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research article

Unpaid caregiving and job satisfaction: the role of care intensity and duration

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Taking up unpaid caregiving, that is, providing care for sick or disabled people in one's social network, can affect paid employment. Previous research has mostly found negative effects, focusing more on 'objective' outcomes, such as labour supply or wages. We argue that to have a fuller picture of the employment consequences of unpaid caregiving, including potential positive effects, as suggested by enrichment theory, it is important to examine 'subjective' outcomes, such as job satisfaction. Applying fixed-effects panel models using the UK Household Panel 'Understanding Society' (2009–20; *N* = 171,450 observations of 32,156 respondents), we focus on changes in job satisfaction and their relationship with the changes into (more) caregiving, differentiated by intensity and duration. Providing non-intensive care was related to lower job satisfaction compared to both not having provided care or having provided intensive care. Sequential caregiving, implying longer care duration, reduced job satisfaction compared to not having provided care or having newly started care.

Keywords employment • informal care • job satisfaction • work–family

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Introduction

With European populations ageing, more people of working age are providing unpaid care to individuals who are sick, frail and/or older in their network, also known as informal[1] care (Broese van Groenou and de Boer, 2016). Typical examples of such unpaid care are care for partners or parents with health issues due to old age, including dementia and physical frailty. Less frequent, but still considered under our definition,

would be, for example, helping a friend with transportation and groceries after major surgery. While regular childcare is not considered under our definition, care for (adult) children with disabilities is considered unpaid caregiving in our study, though this is less prevalent than caring for an older relative or partner. Provision of unpaid care involves taking up an additional role, that is, the role of caregiver, which can have potential spillover effects into other economic and social roles, including those related to employment. The spillover effects from unpaid caregiving for paid work are frequently considered to be negative, in line with conflict theories, reflecting the fact that caregivers are likely to reduce work or stop working altogether, and when in work, they earn less than non-caregivers (Carmichael and Ercolani, 2016; Schmitz and Westphal, 2017; Gomez-Leon et al, 2019; Moussa, 2019; Hohmeyer and Kopf, 2020; Raiber et al, 2025). However, there is also the possibility, as posited by enrichment theory, that unpaid caregiving could have positive effects on employment (Morimoto and Takebayashi, 2020). Experiences in the role of a caregiver could potentially produce positive experiences in the work role, for instance, through the additional positive energy created by caring or by work itself offering a distraction by being a complementary role to caregiving in instances where caregiving is experienced as particularly burdensome (Sieber, 1974; Greenhaus and Powell, 2006; Tang et al, 2014; Gonzales et al, 2015). Those positive experiences could balance out the negative ones, with potentially even the positive experiences dominating in some circumstances.

Scholars to date have found little empirical support for such a positive effect of caregiving on employment. One reason for this may reflect the fact that most previous research has focused on objective measures of employment outcomes, such as reduced labour supply or lower income, with these outcomes being labelled as 'negative', rather than concentrating on more subjective measures (for an exception, see Cheng et al, 2020). It is possible, however, that unpaid caregivers who earn less and/or reduce their work could still feel that their caregiving role has enriched their work and are more satisfied with their jobs. Given this, we argue that looking at job satisfaction has the potential to shed light on whether there is an additional positive spillover of work to care (Cheng et al, 2020). In this article, we concentrate on affective job satisfaction, which is the subjective reflection of how content an employee is with their job overall (Kalleberg, 1977; Visser et al, 2020), in order to examine the direct relationship between paid work and unpaid caregiving. Focusing on job satisfaction as a subjective measure of employment consequences allows us to explore alternative theoretical arguments from both enrichment and conflict theory.

Since individuals spend a significant amount of time at work, work is an important aspect of many people's identity. Overall job satisfaction has been found to be related to the performance of the employee and, in turn, of their employing organisations; it has been argued, therefore, that it is crucial to consider the satisfaction associated with work whenever looking at employment consequences (Judge et al, 2008; Gözükara and Çolakoğlu, 2016; Cheng et al, 2020; Visser et al, 2020). Given this, focusing on overall job satisfaction in addition to the more classical employment consequences of unpaid caregiving, such as reducing labour supply or wages, fills a gap in the literature on the complex relationship between caregiving and employment. The focus on job satisfaction provides an additional angle from which to examine the spillover between unpaid care and employment, helping to understand the complete picture. Thinking along these lines, low job satisfaction can, for instance, be a stepping stone towards a labour supply reduction of unpaid caregivers, but at the same time, high job

satisfaction can keep caregivers in the labour market (Lisi, 2018). It also provides us with a broader understanding of whether positive or negative experiences dominate in the spillover, providing insight into whether conflict or enrichment overshadows the relationship between unpaid care and employment, as both are likely to play a role. Thus, this article addresses the following research question: *to what extent is starting to provide (more) unpaid care related to changes in overall job satisfaction in the UK?*

Caregiving is assessed in terms of hours spent on caregiving (intensity) and also in terms of duration, that is, if the caregiver has (newly) started care provision or if they are sequentially caregiving. Here, sequential caregiving means either observing a second time point of the same caregiving episode or another caregiving episode (with potential non-caregiving moments in between). In doing so, we build on both conflict theory and enrichment theory and examine how being more involved in the caregiving role by spending more hours on caregiving or sequentially caregiving amplifies how caregiving relates to job satisfaction.

This article uses the UK Household Longitudinal Study (UKHLS) 'Understanding Society' Waves 1 to 10, covering relevant information from 2009 to 2020 (N = 171,450 observations of 32,156 respondents). Fixed-effects panel models are used to investigate whether within-person changes into or into more caregiving, differentiated by intensity and duration, were associated with within-person changes in job satisfaction. Fixed-effects panel regressions have the advantage that time-stable characteristics are automatically controlled for. Yet, we do not claim to detect causal effects, with caregivers being a selective group regarding both employment and personality traits, such as normative beliefs about employment and caregiving (Broese van Groenou and de Boer, 2016). However, fixed effects as a longitudinal method are the ideal methodological approach because of our focus on the within-person changes into (and into more) caregiving. In a more explorative part of our study, we look at the results for sex and living situation separately. We did not formulate clear expectations on these factors beforehand, but sex and living situation are suspected to influence how caregivers interpret their caregiving situation (Swinkels et al, 2017). More precisely, women compared to men (Raiber et al, 2025) and those living together with the care recipient (Lee et al, 2020; Lethin et al, 2020) might be more prone to experience conflict rather than enrichment. Put together, this article adds to the existing literature on understanding the employment consequences of unpaid caregiving by examining a subjective employment outcome, namely, overall job satisfaction, using high-quality longitudinal survey data from the UK.

