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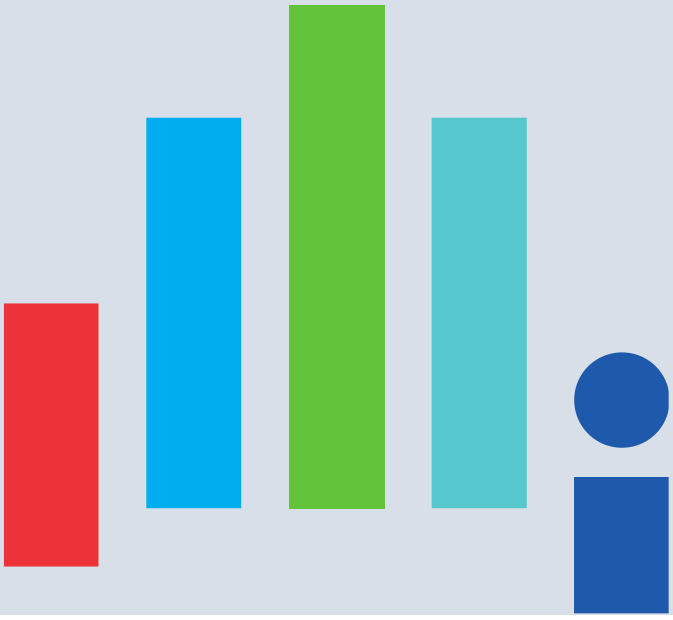

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The Impact of Informal Caregiving on the Well-being of Older Adults in Europe*

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Abstract

Informal care is a cornerstone of long-term care for older adults but may entail substantial psychological costs for caregivers. Using seven waves (2004–2022) of the Survey of Health, Ageing and Retirement in Europe (SHARE) for 27 countries, we estimate the causal effect of providing regular personal care inside the household on depressive symptoms and quality of life. We estimate dynamic panel instrumental-variable (IV) models with country and wave fixed effects, exploiting the persistence of caregiving and using lagged indicators of caregiving provision as instruments to address reverse causality and unobserved heterogeneity. Our baseline estimates indicate that providing informal care increases depressive symptoms by about 25% and reduces quality of life by roughly 6% relative to non-caregivers. These adverse effects are strongest for spousal caregivers and when caregiving is sustained over time, and they persist even after caregiving ends. Robustness checks using alternative outcomes, subsamples, and specifications suggest that the well-being costs of informal caregiving are sizable and pervasive, underscoring the need for long-term care policies that explicitly account for the mental health burden placed on family caregivers.

Keywords: Informal care, Depressive symptoms, Long-term care, Quality of life, Older adults.

JEL Codes: I12, J14, J22, C33, H55.

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1 Introduction

Many countries worldwide, including those in Europe, are facing a profound demographic shift toward population aging. A key consequence is the rising demand for long-term care (LTC) for older adults, provided either formally by paid professionals or informally by relatives, friends, or neighbors (Roquebert and Tenand, 2024). Informal caregiving already accounts for a substantial share of LTC provision: according to Tur-Sinai et al. (2020), between 14.02% of individuals aged 50 and above in Spain and 29.16% in Denmark provide informal care, with cross-country differences reflecting both cultural norms and the design of social protection systems. As populations continue to age, the need for informal care is expected to grow further, placing increasing pressure on older caregivers themselves. Given their central role in the sustainability of LTC systems (also highlighted in Barczyk and Kredler, 2019), understanding the psychological burden borne by informal caregivers is crucial for both public policy.

This paper examines the impact of informal caregiving on the well-being of older caregivers, focusing on two key dimensions: depressive symptoms and quality of life. Using rich longitudinal data from the SHARE survey (2004–2022), covering 27 European countries, we estimate the causal effect of providing care on these well-being outcomes instrumenting current caregiving with lagged caregiving status. We particularly focus on regular, intensive personal care provided inside the household, the most time-consuming and potentially stressful form of informal care. Beyond average effects, we also study how this impact varies with the caregiver's relationship to the care recipient (spouse or partner, parent, other relative, or non-relative) and with transitions into, out of, and continuation of caregiving over time. Considering these dimensions jointly allows us to capture the heterogeneity of caregiving experiences and to understand how different family structures, social norms and institutional environments shape the burden of care at older ages.

A growing literature documents that caregiving responsibilities have substantial short-run negative effects on caregivers' well-being. Existing studies report that providing care is associated with higher depressive symptoms (Coe and Van Houtven, 2009; De Zwart et al., 2017; Heger, 2017), lower quality of life (Rafnsson et al., 2017), and reduced life satisfaction (Costa-Font and Vilaplana-Prieto, 2024; Gerlich and Wolbring, 2021; Le and Ibuka, 2023). However, evidence on medium- and long-run effects is more mixed. Some contributions find that the adverse impact of caregiving

persists even after caregiving ends (Coe and Van Houtven, 2009; Stöckel and Bom, 2022), while others do not detect significant medium-term effects, particularly for women (Schmitz and Westphal, 2015). This suggests that the consequences of caregiving may depend on the duration and intensity of care, adaptation processes, and individual characteristics.

The literature further emphasizes the importance of socio-economic characteristics, cultural norms, and public LTC institutions in shaping caregivers' well-being. Individual characteristics matter: Bom et al. (2019), Costa-Font and Vilaplana-Prieto (2024), and De Zwart et al. (2017) show that women face larger mental health impacts than men, and Niimi (2016) finds that the negative effect of caregiving on subjective well-being is significant only among unmarried caregivers. Costa-Font and Vilaplana-Prieto (2024) also document stronger declines in well-being among co-resident and more-educated caregivers. The caregiver–care recipient relationship is another key dimension. De Zwart et al. (2017) show that intensive spousal caregiving is associated with substantial short-run deterioration in caregivers' mental health, while Bom et al. (2019) find that caring for a spouse is linked to markedly larger negative mental health effects than caring for a parent.[1] The broader institutional environment also matters. Costa-Font and Vilaplana-Prieto (2024) show that the income-equivalent transfer required to compensate for the disutility of caregiving is higher in countries with weaker public LTC systems such as Spain, while Brenna and Di Novi (2016) document a North–South European gradient, with a statistically significant negative effect of parental caregiving on daughters' mental health only in Mediterranean countries, where family ties are stronger and public support for the elderly is weaker.

Several of the above-mentioned studies provide causal estimates of the effect of caregiving on well-being but rely on identification strategies that differ from ours. Some contributions use propensity score matching (Brenna and Di Novi, 2016; De Zwart et al., 2017; Schmitz and Westphal, 2015; Stöckel and Bom, 2022). Others adopt dynamic panel generalized method of moments (GMM) estimators, such as Coe and Van Houtven (2009) and Bom et al. (2019), who implement Arellano–Bond–type GMM specifications to address both endogeneity and the persistence of health outcomes. In much of the remaining empirical literature, caregiving is instead treated using in-

[1] See also Bassoli et al. (2023), who document that informal care by adult children increases before a mother's death and is associated with greater depressive symptoms, particularly among women. Focusing on end-of-life care provided outside the caregiver's household, they provide complementary evidence on how caregiving effects vary by relationship and context.

strumental variable (IV) strategies in which caregiving is instrumented by care needs or the health of the care recipient (Heger, 2017; Le and Ibuka, 2023) or by family composition characteristics, such as the number and gender of children (Costa-Font and Vilaplana-Prieto, 2024).[2] These IV-based studies use strategies grounded in parental health, family structure, or proximity, but these instruments tend to be weak in our setting, yielding unstable estimates.

