-up, or the survey reaches wave 10. This subsample includes 6,738 men with 25,967 person-years of data and 6,609 women with 26,232 person-years. Second, to examine the relationship between caregiving and changing from full-time to part-time work, we study all individuals who are employed or self-employed at (t – 1) through the subsequent consecutive waves until they change from full-time to part-time work or the survey reaches wave 10. Respondents who leave employment are censored. This yields a smaller subsample, including 21,763 person-years of data for men and 23,182 person-years for women.

Measures

Dependent variables

Leaving employment

The UKHLS asks about the current employment situation of each individual with eleven options: (1) self-employed, (2) in paid employment (full- or part-time), (3) unemployed, (4) retired, (5) on maternity leave, (6) looking after family or home, (7) full-time student, (8) long-term sick or disabled, (9) on a government training

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scheme, (10) unpaid worker in family business and (11) doing something else. For the purposes of this study, respondents are grouped into 'employed/self-employed' if their current employment status was recorded as being in paid employment (full- or part-time) or self-employed, and 'not employed' if they answered any other option. The dependent binary variable of 'leaving employment' is then derived by comparing employment status across consecutive waves (1 = yes (if there is a change from 'employed/self-employed' to 'not employed'); 0 = no (if there is no change)).

Change from full-time to part-time work

The UKHLS also asks individuals whether their current job is part-time or full-time. Among those employed/self-employed individuals, a second dependent binary variable is derived as follows: 1 = yes (if there is a change from full-time to part-time work); 0 = no (if there is no such change).

Informal caregiving indicators

Whether providing care

The UKHLS includes two questions related to participants' caregiving status: 'Is there anyone living with you who is sick, disabled or elderly whom you look after or give special help to (for example, a sick, disabled or elderly relative/husband/wife/friend etc.)?' and 'Do you provide some regular service or help for any sick, disabled or elderly person not living with you?'. Participants who answer 'yes' to either (or both) questions are defined as carers, whereas those who answer 'no' to both are defined as non-carers. Whether currently providing care in each wave is measured as a binary variable (1 = yes; 0 = no).

Dynamics of caregiving

On the basis of the changes in providing care (yes or no) between two consecutive waves of the UKHLS, a four-category variable is derived to capture the dynamics of caregiving (1 = continued non-caregiving; 2 = continued caregiving; 3 = change from caregiving to non-caregiving; 4 = change from non-caregiving to caregiving).

Intensity of caregiving

Carers are asked, '*Now thinking about everyone who you look after or provide help for both those living with you and not living with you – in total, how many hours do you spend each week looking after or helping (him/her/them)?*' The answers are pre-coded with nine different options regarding the hours of care provided. Following examination of the sample distribution, a new variable of caregiving intensity was derived with four categories (1 = not providing care; 2 = caring 0–9 h per week; 3 = caring 10–19 h per week; 4 = caring 20 or more hours per week).

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Type of caregiving

The UKHLS also includes questions about the participants' caregiving, including information on the living arrangements of both the caregiver and care recipient(s). Here, four groups of carers are distinguished according to whether the carer is co-residing with the person cared for (1 = not providing care; 2 = co-residential caregiving; 3 = non-co-residential caregiving; 4 = both co-residential and non-co-residential caregiving).

Relationship to person cared for

Information is also available on the relationship between the caregiver and care recipient(s). Four groups of carers are distinguished according to the relationship with the person cared for (1 = not providing care; 2 = parent/parent-in-law; 3 = spouse/partner; 4 = relative, friends, neighbour). Where a carer is caring for more than one person, the closest relationship takes precedent in the coding here.