The work–care conflict

When starting to provide care for a family member or a friend with health issues, a new role is added to a person's life. This role is added in the family domain and can potentially influence other existing social and economic roles of a person, such as paid work (Greenhaus and Beutell, 1985; Greenhaus and Powell, 2006; Bertogg et al, 2025). In the literature on work–family spillovers, this has mainly been theorised in terms of work–family conflict and is applied here to the case of unpaid caregiving (Clancy et al, 2020). The new and additional role of the unpaid caregiver potentially creates conflicts with other roles (Greenhaus and Beutell, 1985; Bertogg et al, 2025). Greenhaus and Beutell (1985) distinguish three forms of how work–family conflict arises. First, the new role of unpaid care requires time that was previously devoted

to other roles like paid work. Combining work and care roles means that the overall time resource has to be split between the roles, leaving less time for each role, posing further challenges in fulfilling both roles to the same extent as previously with fewer roles (Page et al, 2018). Second, drawing upon the theory of role strain, the proposition is that holding and combining multiple roles can cause strain in one or more roles due to competing responsibilities (Goode, 1960; Lee and Tang, 2013; Gonzales et al, 2015). Third, unpaid caregiving and paid work can provoke contradicting behaviour (Greenhaus and Beutell, 1985). For instance, while personal distance is seen in most occupations as professional, this behaviour may be at odds with what is required in taking care of a loved one who is sick. Having to switch roles can again result in stress related to both the caregiving and the work roles.

All three factors – time constraints, strain and contradicting behaviour – potentially introduce (job) stress and tensions between the role of the unpaid caregiver and paid work (Lee and Tang, 2013). Due to the added stress and tension, less energy or other mental resources are available to fulfil both roles satisfactorily (Page et al, 2018). Not being able to optimally fulfil the work role due to combining work and caregiving can lead to lower overall job satisfaction. A simple example related to the factor of time can be that there is just not enough time to fulfil both tasks, leading to a feeling of stress in both domains. Following the widely used stress–strain–outcome model (Koeske and Koeske, 1993; Um and Harrison, 1998), work–family conflict can be seen as a stressor and, with an emotional response to the stress, can be associated with lower satisfaction (Amstad et al, 2011; Jia and Fu, 2022). We argue that the same logic that has been used in studies of work–family conflict relating to childcare issues can also be argued to apply to the provision of unpaid caregiving for (older) family and friends with health issues. Here, we posit that lower satisfaction will be found in the employment sphere (in addition to the burden in caregiving) because of the normative value attributed to such caregiving. Unpaid caregiving always means that someone in the close network is sick and needs help. Those who provide care are prone to feel obligations towards the person in need and their caregiving tasks (Broese van Groenou and de Boer, 2016). When at work, caregivers might struggle with being away and not caring for their loved ones at that moment. In these situations, it can increase the feeling that paid work is a necessity to provide sufficient financial resources and, under stress, devalue its meaning to simply being an economic resource (Page et al, 2018). As a consequence, caregivers might overlook the initial positive aspects of their work and see it more as a means to have sufficient economic resources, which potentially translates to lower job satisfaction.

All of the aforementioned mechanisms are arguably stronger when the person becomes more involved in the caregiving role (Gözükara and Çolakoğlu, 2016). We consider two forms of increasing involvement in the caregiving role. The first form is starting to provide more hours of caregiving (weekly), namely, an increase in the intensity of caregiving. The argument here is that with more hours spent on caregiving, additional time constraints are experienced, further contradicting behaviour is provoked and strain is felt in more moments, with the result that the consequences for job satisfaction described earlier are amplified. Second, we consider the provision of care at multiple time points (sequential) instead of a single period of time as resulting in more time (a longer duration) to develop and experience time constraints, contradicting behaviour and strain (Raiber et al, 2024), thus potentially exerting more influence on job satisfaction. Here, sequential can mean both caring

for the same person for a longer time (multiple years) or accumulating caregiving experiences with care for multiple people, one after each other.

Putting this all together, unpaid caregiving, especially when it is highly intensive and when it is sequential, could provoke a work–care conflict that, via stress, reduces job satisfaction. In this case, where conflict overshadows any potential enrichment (see the following section), we would expect that job satisfaction will decrease with higher levels of caregiving, both when starting to spend more hours on caregiving (intense caregiving compared to non-intensive) (H1a) and among those sequentially caring versus (newly) starting caregiving (H1b).

Enrichment theory

In contrast to the work–care conflict approach, enrichment theory postulates that a (new) family role can have a positive influence on the work role, as caregiving can complement other roles, and that having multiple roles simultaneously can be beneficial (Sieber, 1974; Rozario et al, 2004; Greenhaus and Powell, 2006; Lee and Tang, 2013; Gonzales et al, 2015). Two main propositions arise from enrichment theory for job satisfaction related to unpaid caregiving. First, the new role of caregiving can lead to a wider skill set (for example, time management skills) and personal growth, which can then support the achievement of goals in other roles, such as the work role (Greenhaus and Powell, 2006; McNall et al, 2010; Tang et al, 2014). This might be especially true for the work role, as the family is often very distinct from and complementary to the work role. There is evidence from the childcare literature that the arguments of enrichment theory hold, with the provision of care to children or grandchildren being found to influence job satisfaction positively (McNall et al, 2010). Here, we again posit that the reasoning from the childcare literature may be extended to other forms of caregiving. Unpaid caregivers can gain the feeling that they are achieving their work roles more effectively and satisfactorily, for instance, due to the time management skills they have gained. It gives the feeling that their potential in the work domain is realised (Kulik et al, 2015). Consequently, this could make their jobs more amiable and increase job satisfaction (Tang et al, 2014).

Second, employment can be a strategy for caregivers to focus on something different rather than burdensome situations, with paid work providing a respite (Sieber, 1974; Raiber, 2025). When paid work feels like a respite, the emotional response might be to value the work more, leading to increased job satisfaction. Existing literature shows that unpaid caregiving can be burdensome (Verbakel, 2018). Thus, the argument that unpaid caregivers can experience paid work as respite from other roles is transferable from the classical work–family literature.