Our paper makes four main contributions. First, we focus on intensive personal care provided *inside the household*, a central but understudied margin of LTC that is likely to generate the largest well-being costs. Second, we exploit the longitudinal structure of SHARE across seven waves (2004–2022) to study caregiving dynamics- entry, persistence, and exit -rather than static caregiving status. Third, we address endogeneity and persistence jointly by estimating a dynamic panel IV model with country and wave fixed effects, instrumenting current caregiving with lagged caregiving while controlling for lagged well-being. Fourth, we provide systematic evidence on heterogeneity by caregiver-recipient (spouse/partner, parent, other relatives, non-relatives) in a large multi-country European setting.

Our results point to sizeable and economically meaningful well-being costs of intensive co-resident caregiving. Providing care inside the household increases depressive symptoms by about 25% and reduces quality of life by roughly 6% relative to non-caregivers. These adverse effects are strongest for spousal caregivers, consistent with the particularly demanding and emotionally salient nature of partner care. The dynamic analysis further shows that well-being deteriorates sharply upon entry into caregiving and remains depressed among sustained caregivers, with only limited recovery following caregiving exit, suggesting lasting scarring rather than purely transitory distress. A set of complementary analyses, including alternative samples and outcome definitions, and specifications controlling for parental and spousal health, suggests that the findings are robust and not driven by extreme values, sample composition, or contemporaneous family health shocks.

The paper is organized as follows. Section 2 describes the data and presents key descriptive statistics. Section 3 outlines our estimation strategy and reports the main results on the impact of informal care on well-being, while Section 4 digs into the determinants and heterogeneity of this relationship. Section 5 presents robustness checks. The last section concludes.

[2]More precisely, Costa-Font and Vilaplana-Prieto (2024) rely on the care recipient's number of sons and daughters and the caregiver's birth order or only-child status.

2 Data and Descriptive Statistics

2.1 Database

We use data from the Survey of Health, Ageing, and Retirement in Europe (SHARE), a biennial longitudinal survey that is a key reference for the study of individuals aged 50 and over in Europe. SHARE provides high-quality information on a wide range of domains, including individuals' financial situation, health, and socio-economic status in several European countries. (Börsch-Supan et al., 2013). From 2004 to 2022, 9 waves were conducted.[3] Our analytical sample includes individuals aged 50 and older from 27 European countries.[4]

The two main outcomes are depressive symptoms and quality of life. The first dependent variable measures an individual's depressive symptoms according to the EURO-D scale (Prince et al., 1999). This scale assesses the intensity of depressive symptoms on a 12-item scale considering factors such as depression, concentration, appetite, sleep, feeling of guilt, irritability, fatigue, enjoyment, interest, pessimism, tearfulness, and suicidality. A higher score indicates greater depression (Maskileyson et al., 2021; Mehrbrodt et al., 2019).

The second dependent variable measures the individual's quality of life using the CASP-12 scale, which is an alternative version of the CASP-19 scale introduced by Hyde et al. (2003). It is determined by responses to 12 questions about well-being, such as, for instance, "the feeling of being left out of things" or that "life has meaning". These questions are grouped into four categories: control, autonomy, self-realization, and pleasure. The quality of life index is then obtained by summing the responses to these 12 questions and ranges from 12 to 48. The higher the score, the higher the individual's quality of life (Borrat-Besson et al., 2015; Mehrbrodt et al., 2019).

Our main explanatory variable is whether the respondent has provided informal care within the household over the past year. Specifically, the question asked is: "*Is there someone living in this household whom you have helped regularly during the last twelve months with personal care, such as washing, getting out of bed, or dressing? By regularly we mean daily or almost daily during at least*

[3]For all waves, we use data from release 9.0.0. Waves 3 and 7 are excluded due to their retrospective focus on individuals' life histories. Consequently, the interval between two consecutive waves can be between two and five years.

[4]Sweden, Denmark, Finland, Austria, Germany, Netherlands, France, Switzerland, Belgium, Luxembourg, Spain, Italy, Greece, Portugal, Croatia, Cyprus, Malta, Czech Republic, Poland, Hungary, Slovenia, Estonia, Lithuania, Bulgaria, Latvia, Romania and Slovakia.

three months. We do not want to capture help during short-term sickness of family members.". The answer (Yes or No) is then a binary variable.

Following the existing literature, our baseline specification includes a set of core socio-demographic controls—age, sex, and marital status. In a second specification, we extend the model by adding a richer set of covariates. Age is grouped into three categories: "50–64 years," "65–79 years," and "80 years and older." Marital status is recoded as a binary indicator distinguishing between those who "Have a spouse/partner" and those who "Do not have a spouse/partner". Education is classified into three levels: "Low," "Intermediate," and "Advanced".[5] Employment status distinguishes individuals who are "Employed" from those who are "Not employed". The household's financial situation is measured using a self-reported survey item assessing the ability to make ends meet with the total monthly income. Based on this, households are categorized as "Making ends meet without difficulty" or "Making ends meet with difficulty".

We further account for health status by including a variable indicating whether respondents reported at least one chronic condition, based on answers to whether a doctor had ever diagnosed them with any of several listed conditions and whether they were currently receiving treatment for or affected by any of them. Healthcare utilization is captured through the reported number of visits to a doctor or registered/qualified nurse in the past 12 months. This variable is grouped into four categories: "None," "1–6 visits," "7–12 visits," and "13 or more visits." Finally, we include a measure of frailty.[6] Five criteria—exhaustion, low activity, weakness, shrinking, and slowness—are assessed, with one point assigned for each criterion met. Based on the total score, individuals are classified as "Robust" (0 points), "Pre-frail" (1–2 points), or "Frail" (3 or more points).

In addition, using information on the relationship between the caregiver and the care recipient, we create four mutually exclusive binary variables classifying this relationship as "spouse or partner," "parent," "other relative," or "non-relative." The category "parent" refers to a father or mother; "other relative" includes a mother-in-law, father-in-law, stepmother, stepfather, brother, sister, grandparent, aunt, or uncle; and "non-relative" comprises a friend, (ex-)colleague, neighbor, ex-spouse/partner, minister, priest, other clergy, therapist/professional helper, housekeeper/home

[5] "Low" includes primary and lower secondary education; "Intermediate" includes upper secondary and post-secondary non-tertiary education; "Advanced" refers to first and second stage tertiary education.

[6] The frailty index follows the methodology of Manfredi et al. (2019), which adapts Fried's Phenotype (Fried et al., 2001) for the SHARE dataset.

health care provider, or none of these. We also construct a set of binary indicators capturing changes in the caregiving situation between two consecutive waves, which we exploit as an alternative explanatory variable. Specifically, we define three dummy variables indicating whether respondents *start*, *stop*, or *continue* providing informal care inside the household across waves. Further details on the construction of these variables are provided in Section 4.

Since our research examines the effects of caregiving on the well-being of older adults who provide care within their household, we exclude certain observations from the sample. Specifically, we exclude observations where information on informal care is missing, where individuals report living alone, where respondents provide care to more than one person, or where they care for younger individuals (such as children, nephews, or grandchildren).