Additional control variables

A range of additional control variable are used. The models are adjusted for birth cohort (0 = born 1946–1955; 1 = born 1956–1968) to capture any differences between the first and second baby boomers (Evandrou, 1997; Morton, 2001). A continuous variable pertaining to household size and a variable capturing the presence of any dependent children under age 16 in the household (0 = no; 1 = yes) are also included. Several variables are included to reflect differences in socio-economic characteristics including the three-level National Statistics Socio-Economic Classification (NS-SEC) (1 = professional; 2 = intermediate; 3 = routine or manual), educational level (1 = O-level or below; 2 = A-level; 3 = degree or high), housing tenure (1 = own outright; 2 = own with a mortgage; 3 = renting) and whether currently receiving any type of pension (0 = no; 1 = yes), For each wave, respondents' health status is defined as 'healthy' if physical health limits the *amount* of work 'none of the time' and physical health limits the *kind* of work during the past 4 weeks 'none of the time'; otherwise, it is defined as 'unhealthy'. The models are then adjusted for changes in health status between two consecutive surveys (1 = stable healthy; 2 = consistently unhealthy; 3 = change from unhealthy to healthy; 4 = change from healthy to unhealthy). Finally, country and regional dummies are included to account for disparities in employment rates across the UK (Powell, 2021). Appendix Table A1 presents the description of all the variables.

Analytical strategy

Discrete-time logistic regression hazards models are applied. This method has been previously used in the context of other life-course transitions in Great Britain, such as returning to parental home (Stone et al., 2014). We model the binary response y_{it}, which indicates for each interval t whether the ith individual becomes 'not employed' between year t – 1 and year t, given that they are employed or self-employed during a previous interval.

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$$h_{it} = Pr\big(y_{it} = 1 | y_{is} = 0, s < t\big).$$

The response for a binary variable can be modelled using a discrete-time logistic regression hazards model (Allison, 1982) of the following form:

$$\text{logit}(h_{it}) = \alpha(t) + x_{it}^{\mathrm{T}}\beta.$$

x_{it}^{T} is a vector of time-constant and time-varying covariates, which are measured either at the start of each 1-year period during which becoming not employed can occur, or as the change in status between $t - 1$ and t_0. $\alpha(t)$ is the baseline logit hazard and is specified as a categorical variable indicating the panel wave. Non-proportionality in the effect of covariates over historical time is allowed for by including variables accounting for the interaction between covariates and t. Survey design-based clustering within the primary sampling unit, strata and sampling weights is considered by using the svy estimators in STATA. (Regression analysis codes are available from the authors upon request.)

Model selection

Separate analyses for men and women were conducted using each of the five informal caregiving indicators. Additional analyses were carried out on the total sample to test interactions between caregiving indicators and gender, cohort and period, and the results were then evaluated (analyses not shown but available upon request).

Sensitivity analyses

Previous studies have shown that caregiving and labour market participation may be endogenous (Heitmueller, 2007). Certain personal traits may foster the likelihood of both being a caregiver and having a weak attachment to the labour market. Given this, additional analyses were undertaken as robustness checks, including random intercept logit models with repeated observation nested within individuals to control for time-invariant unobserved heterogeneity. Post-model Hausman tests indicated that random effects models were more appropriate than fixed-effects models.

Ethics

Ethical approval for the study was received from the University of Southampton Faculty Research Ethics Committee. As the study involves secondary use of anonymous data with no interaction between participants and researcher, the study was deemed low risk. Nevertheless, care has been taken not to provide results at a level of disaggregation that will allow readers to potentially identify any known UKHLS respondents, following standard disclosure control protocols.

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Results

Trends in labour force participation among carers and non-carers over the past 10 years

Appendix Table A2 shows that there were 11,438 individuals aged 50–64 years in the baseline sample of UKHLS wave 1 (2009/2010). Around 25% of mid-life individuals are engaged in informal care. Of these, 32% care for people inside the home and 73% outside their home (a small proportion care for people both inside and outside their home). Almost 59% of all mid-life carers provide care for parents or parents-in-law, and 17% provide support for spouses. Finally, a substantial number of people (10%) care for friends and neighbours. While the overwhelming majority of co-residential mid-life carers look after spouses, non-co-residential carers are likely to care for parents, parents-in-law, friends and neighbours. Overall labour market participation is around 63%, with carers exhibiting a lower rate (60%).