Moreover, for enrichment, the potential positive effects on job satisfaction may be argued to be more applicable to instances where caregiving is provided at a higher intensity, meaning more hours spent on caregiving and/or for longer durations (sequential). Scholars have shown that the caregiving burden increases with higher intensity (Swinkels et al, 2017), increasing the need for a coping mechanism. This means that with higher intensity and, related to that, more caregiver burden, the caregiver has more chances to positively evaluate their work. Intensive caregivers are likely to feel more respite at work, as those with more burden are more in need of respite. Further, feelings of burden and lack of time change the perspective by which they compare their less emotionally and time-intensive employment to their (new)

intensive care situations, leading to a more positive evaluation of the job. Similarly, learning new skills may increase with more time spent in the role of the caregiver, as learning needs time, reflecting a higher intensity or longer duration (Raiber et al, 2025). For example, time management skills become more proficient the more time caregiving takes away from other domains of one's life. Caregiving of higher intensity and longer duration also means more time for the caregiver to adapt to their situation. If the perspective of enrichment theory dominates the potential conflict, we would expect that job satisfaction will increase with higher levels of caregiving, both when starting to spend more hours on caregiving (intensive compared to non-intensive caregiving) (H2a) and among those sequentially caring versus (newly) starting caregiving (H2b).

Methods

Data

This article uses the UKHLS 'Understanding Society' Waves 1 to 10, covering the period from 2009 to 2020 (University of Essex, Institute for Social and Economic Research, 2025). 'Understanding Society' is a household panel that is designed to be representative of the UK population, with a wide range of topics (see Benzeval et al, 2020). The analysis explicitly does not include the waves that were fielded during the COVID-19 pandemic, as policy interventions during this time, such as lockdowns and the instruction for certain groups, including those aged over 70, to self-isolate, may have impacted caregiving, while the introduction of furlough and home working influenced employment patterns. The interview mode was face to face, with online questionnaires or telephone interviews. 'Understanding Society' has a total of 87,045 respondents in their data for Waves 1 to 10. This would mean potentially 870,450 observations for the ten waves, without taking account of any missing observations. This article applies four inclusion criteria. First, in our analytical sample, we included only observations where the respondent was of 'working age', defined here as aged 16 to 65, leaving us with 351,038 observations from 73,872 respondents. Second, only observations where the respondent was employed (part-time or full-time, but not self-employed) were included, as only those having a job can experience job satisfaction. The self-employed were excluded because they are a specific and selected group, and their job satisfaction depends on different characteristics. After this step, the sample was reduced to 185,504 observations from 44,326 respondents. Third, those respondents with missing values on any of our key variables (mainly on the variable concerning working hours), accounting for 0.93 per cent of the observations, were listwise deleted, leaving us with 183,386 observations from 44,092 respondents. Lastly, we excluded all respondents with only one observation, as those respondents cannot contribute to our models that focus on within-person changes. Our final sample consisted of 171,450 observations from 32,156 respondents (unbalanced sample).

Analytical strategy

We base our conclusions on ordinary least squares (OLS) fixed-effects panel models, a longitudinal regression method. In these models, group differences are eliminated (between variation), and only changes within individuals are considered

by transforming the data (subtracting personal means) (Brüderl and Ludwig, 2015). For instance, take the following example equation of the fixed-effects panel model (u is the error term):

$$jobsatisfaction_{it} - \overline{jobsatisfaction_i} = careintensity_{it} - \overline{careintensity_i} + u_i$$

By subtracting the mean overall waves of both the caregiving intensity variable ($\overline{careintensity_i}$) from all observations ($careintensity_{it}$, per person (i) per year (t)), only the changes in caregiving intensity contribute to the changes in job satisfaction (calculated the same way). The same applies to newly started caregiving and sequential caregiving, as well as the full model, which includes the control variables similarly.

This means that the results and their interpretation are related to within-person changes in the outcome and predictors (while the measures of the variables do not directly indicate changes). Therefore, within-person effects in our models indicate how changes towards more caregiving within one person relate to changes in job satisfaction. This also means that the comparison is not between respondents but within respondents, comparing whether the same person's job satisfaction is changed by caregiving compared to if the same individual would not have provided care, rather than comparing the group of caregivers to non-caregivers.

This modelling strategy also has the advantage that time-stable characteristics are automatically controlled for (for example, the ethnic background of the respondent). This is especially useful in our case, as caregivers are known to be a selective group in terms of norms and beliefs, as well as involvement in the labour market (Broese van Groenou and de Boer, 2016). We recognise that some of our control variables could be both control variables and mediators, particularly working hours and job changes, as these are the potential strategies for unpaid caregivers to adapt to work–care conflict (Raiber et al, 2024). We did not formulate any explicit expectations around the mediators when conceptualising the study, and we thus included these variables as controls in an additional step in the modelling design.

Last, to better grasp potential group differences by binary sex and living situation, we split our analysis for both binary sex and caregiving within and/or outside the household (including always non-caregiving, as they do not have a caregiving location). This more explorative addition was included to see whether sex and/or living situation are driving our results (for descriptive statistics by these groups, see Table A1 in the Online Appendix). In case a change in sex was observed ($N = 26$), we used the sex after the change.

Measures

Outcome variable

Job satisfaction was measured as the overall job satisfaction using the question 'Please look at this card and tell me, all things considered, which number best describes how satisfied or dissatisfied you are with your present job overall?', with the answer categories ranging on a seven-point Likert scale from 'Completely dissatisfied' (1) to 'Completely satisfied' (7). It should be noted that for interpretability and due to OLS being relatively robust against non-linearity in outcomes, we consider the scale as linear.

Main predictors

Two questions in the questionnaire were the base for our measurements on caregiving, with the first one considering caregiving within the household ('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 the same question for outside the household. This means that we base our variables on a general question about any caregiving towards a person with health issues, which may include children (< 7 per cent based on own calculations) but is primarily care towards a partner in the household and care to a co-resident parent or parent living outside the household. We then differentiate between intensive and sequential caregiving. The caregiving variables were coded in such a way that only changes towards more caregiving were recorded, as our focus is on changes towards more caregiving and, as a result, starting or extending a new role as a caregiver (for two examples, see Figure 1). With this approach, we do not capture the relationship between job satisfaction and a reduction in the caregiving role, as we expect the influence of caregiving not to stop after care ended (Raiber et al, 2025). Robustness checks were also then carried out to explore an alternative approach.