2.2 Descriptive Statistics

Table 1 provides descriptive statistics for our sample, distinguishing individuals who provide informal care from those who do not. Among respondents, 6.2% report providing care, mostly to a spouse or partner, or to a parent.

Caregivers report poorer outcomes across multiple dimensions of well-being compared to non-caregivers. Caregivers are slightly more likely to be above the median of the EURO-D distribution (40.6% vs. 38.0%). They also exhibit higher levels of depressive symptoms (mean score of 3.2 vs. 2.3 on the EURO-D scale) and lower quality of life (mean scores of 35.3 vs. 37.7 on the CASP-12 scale). While caregiving is associated, on average, with higher levels of depressive symptoms, the most severe cases—defined as the top 10% of the EURO-D distribution—are slightly more prevalent among non-caregivers (9.9% vs. 7.1%), a pattern that may reflect selection effects. In contrast, caregivers are less likely to be in the top 10% of the CASP-12 distribution (6.5% vs. 8.1%), suggesting that caregiving is associated with a lower probability of very high quality of life and that any positive aspects of caregiving (e.g., fulfillment or support from others) may not fully offset the burden of care.

Caregivers are mostly women (55.5% vs. 44.5% of men). They also tend to be older, with higher proportions in the 65–79 and 80+ age groups. Caregivers also have lower educational attainment, with 47.4% having a low education level compared to 39.9% of non-caregivers. They are also less likely to be working (20.1% vs. 33.6%). Financial vulnerability is slightly higher among caregivers,

as 41.7% report having difficulty in making ends meet, versus 37.5% of non-caregivers. Caregivers are more likely to live in two-person households (71.7% vs. 66.7%), which likely reflects the high share of those who provide care to a spouse or partner, while larger households of three or more members are less common among caregivers.

Chronic health conditions are more common among caregivers (83.6% vs. 73.8%), and frailty is also more prevalent, with 14.7% classified as frail compared to 7.8% of non-caregivers. Regarding the use of health care services, caregivers report more frequent visits to health professionals. A higher share of caregivers report 13 or more visits in the past 12 months (16.6% vs. 12.1%), and fewer report no visits (8.3% vs. 10.9%). These differences may arise because caregivers themselves have greater care needs or interact more frequently with the health system as a result of caregiving.

Although the overall trends are consistent, some regional differences emerge.[7] To complement these results, Table A2 in the Appendix disaggregates the statistics by European regions. Informal caregiving is less common in Northern Europe (3.8%) and more prevalent in Southern Europe (6.5%). Caregivers in Northern countries also report better well-being, with a lower mean EURO-D score (2.7) and a higher CASP-12 score (38.3) compared to those in Southern Europe (3.6 and 33.0, respectively).

[7]See Table A1 for regional classifications.

Table 1: Descriptive statistics by caregiving status

	No care	Care
Care provision (%)	93.8	6.2
Depressive symptoms		
Mean of EURO-D scale	2.3	3.2
Top 10 distribution (%)	9.9	7.1
Top 50 distribution (%)	38.0	40.6
Quality of life		
Mean of CASP-12 scale	37.7	35.3
Top 10 distribution (%)	8.1	6.5
Top 50 distribution (%)	49.4	46.5
Sex (%)		
Women	48.8	55.5
Men	51.2	44.5
Age group (%)		
50-64	56.9	42.6
65-79	34.5	41.5
80+	8.6	15.9
Education (%)		
Advanced	21.1	16.4
Intermediate	39.1	36.2
Low	39.9	47.4
Work situation (%)		
Working	33.6	20.1
Not working	66.4	79.9
Marital status (%)		
Has a spouse/partner	86.2	87.8
Doesn't have a spouse/partner	13.8	12.2
Making ends meet (%)		
Without difficulty	62.5	58.3
With difficulty	37.5	41.7
Household size (%)		
2	66.7	71.7
3-4	28.6	24.6
5+	4.7	3.7
Chronic conditions (%)		
No	26.2	16.4
Yes	73.8	83.6
Frailty index (%)		
Robust	51.6	38.4
Pre-frail	40.6	46.9
Frail	7.8	14.7
Medical visits in past 12 months (%)		
None	10.9	8.3
1-6 visits	57.6	53.0
7-12 visits	19.4	22.0
13+ visits	12.1	16.6
Relationship with care recipient (%)		
Spouse or partner		75.1
Parent		14.7
Another relative		7.6
Another person		2.6

Notes: Authors' calculations. Weighted data with the survey's calibrated individual cross-sectional weights. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table 2 summarizes the distribution of caregiving transitions between two consecutive waves. The vast majority of respondents (89.2%) report no caregiving in either wave, consistent with the descriptive patterns in Table 1. About 5.0% start providing care, 3.8% stop caregiving, and 2.0% continue providing care from one wave to the next. These figures underline that, although caregiving remains relatively uncommon among older Europeans, transitions into and out of caregiving are not negligible.

Table 2: Variation in the caregiving situation between two consecutive waves

	N	%
Caregiving status variation		
No caregiving	139,653	89.2
Stopped caregiving	5,919	3.8
Continued caregiving	3,072	2.0
Started caregiving	7,863	5.0

Notes: Authors' calculations.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

3 The Impact of Informal Care on the Well-Being of Caregivers

This section examines the impact of informal caregiving on two key dependent variables: depressive symptoms and quality of life. First, we analyze the relationship between caregiving provided by older caregivers and their well-being, and then we assess whether this relationship is causal.

3.1 Linear Relationship Between Informal Caregiving and Well-being

We apply a logarithmic transformation to both the dependent variable and its lagged value and estimate the following equation:[8]

$$\ln Y_{i,t} = \beta_1 \ln Y_{i,t-1} + \beta_2 CG_{i,t} + \beta X_{i,t} + \pi_c + \pi_t + \epsilon_{i,t} \tag{1}$$

[8]Because EURO-D includes zeros, we use a log-plus-one transformation, $\ln(Y_{i,t}+1)$. Coefficients can be interpreted as semi-elasticities of the shifted outcome (i.e., as approximate percentage changes in $Y_{i,t}+1$). We assess robustness by (i) trimming outcome outliers, (ii) estimating models with outcomes in levels, and (iii) redefining depressive symptoms as a binary indicator. Our results (presented in the Online Appendix) are robust across these alternative specifications.

where $Y_{i,t}$ denotes the individual i's EURO-D score (depressive symptoms) or CASP-12 score (quality of life) in wave t. $CG_{i,t}$ accounts for the provision of informal care by individual i at wave t. It equals 1 if the respondent provides care inside the household at wave t and 0 otherwise. $X_{i,t}$ is the vector of socio-economic and health variables for individual i at wave t presented in Section 2. π_c and π_t are country and wave fixed effects, respectively, and $\epsilon_{i,t}$ is the error term for individual i at wave t.[9]

In the above specification, we include the lagged dependent variable (depressive symptoms or quality of life) on the right-hand side. This assumes that depressive symptoms or quality of life at time t are influenced by their past values at time $t-1$. Including the lagged dependent variable serves several purposes. First, it enhances the model specification (Wooldridge, 2010) by accounting for the persistence of well-being over time. Since well-being at time t is likely to be correlated with well-being at time $t-1$, incorporating this relationship helps mitigate endogeneity bias due to reverse causality. Second, the lagged variable helps reduce serial correlation in the residuals, improving the reliability of the estimation (Baltagi, 2008; Wooldridge, 2010). Third, it can partially control for unobserved heterogeneity—factors that influence both past and present well-being—which, if omitted, could bias the estimated effect of caregiving on well-being (Greene, 2012; Wooldridge, 2010).