Using UKHLS data as repeated cross-sections, Appendix Fig. 1 shows that, between 2009/2010 and 2018/2019, the labour market participation rate was rising for both mid-life carers and non-carers, suggesting that the policy of extending working lives has met with some success. However, the labour market participation rate of carers has been consistently below that of non-carers. Moreover, the gap between carers and non-carers has widened over time, from 4 percentage points in 2009/2010 to 8 percentage points in 2018/2019, suggesting that combining the roles of work and care in mid-life remains challenging. Employment rates converged until 2014/15 and then diverged. This shift coincides with the Care Act 2014 (DH, 2014), which mandates free needs assessments for carers by local councils. Such assessments might be hypothesised to support carers stay in the job market, especially initially, but the data do not support this, suggesting that the Care Act may not be operating as intended, confirming Fernandez et al., (2020). The remainder of this paper focusses on longitudinal analysis, tracing those employed or self-employed at the baseline and examining the relationship between informal caregiving and employment changes over time.

Table 1 reports the weighted values of caregiving indicators and explanatory variables stratified by gender and cohort. Overall, the gender difference is much more apparent than the cohort difference. A higher proportion of women are providing informal care than men, including intensive care, non-co-residential care, or care for parents/parents-in-law, relatives, friends and neighbours. There are, however, notable differences in socioeconomic characteristics by cohort. The percentage of women with a degree and higher levels of education rose from 38% amongst the older cohort to 45% for the younger cohort; conversely, the percentage who owned a house outright decreased from 53% to 33% (Table 1). Over a third of mid-life women were unpartnered, and the proportion of unmarried is higher amongst women than men and across cohorts (Table 1).

Informal caregiving and employment exit

Table 2 (model 3) shows that, among men, providing informal care for more than 20 h per week significantly increases the likelihood of leaving employment

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Table 1. Distribution of variables by gender and cohorts (% of total person-years)

	Men		Women	
	Older cohort (born 1946–1955, $n = 9{,}076$ person-years)	Younger cohort (born 1956–1968, $n = 16{,}900$ person-years)	Older cohort (born 1946–1955, $n = 8{,}500$ person-years)	Younger cohort (born 1956–1968, $n = 17{,}732$ person-years)
Leaving employment	9.5	3.8	12.5	4.6
Whether providing care: Yes	20.8	20.3	29.4	28.9
Dynamics of caregiving				
Continued non-caregiving	71.6	72.7	62.1	63.0
Continued caregiving	13.0	13.1	20.9	19.9
Change from caregiving to non-caregiving	7.6	7.0	8.5	8.2
Change from non-caregiving to caregiving	7.9	7.2	8.5	9.0
Caregiving intensity				
0–9 h per week	16.1	15.9	19.9	19.5
10–19 h per week	2.2	2.1	4.6	5.0
20 and more hours per week	2.6	2.4	4.9	4.4
Type of caregiving				
Co-residence care	4.9	4.3	5.0	4.3
Extra-household care	15.0	15.1	23.0	23.2
Both	0.9	0.9	1.4	1.4
Relationship to person cared for				
Parent/parent-in-law	13.2	13.8	18.2	20.5
Spouse/partner	2.6	1.7	2.8	1.9
Relative, friends, neighbour	3.3	2.8	5.7	4.3
Period				
2010–2015	78.3	43.0	77.4	43.9
2016–2019	21.8	57.0	22.6	56.1
Unmarried: Yes	23.5	27.4	35.2	36.5

(*Continued*)

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Table 1. (*Continued*)