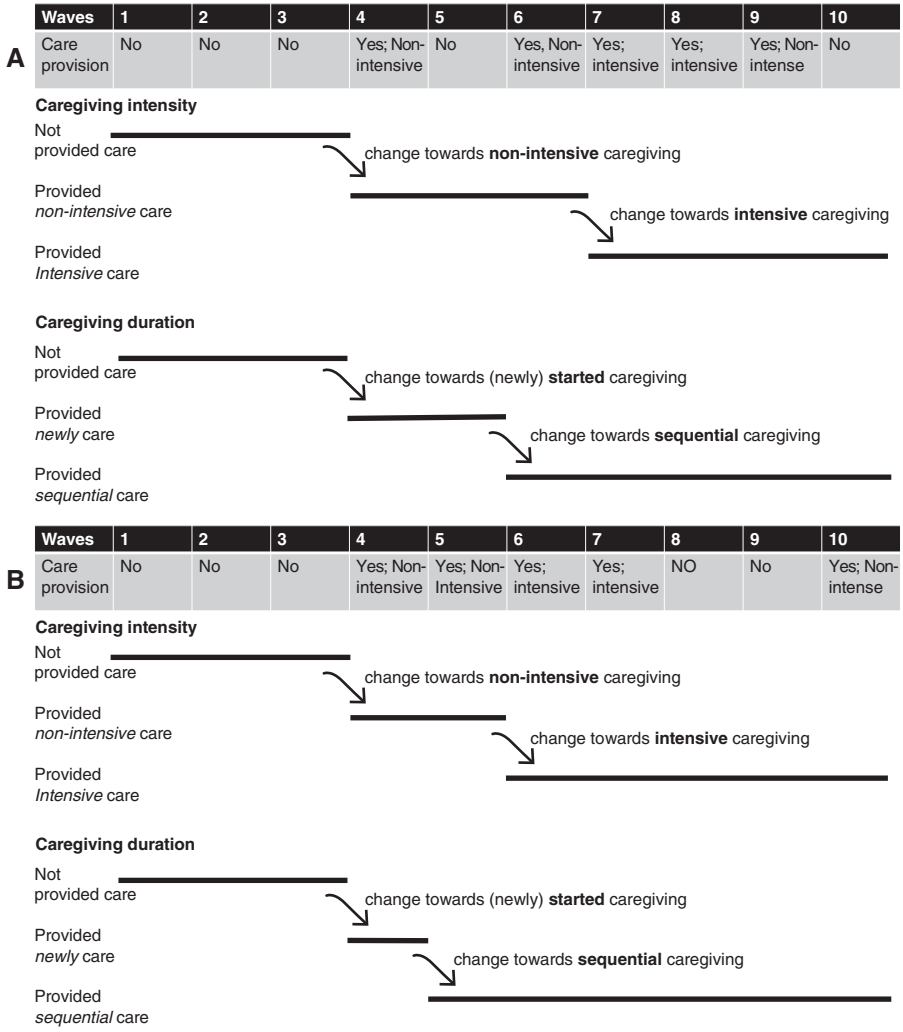
Respondents were in the category '0 – not provided care' if they were not providing care at the moment of observation or in any previous wave across our observation window. To differentiate between intensive and non-intensive caregiving, we used a measurement of the overall hours spent on caregiving, with non-intensive caregiving being less than ten hours of caregiving per week and intensive caregiving being at least ten or more hours of caregiving per week. This cut-off point was chosen similarly to other research on employment consequences, as ten hours represents more than one working day (Raiber et al, 2025), and the survey question had this predefined category.[2] Respondents were assigned the state '1 – provided non-intensive care' from the moment we first observed non-intensive caregiving until potentially a change towards intensive caregiving. The state '2 – provided intensive care' was similarly assigned from the moment the first time-intensive caregiving was observed.

Regarding duration, we assigned the state '1 – started caregiving' to the first time caregiving was experienced (in our observation window); this state then persisted until a second caregiving moment was experienced (when also having employment), which resulted in the coding '2 – provided sequential care'. Thus, sequential could mean repeated care, meaning that there are potential non-caregiving moments in-between (see Panel A of Figure 1), or that the caregiving was continuous and, because of that, sequential (see Panel B of Figure 1). Sequential can also mean a subsequent observation of care within the same episode or beginning to provide care for another person.[3]

Control variables

We controlled for several time-varying characteristics. Time was modelled by including age (calculated from the birth year and interview year) and age squared. The partner variable was defined as having a spouse or partner living in the same household (1), compared to not having a spouse or partner living in the household (0). While having a partner can be seen as a resource in helping with caregiving and improving the financial situation, one has to be careful with interpreting the results, as having a partner may also increase the likelihood of having someone to provide care to, either to the partner themselves or to a parent-in-law. The age of the youngest child was

Figure 1: Illustration for the coding of the caregiving variables for two examples of respondents who have provided care in some waves



included to control for the potential 'triple burden' arising when caring for both a person with health issues and a (young) child in addition to working. Our measure was based on the two pre-defined variables 'Responsible adult for a child under the age of 16'and 'Responsible adult for a child aged 4 to 15', from which we derived the following categories: (1) youngest child under four; (2) youngest child between 4 and 15; and (3) no children under 16.

Furthermore, we controlled for a number of job characteristics that may potentially be associated with providing caregiving or changes in job satisfaction. First, we controlled for having a permanent job (1) versus not having a permanent job (0) and the number of hours normally worked per week (working hours). Additionally, we controlled for the sum of job changes prior to the measurement of job satisfaction so that each new job change is then picked up as a new change in the fixed-effects models. Job changes included not having continuously worked, a change in employer

and a change in the workplace. It should be noted that we did not control for income, as fixed-effects models would only pick up changes in income and would not reflect the general level of financial resources (the potential confounder), which are rather stable and thus automatically controlled for in our models. Table 1 provides descriptive statistics for the key variables.