Note finally that for each regression, our main specification deliberately restricts the set of control variables to sex, marital status and age group. By focusing on predetermined (e.g. exogenous) characteristics, we minimize the risk of endogeneity and ensure a clearer interpretation of our results. Indeed, additional potential controls—such as household size, financial capacity, employment status, and health indicators—may be influenced by both informal caregiving and well-being. For this reason, we include them only in our second specification.[10]

3.2 Causal Impact of Informal Caregiving on Well-being

Linear estimations are limited for addressing two sources of bias: reverse causality and unobserved individual heterogeneity (Wooldridge, 2010). In the context of this study, reverse causality refers to the fact that well-being could influence the provision of informal care rather than the reverse.

[9]Standard errors are clustered at the individual level to account for potential within-person correlation in characteristics across survey waves.

[10]Regressions including the full set of sociodemographic covariates are relegated to the Appendix.

Unobserved individual heterogeneity refers to the existence of unobserved characteristics that vary between individuals, such as genetic predisposition, optimism, or cognitive characteristics, which would simultaneously affect well-being and the provision of informal care.

To address these potential sources of endogeneity, we adopt an instrumental variables (IV) approach to identify the causal effect of current informal caregiving ($CG_{i,t}$) on well-being. While much of the related literature also relies on IV strategies, existing instruments typically exploit family structure (e.g., sibling composition, birth order) or the care recipient's health. In our setting, family-structure instruments perform poorly.[11] Instrumenting with the care recipient's health would further require that health conditions affect the respondent's depression and quality of life only through caregiving, an assumption that is difficult to justify. Indeed, prior work documents substantial family spillovers (Bobinac et al., 2010; Bom et al., 2019): health shocks to close relatives can directly impair mental health and well-being even conditional on caregiving, rendering health-based instruments *a priori* problematic for psychological outcomes. Our empirical strategy differs from these approaches used in the literature in that it exploits the persistence of the caregiving status over time to identify the causal effect of current caregiving.

In the first stage of the IV estimation of equation (1), the endogenous variable $CG_{i,t}$ is regressed on its lagged values and covariates:

$$CG_{i,t} = \gamma_1 \ln Y_{i,t-1} + \gamma_2 CG_{i,t-1} + \gamma_3 CG_{i,t-2} + \Gamma X_{i,t} + \pi_c + \pi_t + \eta_{i,t}. \tag{2}$$

In the second stage, the predicted values of the endogenous variable from the first stage are used in the main equation:

$$\ln Y_{i,t} = \lambda_1 \ln Y_{i,t-1} + \lambda_2 \widehat{CG}_{i,t} + \Lambda X_{i,t} + \pi_c + \pi_t + \sigma_{i,t}, \tag{3}$$

where $\widehat{CG}_{i,t}$ denotes the fitted values from equation (2). Using both $CG_{i,t-1}$ and $CG_{i,t-2}$ as instruments exploits the persistence of caregiving while delivering an overidentified model, which allows us to compute a Hansen J-test of overidentifying restrictions.[12] As in the OLS specification,

[11] While a few instruments meet the minimum threshold for statistical relevance in the first-stage, the corresponding second-stage estimates are generally not robust.

[12] Because the interval between consecutive SHARE waves in our sample ranges from two to five years, $CG_{i,t-1}$ and $CG_{i,t-2}$ correspond to lags of roughly 2–5 and 4–7 years, respectively.

we consider first a baseline specification including only the set of predetermined covariates to limit endogeneity concerns. We then estimate a richer specification that includes the full set of controls. This extended specification helps reduce omitted-variable bias by accounting for a wider range of observed characteristics, although it does not fully eliminate concerns related to unobserved heterogeneity, which our IV strategy is intended to mitigate.

The identifying assumption is that lagged caregiving predicts current caregiving and, conditional on lagged well-being ($\ln Y_{i,t-1}$), covariates ($X_{i,t}$), and country and wave fixed effects, affects current well-being only through its effect on contemporaneous caregiving. Here, lagged caregiving refers to caregiving status in the previous observed wave, which corresponds to approximately two-year lags in most cases and four-year lags when adjacent waves are not available. Once individuals begin providing informal care—particularly when it is intensive or co-residential—they are likely to continue in this role over time due to moral obligations, family expectations, or a lack of viable alternatives. Moreover, giving care to older people is seldom a one-time occurrence; it often extends over many years, especially when the care recipient has chronic health conditions or ADL limitations.

A potential concern is that lagged caregiving may also influence current well-being directly through persistent emotional strain ("scarring"), even conditional on current caregiving. However, this concern is likely to be of secondary importance for three reasons. First, we control for lagged well-being, which captures prior mental health and quality-of-life differences, including persistent distress associated with earlier caregiving.[13] Second, our analysis focuses on intensive caregiving within the household, a form of care that is highly persistent, making lagged caregiving a strong predictor of current caregiving. Third, in additional robustness analyses (see Section 4.2), we control for the care recipient's health status to address potential endogeneity arising from family health shocks. Because this information is consistently available only when the recipient is a spouse/partner or a parent, we re-estimate our models in these subsamples while controlling for their health. The results are qualitatively similar, suggesting that our baseline findings are not driven by omitted variation in the care recipient's health.

[13] For the care transition models in Section 4.2, we use even more distant lags.

3.3 Results

Table 3 reports the baseline estimates of the OLS regression (eq. 1) and the second stage of the IV/2SLS specification (eq. 3). Columns (1) and (3) present estimates with the restricted set of exogenous covariates, while columns (2) and (4) include the full set of available controls.[14]

The OLS estimates indicate a clear and statistically significant association between providing informal care and lower well-being, either proxied by depressive symptoms or by quality of life, among individuals aged 50+ in Europe. In the parsimonious specification, caregivers (relative to non-caregivers) experience an increase in depressive symptoms of about 17.4%[15] and a decrease in quality of life of about 3.9%. When the full set of controls is included, the estimated effects remain substantial, with depressive symptoms rising by roughly 13.9% and quality of life declining by about 3.0%.[16]

The estimates also show that previous levels of well-being are significantly and positively associated with current well-being levels. A 1% increase in depressive symptoms (resp. quality of life) in the previous period is associated with an increase of around 0.31–0.44% in current depressive symptoms (resp. around 0.44–0.56% in current quality of life), depending on the specification, suggesting a substantial degree of persistence in both outcomes. However, OLS may still reflect reverse causality and time-varying unobservables; we therefore turn to our IV strategy.

The IV regressions lead to qualitatively similar conclusions and provide evidence of a statistically significant adverse effect of caregiving on well-being. As mentioned earlier, the validity of our IV strategy requires relevance and (conditional) exogeneity. We instrument current caregiving with lagged caregiving in $t-1$ and $t-2$. The first-stage results reported in Tables A4 and A5 show that lagged care strongly predicts current caregiving: the coefficients associated to care in $t-1$ (resp. in $t-2$) are around 0.25–0.28 (resp. around 0.13–0.14), with first-stage F-statistics far above the conventional threshold ($F = 889.62$ and 865.22; $F = 575.55$ and 554.23), indicating very

[14] To enhance readability, the tables in this and subsequent sections report only the coefficients of primary interest. Full regression results—including coefficients for all control variables for both OLS and IV models, as well as first-stage estimates for the IV specifications—are reported in Tables A3–A6 in the Appendix.