	Men		Women	
	Older cohort (born 1946–1955, $n = 9{,}076$ person-years)	Younger cohort (born 1956–1968, $n = 16{,}900$ person-years)	Older cohort (born 1946–1955, $n = 8{,}500$ person-years)	Younger cohort (born 1956–1968, $n = 17{,}732$ person-years)
Change in health				
Stable healthy	48.3	50.7	44.0	46.8
Consistently unhealthy	22.2	20.8	25.3	24.9
Change from unhealthy to healthy	13.3	13.3	14.6	13.1
Change from healthy to unhealthy	16.2	15.2	16.1	15.2
Educational qualification				
Degree or above	36.8	38.6	37.6	44.7
A-level	20.3	22.2	14.5	17.0
O-level or below	43.0	39.2	47.6	38.3
Housing tenure				
Renting	14.4	14.8	15.3	18.0
Own outright	49.9	29.6	52.6	32.9
Own with mortgage	35.7	55.6	32.1	49.1
Receiving pension: Yes	29.5	9.3	41.4	7.0
Higher managerial occupation Yes	42.4	41.3	36.0	42.2
Dependent child under 16 in the household	6.0	19.2	1.3	9.6
Mean household size	2.4	2.9	2.2	2.7
Regions				
Northeast	4.3	5.1	4.8	4.7
Northwest	10.5	10.8	10.0	11.1
Yorkshire and the Humber	8.0	8.2	7.1	8.0
East midlands	7.7	8.9	7.9	7.8
West midlands	8.1	8.0	8.4	8.2
East of England	10.7	9.3	9.5	10.5
London	9.3	10.7	10.2	10.5

(*Continued*)

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Table 1. (*Continued*)

	Men		Women	
	Older cohort (born 1946–1955, $n = 9{,}076$ person-years)	Younger cohort (born 1956–1968, $n = 16{,}900$ person-years)	Older cohort (born 1946–1955, $n = 8{,}500$ person-years)	Younger cohort (born 1956–1968, $n = 17{,}732$ person-years)
Southeast	14.2	13.7	16.3	13.3
Southwest	12.6	10.1	11.6	10.1
Wales	3.8	4.3	3.8	3.6
Scotland	8.5	8.2	7.8	9.0
Northern Ireland	2.4	2.9	2.7	2.9

Source: UKHLS wave 1 to wave 10.

Table 2. Parameter estimates from discrete-time hazards models of leaving employment at ages 50–64 years

	Model 1	Model 2	Model 3	Model 4	Model 5	Predicted probability
Among men ($n = 25{,}976$ person-years)						
Whether providing care						0.059
No (ref.)						0.060
Yes	0.02					
Dynamics of caregiving						
Continued non-caregiving (ref.)						0.059
Continued caregiving		0.04				0.061
Change from caregiving to non-caregiving		0.05				0.062
Change from non-caregiving to caregiving		−0.01				0.059
Caregiving intensity						
Non-carer (ref.)						
0–9 h per week			**−0.22**‡			0.049
10–19 h per week			0.26			0.074
20 and more hours per week			**0.80*****			0.116
Type of caregiving						
Non-carer (ref.)						
Co-residence care				0.29		0.076
Extra-household care				−0.10		0.054
Both				0.23		0.072

(*Continued*)

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Table 2. (*Continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5	Predicted probability
Relationship to person cared for						
Non-carer (ref.)						
Parent/parent-in-law					−0.14	0.052
Spouse/partner					**0.47**‡	**0.088**
Relative, friends, neighbour					0.07	0.063
Among women ($n = 26,232$ person-years)						
Whether providing care						
No (ref.)						**0.071**
Yes	**0.18****					**0.083**
Dynamics of caregiving						
Continued non-caregiving (ref.)						0.071
Continued caregiving		0.11				0.078
Change from caregiving to non-caregiving		−0.03				**0.069**
Change from non-caregiving to caregiving		**0.32****				0.093
Caregiving intensity						
Non-carer (ref.)						0.070
0–9 h per week			−0.01			0.092
10–19 h per week			**0.31***			**0.126**
20 and more hours per week			**0.71*****			
Type of caregiving						
Non-carer (ref.)						
Co-residence care				**0.42****		0.100
Extra-household care				0.12		**0.078**
Both				0.42‡		0.100
Relationship to person cared for						
Non-carer (ref.)						
Parent/parent-in-law					0.13	0.079
Spouse/partner					**0.43***	**0.101**
Relative, friends, neighbour					0.19	0.083

Source: UKHLS wave 1 to wave 10. All models adjusted for birth cohort, period, marital status, changes in health, educational qualification, NS-SEC, housing tenure, whether receiving any pension, any dependent child under 16 in the household, number of household member, and regions/country dummies.