Results

Descriptive results

We observed 32,156 respondents over at least two time points, with an average of 5.3 time points per respondent (standard deviation = 2.8). The maximum was ten time points for respondents who were observed in all waves (1.65 per cent). Overall, our analytical sample comprises 171,450 observations, of which 55.01 per cent were of women and 44.99 per cent were of men. In 72.81 per cent of these observations, the respondents did not provide care (yet), while we observe that the respondents had provided non-intensive caregiving in 18.02 per cent of the observations and intensive caregiving in 9.17 per cent (for descriptives per wave, see Table 1). Regarding the duration of caregiving, we see that 12.76 per cent of the observations were categorised as having started caregiving and 14.43 per cent as sequential caregiving. Translating both measures to the respondent level, we find that 67.80 per cent of respondents never provided care throughout the complete observation window and 32.21 per cent provided care at least once. Differentiated by intensity, 20.48 per cent of respondents provided non-intensive (but never intensive) care at least once and 11.73 per cent had at least one intensive caregiving episode. By duration, 12.88 per cent provided care only once (started care), while 19.32 per cent of the respondents provided care more than one time, that is, provided sequential caregiving. These numbers on paid caregiving are comparable to other studies in the UK (see Carers UK, 2019).

Overall job satisfaction was relatively high, with an average of 5.3 over all waves (somewhat satisfied) on the seven-point scale (standard deviation = 1.4) and a median of 6 (mostly satisfied). There was sufficient within-person variation in job satisfaction (basis for fixed effects), meaning that job satisfaction did change within respondents over the observation window. In 42 per cent of subsequent observations, no changes were observed, while job satisfaction was lower in 31 per cent of subsequent observations and higher in 27 per cent (see Figure 2). Regarding caregiving, fewer changes were observed. Only in 3 per cent of subsequent waves did the respondents start non-intensive care, in 2 per cent intensive care, in 4 per cent caregiving and in 5 per cent sequential caregiving (for changes differentiated by wave, see Table A2 in the Online Appendix). Yet, across all waves, 35 per cent of the respondents experienced at least one change in their caregiving variable, meaning that 65 per cent of the respondents did not provide any caregiving in all observed waves (see Wave 10 in Table 1).

Multiple regression results

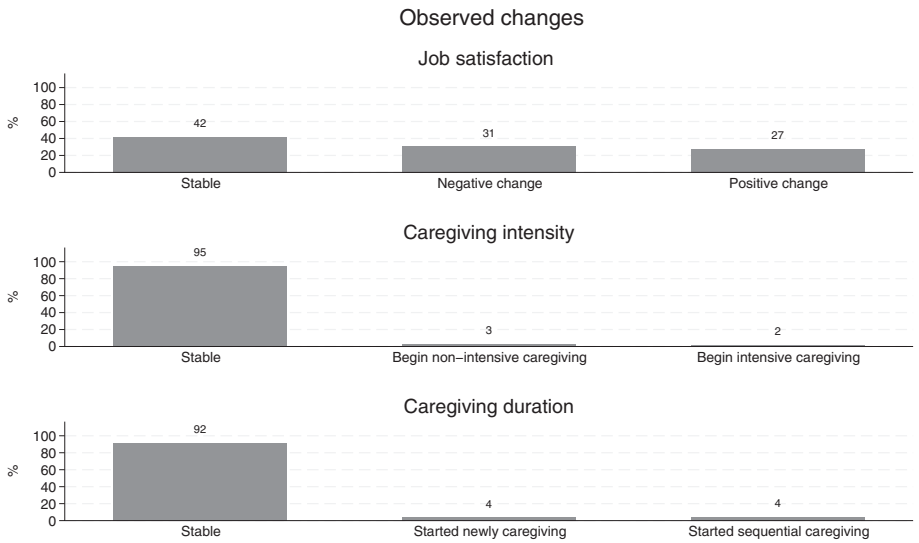
In our fixed-effects models, we included job changes and working hours stepwise, as they could theoretically have been both mediator or control variables. Comparing the models that include or exclude these variables, we did not find substantial differences (for caregiving intensity, see Model 1.1 compared to Model 1.2 in Table 2;

Table 1: Descriptive statistics over all waves

		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9	Wave 10
	Range	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)	%/mean (SD)
Job satisfaction	0–7	5.31 (1.49)	5.29 (1.42)	5.23 (1.42)	5.23 (1.41)	5.21 (1.41)	5.30 (1.39)	5.32 (1.36)	5.30 (1.37)	5.29 (1.36)	5.32 (1.33)
Care											
Not provided	0/1	0.84	0.80	0.76	0.74	0.72	0.69	0.69	0.69	0.67	0.65
Provided non-intensive	0/1	0.11	0.14	0.17	0.18	0.19	0.21	0.20	0.20	0.21	0.22
Provided intensive	0/1	0.04	0.06	0.08	0.09	0.10	0.11	0.11	0.11	0.12	0.13
Started newly	0/1	0.16	0.13	0.13	0.12	0.12	0.13	0.12	0.12	0.12	0.12
Provided sequential	0/1	NA	0.07	0.11	0.14	0.16	0.18	0.18	0.19	0.21	0.23
Age	16–65	41.39 (11.25)	41.84 (11.48)	42.12 (11.57)	42.24 (11.58)	42.51 (11.65)	42.57 (11.78)	42.71 (11.76)	42.92 (11.87)	43.36 (11.93)	44.14 (11.74)
No partner inside the household	0/1	0.29	0.28	0.29	0.29	0.29	0.29	0.30	0.31	0.31	0.30
Partner inside the household	0/1	0.71	0.72	0.71	0.71	0.71	0.71	0.70	0.69	0.69	0.70
Children											
None below 16	0/1	0.77	0.78	0.78	0.78	0.78	0.79	0.78	0.79	0.79	0.79
Youngest below 4	0/1	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Youngest 4 to 16	0/1	0.20	0.19	0.19	0.19	0.18	0.18	0.19	0.19	0.18	0.18
No permanent job	0/1	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05
Permanent job	0/1	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.95
Sum job changes	0/8	NA	0.12 (0.32)	0.20 (0.45)	0.29 (0.57)	0.38 (0.66)	0.47 (0.74)	0.53 (0.78)	0.60 (0.83)	0.67 (0.87)	0.76 (0.91)
Working hours	0–60	33.33 (10.20)	33.26 (10.17)	33.15 (10.27)	33.24 (10.17)	33.34 (10.14)	33.48 (10.00)	33.39 (9.93)	33.58 (9.79)	33.41 (10.05)	33.66 (9.80)
N respondents		16,097	20,937	19,878	18,872	18,081	15,902	16,941	16,233	14,940	13,569

Source: 'Understanding Society' Waves 1 to 10.