[15] Throughout the paper, we report percentage changes implied by the log specification.

[16] We additionally estimated a random effects panel model using the same specification. The coefficients obtained for the caregiving effect are very similar to those from the OLS regressions, suggesting that unobserved individual heterogeneity may not be strongly biasing the estimates. Moreover, including individual fixed effects slightly reduces the magnitude of the caregiving coefficients, but they remain statistically significant. This indicates that some of the OLS association is driven by between-individual differences, but caregiving still shows a robust negative association with well-being within individuals.

strong instruments. The second-stage IV estimates presented in Table 3 imply that providing care increases depressive symptoms by about 24.6% and reduces quality of life by roughly 5.8%. When all controls are included, caregiving is associated with an increase in depressive symptoms of about 12.7% and a decrease in quality of life of about 4.9%. Overall, the IV results corroborate a sizable negative impact of informal caregiving on well-being. The Hansen J test p-values (0.31–0.63) do not reject the overidentifying restrictions, providing some reassurance regarding instrument validity.

Table 3: Effect of informal care provision on well-being in Europe

	Depressive symptoms		**Quality of life**	
	(1)	(2)	(3)	(4)
		OLS		
Care inside household				
Yes	0.16***	0.13***	-0.04***	-0.03***
	(0.01)	(0.01)	(0.00)	(0.00)
Lagged dependent variable				
Coefficient	0.44***	0.31***	0.56***	0.44***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	151,102	70,291	140,468	65,001
R-squared	0.27	0.43	0.44	0.51
		IV		
Care inside household				
Yes	0.22***	0.12***	-0.06***	-0.05***
	(0.03)	(0.03)	(0.01)	(0.01)
Lagged dependent variable				
Coefficient	0.45***	0.32***	0.58***	0.46***
	(0.00)	(0.00)	(0.00)	(0.01)
Number of observations	81,321	40,400	78,647	39,109
R-squared	0.27	0.43	0.46	0.52
Hansen J test (p-value)	0.41	0.63	0.54	0.31

Notes: Authors' calculations. Country and wave fixed effects are included. All models include controls for lagged dependent variable, sex, marital status and age group. Columns (2) and (4) additionally control for chronic conditions, household size, education, work situation, ability to make ends meet, frailty index and medical visits in past 12 months. Reference category: no caregiving. Instruments for IV regressions: informal care provision in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

4 Factors Shaping Caregiver Well-Being

To further explore the mechanisms and heterogeneity behind the observed effects, this section examines how the impact of informal caregiving on well-being varies with (i) the relationship between the caregiver and the care recipient and (ii) changes in caregiving status over time. As before, we present results under the parsimonious specification including only predetermined covariates and then the richer specification that adds the full set of socio-economic and health controls.

4.1 Relationship with the Care Recipient

We re-estimate the model using a relationship-specific definition of caregiving. We replace $CG_{i,t}$ with four indicators for providing care inside the household for a spouse or partner, a parent, another relative, or another person:

$$CG^r_{i,t} = \begin{cases} 1 & \text{if respondent } i \text{ provides care inside the household to a } r \text{ at } t, \\ 0 & \text{otherwise,} \end{cases} \tag{4}$$

where $r \in \{\text{spouse}, \text{parent}, \text{otherrel}, \text{otherper}\}$.

We therefore assess whether the impact (and the magnitude) of caregiving on well-being depends on the nature of the relationship with the care recipient. Using the relationship-specific indicators defined in equation (4), we re-estimate the baseline model in equation (1) separately for each indicator. For the IV estimations in equations (5) and (6), we instrument caregiving for each caregiver-care recipient relationship with its own lagged values.

$$CG^r_{i,t} = \gamma^r_1 \ln Y_{i,t-1} + \gamma^r_2 CG^r_{i,t-1} + \gamma^r_3 CG^r_{i,t-2} + \Gamma^r X_{i,t} + \pi_c + \pi_t + \eta^r_{i,t}, \tag{5}$$

$$\ln Y_{i,t} = \lambda^r_1 \ln Y_{i,t-1} + \lambda^r_2 \widehat{CG}^r_{i,t} + \Lambda^r X_{i,t} + \pi_c + \pi_t + \sigma^r_{i,t}. \tag{6}$$

The intuition is similar to equation (3) of the baseline IV-regression. Conditional on lagged well-being and controls, a history of providing care to a given type of recipient is expected to be highly predictive of current caregiving to that same type (relevance), while its remaining direct impact on current well-being is less likely once current caregiving, lagged well-being and relevant covariates are accounted for.

Table 4 reports baseline estimates by relationship, comparing OLS and IV specifications. In the OLS columns, caregiving is most strongly associated with worse well-being when the recipient is a spouse/partner: the coefficient of 0.18 corresponds to approximately a 19.7% increase in depressive symptoms, and the coefficient of -0.04 implies about a 3.9% lower quality of life. Care for a parent is associated with a smaller but statistically significant deterioration (+6.2% depressive symptoms; –1.0% quality of life). Care for a non-relative is also negatively associated with well-being (+10.5% depressive symptoms; –3.0% quality of life), while care for another relative is not robustly associated with either outcome (coefficients close to zero and statistically insignificant).

Table 4: Effect of informal care on well-being by relationship (Baseline controls): OLS vs IV

	Spouse/partner		**Parent**		**Other relative**		**Other person**	
	OLS	**IV**	**OLS**	**IV**	**OLS**	**IV**	**OLS**	**IV**
				Panel A. Depressive symptoms				
Care inside household (Yes)	0.18***	0.26***	0.06***	0.06	0.00	0.09	0.10**	-0.29
	(0.01)	(0.03)	(0.02)	(0.09)	(0.02)	(0.14)	(0.04)	(0.65)
Lagged dependent variable	0.44***	0.45***	0.45***	0.46***	0.45***	0.46***	0.45***	0.46***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Diagnostics								
Hansen J test (p-value)		0.03		0.01		0.86		0.67
Number of observations	151,099	81,317	151,099	81,317	151,099	81,317	151,099	81,317
R-squared	0.27	0.27	0.26	0.27	0.26	0.27	0.26	0.27
				Panel B. Quality of life				
Care inside household (Yes)	-0.04***	-0.07***	-0.01*	-0.02	0.01	0.07**	-0.03***	0.17
	(0.00)	(0.01)	(0.00)	(0.02)	(0.01)	(0.03)	(0.01)	(0.19)
Lagged dependent variable	0.56***	0.57***	0.56***	0.58***	0.56***	0.58***	0.56***	0.58***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Diagnostics								
Hansen J test (p-value)		0.02		0.02		0.18		0.97
Number of observations	140,466	78,643	140,466	78,643	140,466	78,643	140,466	78,643
R-squared	0.44	0.46	0.43	0.46	0.43	0.46	0.43	0.46

Notes: Controls included: lagged dependent variable, sex, marital status, age group; country and wave fixed effects. IV instruments: lagged care to the same recipient in $t-1$ and $t-2$. Clustered standard errors at the individual level in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Turning to the IV estimation, the first-stage diagnostics (presented in Table A8 in the Appendix) indicate strong instruments for spouse/partner, parent, and other-relative caregiving (F-statistics between 32-779), but weak instruments for "other person" (F-statistics around 2). The second-stage

estimations show that the IV estimates point to the strong adverse effect for spousal caregiving: instrumenting care to a spouse/partner yields larger effects (+29.7% depressive symptoms; –6.8% quality of life). For parental caregiving, the IV estimates remain small and statistically insignificant (0.06 for depressive symptoms; - 0.02 for quality of life). For other relatives, the IV point estimate is only significant for quality of life and is (surprisingly) positive (0.07).[17] One possible explanation may be that, because relatives are not among the closest family members, caregiving in this case may be more strongly driven by intrinsic motivation, with caregivers deriving satisfaction from providing help. Finally, the coefficients on lagged well-being are large and highly significant across all columns (about 0.44–0.46 for depressive symptoms and 0.56–0.58 for quality of life), indicating strong persistence in well-being over time.