‡$p \leq 0.1$;
*$p \leq 0.05$;
**$p \leq 0.01$;
***$p \leq 0.001$.

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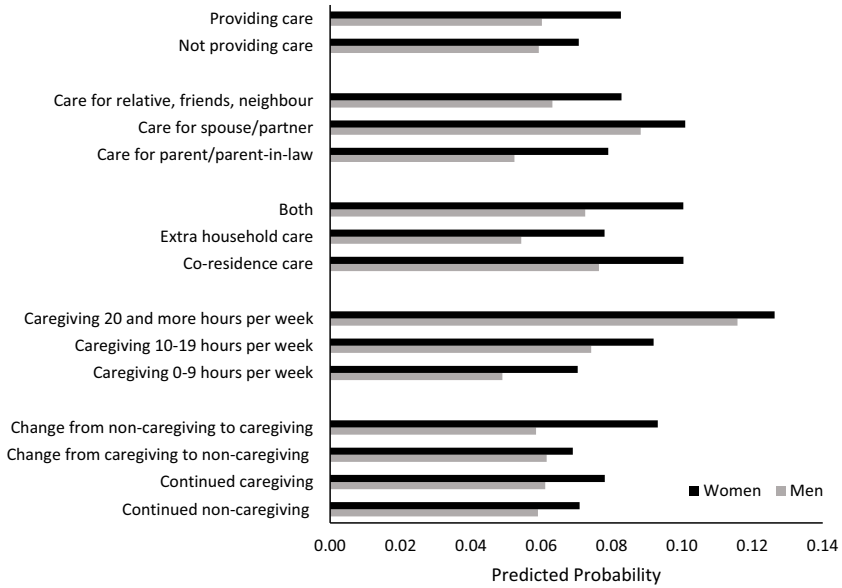

Figure 1. Predicted probability of leaving employment annually according to informal caregiving indicators, by gender.

compared with those non-carers. Among women (Table 2, model 3), those providing informal care for 10–19 h per week and for more than 20 h per week had a higher likelihood of exiting the job market. Figure 1 shows that men providing care for more than 20 h per week had a predicted probability of exiting employment of 0.12, compared with 0.06 for those not providing care. The predicted probability of exiting the job for women who provided informal care for 10–19 h per week and more than 20 h per week was 0.09 and 0.13, respectively, compared with 0.07 for those not providing care. In other words, the more hours both women and men spend caring for someone, the higher their chances of quitting their jobs as compared with those who do not provide care. The results are consistent with hypothesis H1.

The coefficients in model 4 of Table 2 suggest that women who provide co-residential care or both co-residential and extra household care are more likely to quit their job than those not providing care. The predicted probability of leaving employment for women providing co-residential and both co-residential and non-co-residential care is 0.10 each, indicating that women providing care in either of these situations have the same likelihood (i.e. 10%) of leaving their employment. The results support hypothesis H2.

Consistent with H3, providing informal care to a spouse/partner had a higher likelihood of exiting employment among men and women (model 4 of Table 2). The predicted probability of exiting employment was 0.10 for female spouse carers and 0.09 for male spouse carers (Fig. 1).

The results support hypothesis H4 but only among women. The coefficient of model 2 in Table 2 shows that change from non-caregiving to caregiving was linked

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with a higher likelihood of exiting employment. The predicted probability of leaving employment is 0.09 for women with such a care role transition.