Figure 2: Percentage of changes in two subsequent waves averaged over all waves



Note: Per wave, the percentage of respondents who had a change in the variables of job satisfaction, caregiving intensity, and caregiving duration was calculated.

for caregiving duration, Model 2.1 compared to Model 2.2 in Table 3). Given this, we did not carry out any additional mediation analysis focused on the relation between caregiving and job satisfaction. However, the model fit did increase (based on adjusted *R*-square) when job changes and working hours were included as control variables. Thus, in the following section, we discuss the models that include job changes and working hours as controls (that is, Models 1.2 and 2.2).

Having started non-intensive caregiving was related to lower job satisfaction in comparison with not having provided care (see Model 1.2 in Table 2). Having started intensive caregiving did not statistically differ from not having provided care. As our focus is also to understand whether higher levels of caregiving lead to greater effects on job satisfaction (see H1a and H2a), we changed the reference category to non-intensive caregiving to compare the statistical difference between starting non-intensive caregiving (not shown in the tables but presented in the text). We find that having started intensive caregiving was correlated with higher job satisfaction in comparison with having started non-intensive caregiving ($p = 0.019$). In more substantive terms, having provided intensive caregiving lowered job satisfaction by 0.05 points compared to both other categories on the seven-point job satisfaction scale. When calculating marginal effects at the mean, the predicted job satisfaction of both not having provided caregiving and having provided intensive caregiving was at 5.29 on the job satisfaction scale, and the predicted job satisfaction of having provided non-intensive caregiving was at 5.24 on the same scale (see Figure 3). Put together, this means that the results provide some support for H1a, where we expect a reduction in job satisfaction due to a care conflict, though this is only the case for non-intensive caregiving. We did not find the same for intensive caregiving. Here, we found that there was even higher job satisfaction for intensive caregiving compared to non-intensive caregiving, which is more in line with H2a, hypothesising that caregiving with higher intensity can increase job satisfaction.

Table 2: Fixed-effects panel regressions for caregiving intensity

	Model 1.1	Model 1.2	Model 1.3	Model 1.4	Model 1.5	Model 1.6	Model 1.7
Subgroup	None	None	Men	Women	Caregiving inside household only (including never provided care)	Caregiving outside household only (including never provided care)	Mix of inside and outside caregiving (including never provided care)
Care							
Not provided	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Provided non-intensive	−0.05** (0.02)	−0.05** (0.02)	−0.01 (0.02)	−0.08*** (0.02)	−0.01 (0.04)	−0.05** (0.02)	−0.12* (0.05)
Provided intensive	−0.00 (0.02)	0.00 (0.02)	0.01 (0.04)	−0.00 (0.03)	0.04 (0.04)	0.01 (0.03)	−0.06 (0.05)
Age	−0.00 (0.01)	−0.08*** (0.01)	−0.07*** (0.01)	−0.09*** (0.01)	−0.09*** (0.01)	−0.08*** (0.01)	−0.09*** (0.01)
Age squared	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Partner living in household (ref: no partner)	−0.02 (0.02)	−0.03* (0.02)	−0.05 (0.03)	−0.03 (0.02)	−0.03 (0.02)	−0.04* (0.02)	−0.04* (0.02)
Children							
None below 16	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Youngest below 4	−0.03 (0.02)	−0.02 (0.02)	0.04 (0.12)	−0.02 (0.03)	−0.02 (0.03)	−0.03 (0.02)	−0.02 (0.03)
Youngest 4 to 15	0.01 (0.02)	0.03 (0.02)	−0.01 (0.06)	0.03 (0.02)	0.03 (0.02)	0.01 (0.02)	0.03 (0.02)
Permanent job (ref: not permanent)	0.02 (0.02)	0.02 (0.02)	0.07** (0.03)	−0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Working hours		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Sum job changes		0.36*** (0.01)	0.34*** (0.01)	0.38*** (0.01)	0.37*** (0.01)	0.36*** (0.01)	0.37*** (0.01)
Constant	5.29*** (0.11)	7.48*** (0.12)	7.12*** (0.18)	7.78*** (0.17)	7.63*** (0.14)	7.50*** (0.13)	7.58*** (0.14)
Observations	171,450	171,450	77,139	94,311	119,186	152,907	116,555
Number of respondents	32,156	32,156	14,600	17,556	23,805	28,904	23,023

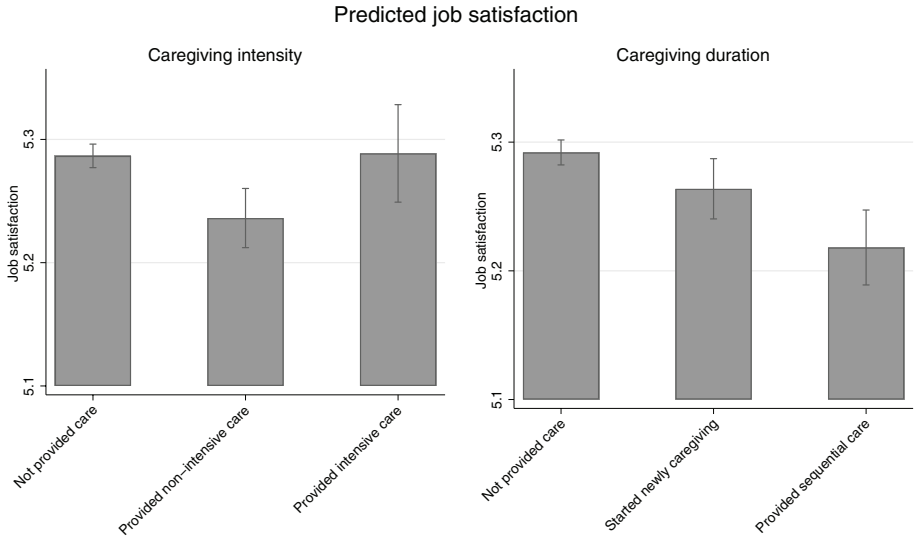
Notes: Standard errors in parentheses, *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Mix of inside and outside household care means that the caregiver provides care in and outside the household at the same time.