Table 5: Effect of informal care on well-being by relationship (Extended controls): OLS vs IV

	Spouse/partner		**Parent**		**Other relative**		**Other person**	
	OLS	**IV**	**OLS**	**IV**	**OLS**	**IV**	**OLS**	**IV**
				Panel A. Depressive symptoms				
Care inside household (Yes)	0.14***	0.14***	0.10***	0.08	0.05	-0.05	0.03	-0.17
	(0.01)	(0.03)	(0.02)	(0.08)	(0.03)	(0.16)	(0.05)	(0.84)
Lagged dependent variable	0.31***	0.32***	0.31***	0.32***	0.31***	0.32***	0.31***	0.32***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Diagnostics								
Hansen J test (p-value)		0.62		0.04		0.77		0.27
Number of observations	70,290	40,399	70,290	40,399	70,290	40,399	70,290	40,399
R-squared	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
				Panel B. Quality of life				
Care inside household (Yes)	-0.03***	-0.06***	-0.01**	-0.05**	-0.01	0.05	-0.01	0.04
	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.04)	(0.01)	(0.15)
Lagged dependent variable	0.44***	0.46***	0.44***	0.47***	0.44***	0.47***	0.44***	0.47***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Diagnostics								
Hansen J test (p-value)		0.85		0.13		0.10		0.51
Number of observations	65,000	39,108	65,000	39,108	65,000	39,108	65,000	39,108
R-squared	0.51	0.52	0.51	0.52	0.51	0.52	0.51	0.52

Notes: Extended controls included: lagged dependent variable, sex, marital status, age group, chronic conditions, household size, education, work situation, ability to make ends meet, frailty index, and medical visits in the past 12 months. Country and wave fixed effects included. IV instruments: lagged care to the same recipient in $t-1$ and $t-2$. Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

[17] Overidentification tests also raise concerns for spouse/partner and parent caregiving in the IV specifications (Hansen J p-values around 0.02), whereas they are comfortably high for other relatives and other persons.

Table 5 re-estimates the relationship-specific models with the extensive set of controls (health, household composition, socioeconomic status, and healthcare use), which should absorb part of the confounding factors related to both care needs and caregivers' baseline vulnerability.[18] Like for the regressions with the restricted set of controls, first-stage diagnostics indicate strong instruments for spouses and parents (F-statistics $\approx$ 86–496), moderate for other relatives, and weak instruments for non-relatives (F $\approx$ 1), so the latter IV results should be interpreted cautiously. The second-stage estimates show that the qualitative ranking remains unchanged: spousal caregiving is most detrimental. In OLS, caring for a spouse/partner is associated with higher depressive symptoms (with a coefficient of 0.14) and lower quality of life (coefficient of -0.03). The IV estimates suggest sizable effects for spousal caregiving (coefficient of 0.14 for depressive symptoms and of -0.06 for quality of life). For parental caregiving, IV estimates suggest a significant decline in quality of life (coefficient of -0.05) but no statistically significant effect on depressive symptoms. Estimates for other relatives and other persons are imprecise and not robust.

To sum up, both OLS and IV estimates consistently indicate sizable depression and quality-of-life costs of caring for a spouse or partner, more modest and less robust effects for parental caregiving, and little evidence of systematic adverse impacts when care is provided to more distant recipients.

4.2 Change in the Caregiving Situation

We next examine how changes in caregiving status affect caregiver well-being over time, exploiting the longitudinal structure of SHARE. Rather than conditioning only on caregiving at a given wave, we distinguish transitions into caregiving, transitions out of caregiving, and continued caregiving between consecutive waves. This framework leverages within-individual variation in caregiving histories to separate the immediate impact of entry into care, the cumulative burden of sustained caregiving, and any recovery—if it occurs—after caregiving ends.

To this purpose, we run three distinct regressions where the main explanatory variable is suc-

[18] Complete results—including coefficients for all control variables for both OLS and IV specifications, together with the corresponding first-stage results for the IV models—are presented in Tables A7–A9 in the Appendix.

cessively an indicator variable $CG^{\mathrm{r}}_{i,t}$ with $r = \{\text{start}, \text{stop}, \text{cont}\}$, and defined as follows

$$CG^{\text{start}}_{i,t} = 1, \quad \text{if } CG_{i,t-1} = 0 \text{ and } CG_{i,t} = 1,$$
$$CG^{\text{stop}}_{i,t} = 1, \quad \text{if } CG_{i,t-1} = 1 \text{ and } CG_{i,t} = 0,$$
$$CG^{\text{cont}}_{i,t} = 1, \quad \text{if } CG_{i,t-1} = 1 \text{ and } CG_{i,t} = 1,$$

Across all three successive specifications, the reference group is composed of the individuals who are non-caregivers in two consecutive waves (i.e., $CG_{i,t-1} = 0$ and $CG_{i,t} = 0$). This ensures that each coefficient compares a given transition to a stable non-caregiving trajectory over the same interval.

We re-estimate the baseline equation (1) separately for each of the above indicators. We further re-estimate the IV specification where the first and second stages are now written as follows:

$$CG^{\mathrm{r}}_{i,t} = \tilde{\gamma}_1 \ln Y_{i,t-1} + \tilde{\gamma}_2 CG_{i,t-2} + \tilde{\gamma}_3 CG_{i,t-3} + \tilde{\Gamma} X_{i,t} + \pi_c + \pi_t + \tilde{\eta}_{i,t}, \tag{7}$$

$$\ln Y_{i,t} = \tilde{\lambda}_1 \ln Y_{i,t-1} + \tilde{\lambda}_2 \widehat{CG^{\mathrm{r}}}_{i,t} + \tilde{\Lambda} X_{i,t} + \pi_c + \pi_t + \tilde{\sigma}_{i,t}. \tag{8}$$

Here, all transition variables (eq. 7) are instrumented by $CG_{i,t-2}$ and $CG_{i,t-3}$, which capture previous caregiving histories that are predictive of entering, exiting, or continuing care between $t-1$ and t. Identification relies on the assumption that, conditional on lagged well-being and covariates, caregiving lags affect current well-being only through the caregiving transition. Using more distant lags helps mitigate concerns that caregiving history may directly affect current well-being and reduces the risk that the instruments capture short-run effects of caregiving. While this does not fully eliminate concerns about persistent effects, it makes the exclusion restriction more plausible than relying on immediately lagged caregiving alone. Our instruments generally pass standard relevance and overidentification tests and offer a credible identification strategy in this context.