Lastly, the results support hypothesis H5. Informal carers had a higher likelihood of leaving employment than non-carers, however this holds only among women (model 1 of Table 2). Interactions between gender and caregiving indicators among all respondents confirm such gender differences. The association between the change from non-caregiving to caregiving or to providing care to parent /parent-in-law is stronger among women than among men (data available upon request).

Informal caregiving and changes from full-time to part-time work

Table 3 shows the likelihood of change from full-time to part-time employment. Providing informal care for 10–19 h per week significantly increases men's likelihood of changing from full-time to part-time work (model 3 in Table 3). Men providing both co-residential and non-co-residential care had an increased chance of such a change (model 4 in Table 3). Figure 2 shows that men providing care for 10–19 h per week or providing both co- and non-co-residential care had a predicted probability of changing from full-time to part-time work of 0.06 and 0.07, respectively, compared with 0.03 for those not providing care. Informal care of a parent/parent-in-law is associated with an increased likelihood of reducing working time among women (model 5 in Table 3), with a predicted probability of 0.07, compared with 0.06 for those not providing care (Fig. 2).

The results of sensitivity analyses (Appendix Tables A3 and A4) are similar to the main models (Tables 2 and 3), indicating that the study results are robust.

Discussion

Over the past two decades, policies have been introduced within the UK to raise the state pension age and to promote flexible work with the aim of retaining older workers within the labour market for longer. In December 2021, the DWP refreshed the name of the 'Fuller Working Lives' agenda to '50 PLUS: Choices', signalling the government's recognition of the challenges faced by the over 50s in the labour market and renewing its commitment to retain, retrain and recruit more older workers in the labour market.

This paper reveals the tension between extending working lives and increasing informal caregiving, especially for those aged 50 years and above, and adds to the evidence base, highlighting the challenge for the UK Government in delivering its agenda on '50 PLUS Choices'. Overall, the employment rate amongst those aged 50–64 years did increase in the decade prior to COVID, reflecting the success of policies around increasing the SPA, but the employment gap between carers and non-carers widened, doubling from a 4 percentage point difference to 8 percentage points. Our analysis demonstrated that mid-life individuals who provide intensive care and care to a spouse/partner experienced an increased chance of exiting employment compared with non-carers; this result was found for both women and men. Three other informal caregiving indicators (care provision, starting a carer role and providing care within the household) are all associated with a higher probability of employment exit among women, but not for men. We further found that women

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Table 3. Parameter estimates from a discrete-time hazards model of change from full-time to part-time work at ages 50–64 years

	Model 1	Model 2	Model 3	Model 4	Model 5	Predicted probability
Among men ($n = 21{,}763$ person-years)						
Whether providing care						0.031
No (ref.)						0.036
Yes	0.15					
Dynamics of caregiving						
Continued non-caregiving (ref.)						0.031
Continued caregiving		0.17				0.036
Change from caregiving to non-caregiving		0.01				0.031
Change from non-caregiving to caregiving		0.11				0.035
Caregiving intensity						
Non-carer (ref.)						
0–9 h per week			0.11			0.035
10–19 h per week			**0.69**[*]			0.059
20 and more hours per week			−0.34			0.022
Type of caregiving						
Non-carer (ref.)						
Co-residence care				0.08		0.034
Extra-household care				0.11		0.035
Both				**0.79**[‡]		0.065
Relationship to person cared for						
Non-carer (ref.)						
Parent/parent-in-law					0.09	0.034
Spouse/partner					0.05	0.033
Relative, friends, neighbour					0.06	0.033
Among women ($n = 23{,}182$ person-years)						
Whether providing care						
No (ref.)						0.055
Yes	0.10					0.061
Dynamics of caregiving						
Continued non-caregiving (ref.)						0.056

(*Continued*)