Table 3: Fixed-effects panel regressions for caregiving duration

	Model 2.1	Model 2.2	Model 2.3	Model 2.4	Model 2.5	Model 2.6	Model 2.7
Sub-group	None	None	Men	Women	Caregiving inside household only (including never provided care)	Caregiving outside household only (including never provided care)	Mix of inside and outside caregiving (including never provided care)
Caregiving							
Not having provided care	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Started newly caregiving	–0.03 (0.02)	–0.03 (0.01)	–0.01 (0.02)	–0.04* (0.02)	0.02 (0.03)	–0.02 (0.02)	–0.09 (0.05)
Provided sequential care	–0.08*** (0.02)	–0.07*** (0.02)	–0.00 (0.03)	–0.12*** (0.02)	–0.01 (0.04)	–0.08*** (0.02)	–0.09 (0.05)
Age	–0.00 (0.01)	–0.08*** (0.01)	–0.07*** (0.01)	–0.09*** (0.01)	–0.09*** (0.01)	–0.08*** (0.01)	–0.09*** (0.01)
Age squared	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Partner living in household (ref: no partner)	–0.02 (0.02)	–0.03* (0.02)	–0.05 (0.03)	–0.03 (0.02)	–0.03 (0.02)	–0.04* (0.02)	–0.04* (0.02)
Children							
None below 16	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Youngest below 4	–0.03 (0.02)	–0.02 (0.02)	0.05 (0.12)	–0.02 (0.03)	–0.02 (0.03)	–0.03 (0.02)	–0.02 (0.03)
Youngest 4 to 15	0.01 (0.02)	0.03 (0.02)	–0.01 (0.06)	0.03 (0.02)	0.03 (0.02)	0.01 (0.02)	0.03 (0.02)
Permanent job (ref: not permanent)	0.02 (0.02)	0.03 (0.02)	0.07** (0.03)	–0.00 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Working hours		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Sum job changes		0.36*** (0.01)	0.34*** (0.01)	0.38*** (0.01)	0.37*** (0.01)	0.36*** (0.01)	0.37*** (0.01)
Constant	5.28*** (0.11)	7.47*** (0.12)	7.12*** (0.18)	7.76*** (0.17)	7.62*** (0.14)	7.50*** (0.13)	7.58*** (0.14)
Observations	171,450	171,450	77,139	94,311	119,186	152,907	116,555
Number of respondents	32,156	32,156	14,600	17,556	23,805	28,904	23,023

Notes: Standard errors in parentheses, *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Mix of inside and outside household care means that the caregiver provides care in and outside the household at the same time.

Figure 3: Predictions based on marginal effects at the mean for caregiving intensity and caregiving duration



Notes: Marginal effects at the mean for caregiving intensity are shown on the left, based on Model 2.1; marginal effects at the mean for caregiving duration are shown on the right, based on Model 2.2.
N = 171,450 observations of 32,156 respondents.

When differentiating by duration (see Model 2.2 in Table 3 and Figure 3), we find that providing sequential caregiving reduced job satisfaction by 0.08 points compared to not having provided caregiving. With less certainty ($p = 0.06$), newly started caregiving lowered job satisfaction by 0.03 points compared to not having provided caregiving. To again compare the categories of newly started caregiving and sequential caregiving to see the difference between short- and long-term caregiving (related to H1b and H2b), the reference category was changed to newly started caregiving (not shown in the table but presented in the text). Having provided sequential caregiving reduced job satisfaction by 0.05 points compared to having started care ($p = 0.002$). Predicted job satisfaction based on marginal effects at the mean shows the highest job satisfaction when not having provided caregiving (5.29), then newly started caregiving (5.26), and the lowest job satisfaction when having sequentially provided caregiving at 5.21 on the seven-point job satisfaction scale. This is in line with hypothesis H1b, where we postulate that those providing care on multiple occasions would have the lowest job satisfaction compared to those newly having started caregiving, followed by those never having experienced a work–care conflict.

Explorative analysis

Splitting the analysis by sex (see Models 1.3 and 1.4 in Table 2 and Models 2.3 and 2.4 in Table 3) shows that the directions of the relationships were mostly the same for men and women. Regarding significance levels, there is an indication that women were especially driving the overall results, as they reproduced the significant results of the main analysis, while men did not. Also, we see that for women, having started

caregiving with higher certainty ($p = 0.04$) lowered job satisfaction by 0.04 points compared to not having provided care. The models split by location of the caregiving (see Models 1.5, 1.6 and 1.7 in Table 2 and Models 2.5, 2.6 and 2.7 in Table 3) indicate that caregiving only outside the household was especially driving our results. The significance levels for the model on caregiving intensity were reproduced by both caregiving only outside the household and a mix of inside/outside caregiving, and the models on caregiving duration were reproduced by caregiving only outside the household. These results can be explained by the lower chance of caregiving for men and inside the household, as well as smaller sample sizes (see Table A1 in the Online Appendix). Noteworthy is that the effect size doubled for those with a mix of inside/outside for not having provided care compared to non-intensive care, indicating a stronger conflict for this group.

Robustness checks

In total, we ran four robustness checks. To assess how the decision to only include changes towards more caregiving influenced our results, we included two robustness checks. First, we included a 'caregiving stopped' category for the last change towards not caring in our observation window. Including a category for having stopped care did not change our results for both caregiving intensity and caregiving duration, and the category for caregiving stopped was not statistically associated with job satisfaction (see Model R1.1 in Table A3 and Model R1.2 in Table A4 in the Online Appendix). Next, we dropped all time points with non-caregiving after the caregiving began so that only moments with caregiving would be included in our estimates. Our main conclusion still holds when dropping time points with non-caregiving after the caregiving started, with one difference (see Model R2.1 in Table A3 and Model R2.2 in Table A4 in the Online Appendix): in this test, having provided intensive caregiving was not significantly different from having provided non-intensive caregiving ($p = 0.12$). Third, we checked whether changing the cut-off value of hours of care to define intensity influenced the results by excluding caregiving that varied below 20 hours in the low-intensity caregiving category. Excluding these observations that were less clear as to whether they were low or high intensity did not change our results (see Model R3 in Table A3 in the Online Appendix). Fourth, we split the analysis for early working age (age 16–39) and late working age (40–65), as our decision on the age range could potentially have influenced our results. Again, the robustness check shows that our decision on the age range did not influence our results, either for caregiving intensity (see Model R4.1 in Table A3 and Model 5.1 in Table A4 in the Online Appendix) or caregiving duration (see Model R4.2 in Table A3 and Model R5.2 in Table A4 in the Online Appendix) even when lowering the sample size dramatically by splitting the analysis. All in all, our results seem to be very robust.