Tables 6 and 7 jointly compare OLS and IV estimates of the relationship between caregiving transitions (starting, stopping, and continuing care between two consecutive waves) and caregivers' well-being. In the baseline specification (Table 6), the OLS estimates indicate that caregiving transitions are systematically associated with worse well-being. Starting caregiving is associated

with a statistically significant increase in depressive symptoms of about 18.5% (0.17) and a reduction in quality of life of around 3.9% (-0.04). Continuing caregiving also shows sizable and significant associations, with depressive symptoms higher by about 15.0% (0.14) and quality of life lower by roughly 3.0% (-0.03) in comparison to not giving care. Stopping caregiving is linked to a smaller but statistically significant deterioration of well-being (0.04 for depressive symptoms and -0.01 for quality of life), consistent with lingering emotional strain or the fact that caregiving often ends after adverse circumstances (e.g., worsening health, institutionalization, or death of the care recipient).

The IV estimates in Table 6 are substantially larger than the OLS estimates for all three transition indicators. This pattern is consistent with OLS understating the effect of caregiving transitions on well-being, for example because reverse causality or time-varying unobserved factors bias OLS estimates toward zero. Under the identifying assumptions, the 2SLS coefficients can be interpreted as local average treatment effects for individuals whose caregiving transitions are influenced by lagged caregiving. Starting caregiving is associated with the most important deterioration in well-being, but both stopping and continuing caregiving are also associated with sizeable and statistically significant adverse effects.[19]

Table 6: Effect of changes in informal caregiving situation on well-being in Europe: OLS vs IV (baseline specification)

	Started caregiving				**Stopped caregiving**				**Continued caregiving**			
	Depressive symptoms		Quality of life		Depressive symptoms		Quality of life		Depressive symptoms		Quality of life	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Caregiving situation between two waves												
Yes	0.17***	0.94***	-0.04***	-0.15***	0.04***	0.43***	-0.01***	-0.07***	0.14***	0.42***	-0.03***	-0.08***
	(0.01)	(0.17)	(0.00)	(0.04)	(0.01)	(0.08)	(0.00)	(0.02)	(0.01)	(0.07)	(0.00)	(0.02)
Lagged dependent variable												
Coefficient	0.44***	0.45***	0.55***	0.58***	0.44***	0.46***	0.55***	0.59***	0.44***	0.46***	0.56***	0.59***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Number of observations	142,484	38,539	132,499	37,347	140,636	38,055	130,808	36,898	137,924	37,389	128,287	36,246
R-squared	0.26	0.22	0.43	0.45	0.26	0.27	0.43	0.46	0.26	0.28	0.44	0.47
Hansen J test (p-value)		0.66		0.36		0.49		0.37		0.80		0.59

Notes: Authors' calculations. Baseline specification controls for lagged dependent variable, sex, marital status and age group. Country and wave fixed effects are included. Reference category: no caregiving during two consecutive waves. Clustered standard errors at the individual level in parentheses. IV instruments: informal care provision in $t-2$ and $t-3$.
Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table 7 includes the full set of socio-economic and health controls and, as expected, relies on a smaller sample. Under OLS, the qualitative message remains unchanged: starting and continuing caregiving remain strongly and significantly associated with worse well-being (coefficient values of

[19]The first-stage F-statistics are comfortably above 10 for all transition indicators (see Table A11 in the Appendix), and Hansen J-test p-values remain well above conventional thresholds, supporting instrument relevance and not rejecting the overidentifying restrictions in this parsimonious setting.

0.13 and -0.03 for starting; and of 0.13 and -0.04 for continuing), while the estimates for stopping caregiving become small and statistically non significant. This pattern suggests that the onset and persistence of caregiving are robustly correlated with declines in mental health and quality of life, whereas ceasing caregiving does not translate into an immediate recovery relative to non-caregivers once a richer set of controls is included.[20]

The IV estimates with extended controls are smaller than in the baseline IV specification but remain economically meaningful for starting and, especially, continuing caregiving.[21] Starting caregiving is associated with a sizeable increase in depressive symptoms (0.44) while the quality of life effect (-0.03) is no longer statistically significant. Continuing caregiving remains robustly associated with worse outcomes (0.22 for depressive symptoms and -0.04 for quality of life). By contrast, stopping caregiving is not statistically distinguishable from zero.

Overall, these results underline that the costs of informal caregiving for older adults are particularly pronounced when caregiving is regular, sustained over time, and directed towards close family members, such as spouses or partners. Moreover, ceasing caregiving is still associated with poorer well-being relative to non-caregivers in the baseline specification, while it shows not statistically significant difference when extended controls are included —consistent with lingering psychological costs after caregiving ends.

Table 7: Effect of changes in informal caregiving situation on well-being in Europe: OLS vs IV (extended controls)

	Started caregiving				**Stopped caregiving**				**Continued caregiving**			
	Depressive symptoms		Quality of life		Depressive symptoms		Quality of life		Depressive symptoms		Quality of life	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Caregiving situation between two waves												
Yes	0.13***	0.44**	-0.03***	-0.03	-0.01	0.12	-0.00	-0.02	0.13***	0.22***	-0.04***	-0.04**
	(0.01)	(0.19)	(0.00)	(0.04)	(0.01)	(0.10)	(0.00)	(0.02)	(0.01)	(0.07)	(0.00)	(0.02)
Lagged dependent variable												
Coefficient	0.31***	0.33***	0.44***	0.48***	0.31***	0.33***	0.44***	0.47***	0.31***	0.33***	0.44***	0.49***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Number of observations	66,237	18,760	61,276	18,235	65,300	18,468	60,400	17,959	64,208	18,233	59,395	17,723
R-squared	0.43	0.42	0.51	0.52	0.43	0.43	0.51	0.52	0.43	0.43	0.51	0.53
Hansen J test (p-value)		0.74		0.46		0.83		0.62		0.62		0.93

Notes: Authors' calculations. Extended-controls specification additionally controls for chronic conditions, household size, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Country and wave fixed effects are included. Reference category: no caregiving during two consecutive waves. Clustered standard errors at the individual level in parentheses. IV instruments: informal care provision in $t-2$ and $t-3$. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

[20] Tables A10–A12 in the Appendix present the OLS and IV estimation results including the coefficients for all control variables.

[21] Instrument strength remains adequate (first-stage F-statistics remain above standard thresholds), and Hansen J-tests do not reject the overidentifying restrictions.

5 Robustness Checks

In this section, we assess the robustness of our findings to alternative samples, outcomes and model specifications.[22]

Regions. First, we verify that the negative association between informal caregiving and well-being is not driven by any specific region of Europe. Table A13 replicates the baseline OLS and IV specifications of Table 3 separately for Northern, Western, Southern, and Eastern Europe (according to the classification of Table A1). In the OLS models, providing care inside the household is associated with an increase in depressive symptoms of roughly 15–25% across regions, with the smallest penalties in Western and Eastern Europe (around 15%) and the largest in Southern Europe (around 25%). In the IV specifications, the corresponding increases range between about 22% and 32%, with larger effects this time in Northern Europe. Quality of life declines by roughly 3–5% in the OLS models and by up to around 9% in the IV models, depending on the region, with the steepest declines in Southern Europe. Region-specific estimates closely match those from the pooled sample, suggesting that caregiving is associated with depressive and quality-of-life penalties across Europe, with only moderate variation in magnitude.