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Table 3. (*Continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5	Predicted probability
Continued caregiving		0.12				0.063
Change from caregiving to non-caregiving		−0.18				0.048
Change from non-caregiving to caregiving		−0.02				0.055
Caregiving intensity						
Non-carer (ref.)						
0–9 h per week			0.05			**0.058**
10–19 h per week			0.25			**0.070**
20 and more hours per week			0.18			0.065
Type of caregiving						
Non-carer (ref.)						
Co-residence care				0.07		0.059
Extra-household care				0.12		**0.062**
Both				−0.11		0.050
Relationship to person cared for						
Non-carer (ref.)						
Parent/parent-in-law					**0.22***	**0.068**
Spouse/partner					0.23	0.068
Relative, friends, neighbour					−0.32	0.041

Source: UKHLS wave 1 to wave 10. All models adjusted for birth cohort, period, marital status, changes in health, educational qualification, NS-SEC, housing tenure, whether receiving any pension, any dependent child under 16 in the household, number of household member, and regions/country dummies.
$^{\dagger}p \leq 0.1$;
$^{*}p \leq 0.05$;

who provide care to parents/parents-in-law, and men who provide intensive care and care to family members inside *and* outside the household, had a higher chance of changing from full-time to part-time work. Variables capturing both cohort and period effects show little moderating impact. The results add to the empirical evidence base, providing more detail on the role of the type of care, its intensity and the relationship to the cared-for person, highlighting the complex relationship between employment and caregiving in mid-life.

Our results provide clear evidence that heavy caregiving responsibilities reduce active labour market participation. Multiple roles may compete for a mid-life person's time and energy (Greenhaus & Beutell, 1985). The roles of worker and carer become incompatible when the strain created by one role, such as tension,

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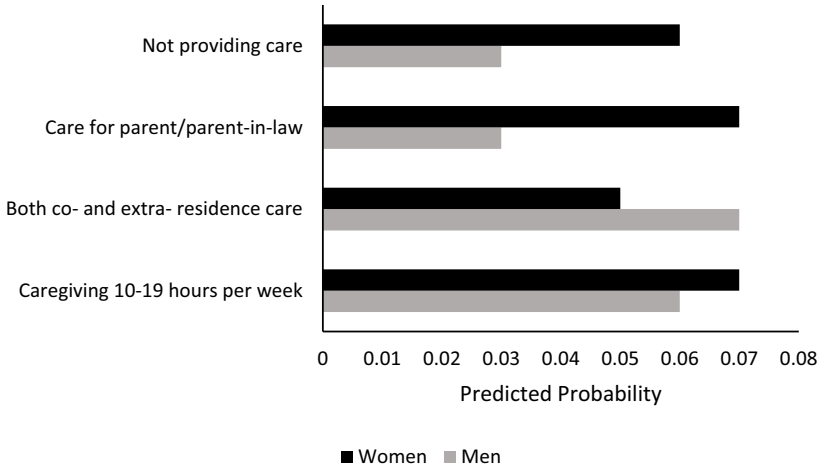

Figure 2. Predicted probability of change from full-time to part-time work annually according to informal caregiving indicators, by gender.

anxiety, fatigue and irritability, makes it difficult to comply with the demands of another role. Opportunities to reduce working hours are not equally available, but only for some carers and in some occupations. Similarly, the hours of care required may not be very flexible in the case of certain forms of support (e.g. spousal care or co-residential care providing support for tasks such as showering, dressing or preparing meals) (Candon et al., 2023).

This study found a broadly inverse relationship between caregiving and active labour market participation among mid-life women, with female carers being more likely to leave employment than male carers. This may reflect women being socialised not only to take up more care responsibilities but also to expect less involvement from male family members in care work (Bracke et al., 2008). Women remain an important source of care, playing a central role as friends, daughters, sisters, mothers and grandmothers. The social construction of gender, conventional family roles and societal components such as economic structures all influence women's propensity to offer care and to reduce labour market participation (Ferrant et al., 2014; Vlachantoni et al., 2021).