Discussion

This article adds to the existing literature on employment consequences for unpaid caregivers by looking at job satisfaction. We were initially motivated to undertake this

analysis because we postulated that by focusing on a subjective outcome, we would be more likely to find any 'alternative' positive effects of unpaid caregiving proposed by enrichment theory. However, similar to previous research using 'objective' outcomes, our results for the overall effect of caregiving on job satisfaction indicate that work–care conflict dominates, as suggested by role strain theories. Among all respondents, starting non-intensive caring and sequential caregiving were both associated with lower job satisfaction. Similar to other research related to job satisfaction and the spillover between family and work (see McNall et al, 2010), the effects that we found were small. This is not surprising, as we focused on 'within-person effects', which are typically rather small. Still, we argue that this hints at the fact that the effects of unpaid caregiving on job satisfaction are more complex.

These results were reproduced in our explorative analysis for women and those providing caregiving outside the household. This is an indicator that women and caregivers with care recipients living outside their households might experience more work–care conflict. A potential sex difference could be due to women tending to value caregiving more compared to men and men valuing work more than women (Shockley and Singla, 2011; Page et al, 2018). More conflict related to caregiving outside the household may reflect higher levels of worry and stress related to the distance between the caregiver and care recipient. However, our negative effects, which were especially dominant when taking up the role of a non-intensive caregiver and for those with longer caregiving episodes, do not necessarily mean that enrichment does not play a role but, rather, that it plays a smaller role than conflict.

A particularly interesting finding in this article is that intensive caregiving is not related to lower job satisfaction as compared to not having provided care. In the caregiving literature, high intensity (indicated in the number of hours spent) is the dominant explanation for caregiver burden (Swinkels et al, 2017) and is related to labour supply reduction (Moussa, 2019). Not finding the same for job satisfaction can therefore be seen as one indication that for those with high intensity, both enrichment and conflict effects are potentially operating, with neither of them dominating. Caregivers providing many hours of care might feel the burden and, in general, evaluate their different life domains (including job satisfaction) lower, but at the same time, they may feel the needed respite at work, coupled with the potential to have learned valuable skills that they can implement in their work sphere. Our results indicate that there is likely both enrichment and conflict going on, but future research would need to disentangle enrichment and conflict more empirically to understand how exactly they potentially balance each other out. Going forward, to address this, we suggest that survey designers include explicit questions on enrichment and conflict related to unpaid care in a similar manner to the way in which such questions are sometimes included relating to childcare.

Using panel data and focusing on within-person changes in job satisfaction related to within-person changes in caregiving gave our article a strong design to answer our research question. However, this approach has its limitations. First, our sample is based on respondents who stayed in employment. From existing literature, we know that caregivers have a higher likelihood of stopping working or retiring earlier (Henz, 2004; Pavalko and Henderson, 2006; Lee and Tang, 2013; Gomez-Leon et al, 2019; Hohmeyer and Kopf, 2020). This means that our sample focuses on those who were able to stay in the labour market. Low job satisfaction may be one of the

drivers for job exits, especially for caregivers. With the focus on a subjective outcome of employment consequences, taking into account employed respondents only is inevitable, as a person can only have job satisfaction if they are employed. We invite future research to disentangle the role of job satisfaction in unpaid caregivers' decisions to drop out of employment.

One strength of the study is that it covered more than ten years, a longer time span than many other data sets. However, the coding of caregiving was still limited by the observation window and the respondents' answer patterns (for example, it was possible that respondents dropped out for a year). For instance, we do not know whether the respondents had caregiving experiences prior to when we first observed them and only recent caregiving episodes were included in our coding. This 'left-hand censoring' means that we may have misclassified some caregivers as non-caregivers, some sequential caregiving as having just started caregiving and intensive caregiving as non-caregiving or non-intensive care. Yet, given these impressions, we may have underestimated the effects of caregiving; thus, the results should be taken as a lower boundary, and the effect may be stronger in reality.

Our overall conclusion is not that we should dismiss enrichment theory but, rather, that more research is needed to discover more about what can drive positive outcomes when caregiving. Against the backdrop of an ageing population across Europe and globally, not only will more people need to provide care for family or friends, but more people will also be needed to stay (longer) in the labour market to counteract the rising costs related to an ageing population (for example, welfare state provision) (Plaisier et al, 2015). Thus, policy makers will need to mitigate any potential conflict between work and caring roles and create an environment where caregivers can positively combine paid work and unpaid caregiving responsibilities. Potential policies are related to flexible work environments, support by supervisors, training and counselling, care leave, and financial support for formal care (Raiber, 2025). Better measurement and understanding of both the positive and negative pathways in the complex relationship between work and care remain a priority for research, policy and employment practices.

Notes

[1] For a discussion related to the term 'informal caregiver' versus 'unpaid caregiver', see Stall et al (2019).

[2] For those respondents who did not report actual hours of care, the predefined category of 'Varies under 20 hours' was included in the low-intensity category so that the high-intensity category for caregivers reflected those who had at least high intensity, that is, those who were clearly of high intensity (see the 'Robustness checks' section).

[3] We categorised the caregiving variables to be able to include the category '0 – not provided care'. If we had used a continuous variable, we would have a distribution with many zeros. Therefore, categorisation helped to avoid zero inflation. To check for the influence of our way of coding, we included two robustness checks, as discussed in the 'Results' section.

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Research ethics statement

Permission to conduct the interviews for the purposes of this research was obtained from all participants, who were fully informed about the purposes of this research and how their responses would be used and stored.

Contributor statement

Klara Raiber (KR), Maria Evandrou (ME) and Jane Falkingham (JF) conceptualised the study and methods. KR did the analysis and wrote a first draft with supervision by ME and JF. ME and JF revised the manuscript.

Data availability statement

The underlying data are accessible via the UK data service after registration and agreement. The code has been made available by the first author on their website.

Conflict of interest

The authors declare that there is no conflict of interest.

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