The increased employment rate among carers over time highlights that more mid-life individuals have been juggling work and informal care provision, especially amongst the younger baby boom cohort. During the period of study, government policies have raised the SPA (DWP, 2017), extending working lives. However, this change also coincided with a retrenchment in public spending, with spending on adult social care declining during the observation period (Thorlby et al., 2018). Lower levels of funding have resulted in fewer older people receiving publicly funded social care, shifting the responsibility for care to families. It remains an open question how compatible it is to encourage individuals to continue working into later life whilst at the same time taking decisions regarding the funding of social care which result in increasing reliance on families to provide care. The package of measures announced in July 2022 to support older jobseekers to get back into work

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recognised that people over 50 are more likely to have caring responsibilities, suggesting that 'increased support from [jobcentre] Work Coaches will help them navigate these barriers' (DWP, 2022). However, waiting until individuals have left employment is not the optimal solution.

Adults in mid-life have high levels of human capital and work experience (Infurna et al., 2020) and need to be embraced as a valuable workforce. The reduction in labour market participation by unpaid caregivers therefore needs to be carefully considered from a policymaking perspective from the *employers*' perspective in terms of the steps they are taking to support and retain mid-life employees with caring responsibilities, but also in terms of the future welfare of the carer themselves. If a caregiver's work hours are even marginally curtailed in order to provide unpaid care, this could have long-term repercussions on their wage (Raiber et al., 2022) and future pensions and retirement funds (Johnson & Lo Sasso, 2001; Evandrou & Glaser, 2003). Future generations of individuals of working age will be more accountable for their own financial security in retirement (DWP, 2017). Over the past three decades, there has been some progress in the recognition of the value of unpaid family care through the introduction of Carers Credits which count towards National Insurance qualifying years, however eligibility for such credits is set at a relatively high level, requiring evidence of looking after one or more people for at least 20 h a week. Moreover, such credits only provide 'protection' towards eligibility for the Basic State Pension but do nothing to make up for 'lost' contributions to second-tier pensions through lower wages or withdrawing from the labour market altogether. The findings suggest that targeting policies based on care intensity, such as care credits, could benefit intensive caregivers but restrictive criteria may overlook other working carers. Policies should support all caregivers and address diverse needs. If the public sector continues to rely on unpaid family care, other tax breaks and pension protections for mid-life carers should be considered in order to reduce the subsequent risk of poverty in later life.

Our recommendations include extending targeted financial aid to working carers, better workplace support and increased public funding for social care. Workplace policies should include flexible hours, paid caregiving leave and support programs to prevent employment exits. For women, part-time job opportunities, caregiving credits in pensions and parental care support are crucial. For men, promoting gender-neutral caregiving and offering intensive care leave are essential. Establishing workplace caregiving resources, career counselling and regular policy evaluations will further support caregivers to remain in employment.

There are several limitations of this study which need to be taken into account. First, it was not possible to consider complete care histories owing to data censoring. Research shows that the duration of a caring episode impacts employment participation (Carmichael et al., 2008). Including information about the potential number of individuals requiring care would have added depth to the study. However, given the data availability, we could only cover this in part using the number of children under 16. Treating employment exits as binary may oversimplify individuals' reasons for leaving, ignoring differences such as caregiving, health issues, market conditions or combinations. Studies show that

carers with health problems, especially intensive carers, are more likely to leave work and report ill health. Some carers also lack formal qualifications, weakening their job market attachment (DWP, 2019). Second, given the research design, those respondents not working at baseline were excluded. There is however the possibility that some individuals return to the workforce after adjusting to, or finishing, their caring role. Future research providing a more complete picture of the relationship between care and work needs to also include those not in the labour market and to examine the probability of job market entrance or re-entrance over time among both carers and non-carers. Finally, the analyses used data collected prior to the pandemic. There is emerging evidence that, as a result of the pandemic, there has been a structural shift in the labour market that may have changed the relationship between care and work, especially amongst those aged 50 and over (ONS, 2022b); as data from further waves of the UKHLS become available the study should be repeated, providing comparative analysis pre and post COVID-19.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0047279424000357

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Competing interests. The authors declare none.

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