Life satisfaction. Table A14 extends the analysis to an alternative well-being indicator, e.g., life satisfaction. In the pooled OLS regressions, caregiving inside the household is associated with a reduction in life satisfaction of around 5%. The IV estimates point to somewhat larger penalties, with life satisfaction being about 8% lower for caregivers than for non-caregivers, depending on the specification. This additional outcome therefore provides further evidence that informal caregiving is systematically associated with lower subjective well-being among older adults.

Gender. We also examine whether the main results differ by gender. Table A15 reports separate estimates for men and women, under our baseline specification. In the OLS models, caregiving is associated with higher depressive symptoms (about 16-19%) and lower quality of life (around 4%) for both genders. While the IV estimates do not exhibit many differences across gender for the

[22] Tables A13 to A17 report the coefficients of interest of OLS and IV estimations under the restricted set of controls. The Online Appendix reports the coefficient values for these covariates as well as the first-stage results of the IV estimations.

quality of life outcome, they suggest that caregiving has a higher impact on depressive symptoms for men (about 33.6%) than for women (close to 20%). First-stage F-statistics are large for both genders, and Hansen tests generally do not reject instrument validity.

Sample composition. Table A16 re-estimates the models on a balanced panel, restricting the sample to individuals observed in *all* available waves. As expected, this restriction substantially reduces the number of observations and lowers precision, so some coefficients lose statistical significance. Nonetheless, the point estimates remain in line with the baseline results. In the OLS specifications, caregiving is associated with higher depressive symptoms (about 17.4%) and lower quality of life (around 3%). In the specification with the restricted set of controls, the IV estimates are statistically significant and of similar magnitude, implying increases in depressive symptoms of roughly 20% and a reduction in quality of life of about 6%.[23] Overall, restricting the analysis to a balanced panel does not qualitatively alter the conclusion that providing intensive care inside the household is associated with worse mental health and lower quality of life.

Spouse and Parental health. To ensure that the estimated caregiving penalties do not proxy for the direct effects of care recipients' poor health or dependency on caregivers' well-being, we re-estimate the models controlling for recipients' health. As these measures are consistently available only for spouses/partners as well as for parents, the analysis is restricted to relationship-specific subsamples. This test assesses whether the baseline estimates are driven by contemporaneous family health shocks rather than caregiving itself.

We first restrict the sample to respondents with a spouse or partner and include an additional covariate indicating whether the spouse/partner is in fair or poor health. This specification allows us to assess whether well-being remains associated with caregiving even after accounting for the spouse's health status, thereby isolating the effect of caregiving per se from that of the care recipient's underlying health condition. Table A17 shows that spousal poor health is a strong correlate of respondent well-being: it is associated with higher depressive symptoms (about 13.9% in OLS and 12.7% in IV estimations) and lower quality of life (roughly 3.0%). Crucially, including

[23] Diagnostics support the instruments' strength: the first-stage F-statistics are approximately 52–56, exceeding typical weak-instrument benchmarks, and Hansen J-tests provide little evidence against the overidentifying restrictions, with quality of life sitting near the margin.

this covariate leaves the estimated caregiving penalty still significant and substantial. Under the OLS specification, caregiving for a spouse/partner (vs. providing no care or caring for someone else) within the household is associated with approximately 15.0% higher depressive symptoms and about a 3.0% reduction in quality of life, even after controlling for the spouse's health. In the IV models, caregiving for a spouse/partner continues to predict a statistically significant increase in depressive symptoms (about 13.9%) and a significant decline in quality of life (around 4.9%).

In the Online Appendix (see Tables OA17 and OA18), we conduct a similar analysis restricting the sample to respondents with at least one living parent and control for parental health by adding an indicator for having at least one parent in fair or poor health.[24] Results show that, consistent with family spillovers, parental poor health is strongly associated with lower respondent well-being. Importantly, the coefficients associated with caregiving remain significant but their magnitude is now smaller than in our baseline estimations.

In sum, an important threat to identification is that lagged caregiving may proxy for persistent family health shocks that directly worsen respondents' well-being. Reassuringly, when we restrict the sample to respondents with a spouse/partner or with living parents and explicitly control for the care recipient's health, the caregiving coefficients remain significant and substantial. The robustness tests suggest that our baseline IV estimates are not simply capturing omitted variation in care recipients' health status.

6 Conclusion

This paper provides consistent causal evidence of the impact of informal caregiving on the well-being of older adults in Europe, using SHARE data and an IV strategy that exploits the persistence of caregiving over time. We find that intensive informal caregiving increases depressive symptoms and lowers quality of life; these effects remain sizable even after controlling for lagged well-being and a broad set of potential confounders, with quality-of-life effects consistently significant and depressive-symptoms effects generally negative and often significant across specifications. Complementary analyses based on life satisfaction suggest that these patterns extend to a wider range of subjective well-being outcomes.

[24] Since caregiving mostly happens under bad health, it is very likely that the care recipient is effectively in bad health.

Three key empirical insights emerge from our analysis. First, the intensity and closeness of the caregiving relationship matter. Caring for a spouse or partner entails the largest psychological costs, with depressive symptoms rising by around 30% and quality of life declining by close to 7%, whereas caregiving for parents and more distant relatives is less detrimental or even statistically non significant. Second, the dynamics of caregiving suggest slow recovery rather than purely transitory distress: starting and continuing caregiving are associated with substantial declines in well-being, and stopping caregiving does not appear to restore well-being immediately, indicating that the burden of care is not merely short-term and may have lasting consequences. Third, these patterns are robust across European regions and hold for both men and women, across alternative samples, outcome definitions, and model specifications. Overall, the negative impact of informal caregiving on the well-being of older Europeans appears to be a pervasive feature of the data rather than the result of a particular modeling choice.

While our analysis offers valuable insights, certain limitations remain. First, we do not observe detailed caregiving intensity (e.g., hours of care per week). Nevertheless, our main caregiving measure captures daily or almost daily personal care provided over at least three months, which corresponds to a meaningful and sustained commitment likely to affect well-being. Second, information on care recipients' health is limited. We can control for parental and spouse/partner health—which account for the bulk of co-resident care relationships—but we lack comparable measures for other recipient types and for the severity and timing of health shocks. As a result, residual confounding related to care-recipient health cannot be fully ruled out, although our robustness checks incorporating parental and spousal health suggest that the caregiving penalty is not mechanically driven by these observed family health shocks.

Despite these limitations, our findings underscore the need for policies that explicitly recognize and address the mental-health and quality-of-life burden borne by informal caregivers. Our evidence points to larger well-being losses among spousal caregivers, especially during caregiving entry and sustained caregiving spells. As the European population ages and the reliance on informal care grows, supporting caregivers through respite services, accessible mental-health support, and stronger coordination with formal LTC providers is essential. This is particularly important because caregiving and its health consequences may affect labor force participation not only during the caregiving spell but also after it ends, thereby generating lasting economic and social costs (Bauer

& Sousa-Poza, 2015; Michaud et al., 2010; Simard-Duplain, 2022; Skira, 2015). In this context, more precisely identifying when and for whom the caregiving burden is most acute—particularly among spousal caregivers and during caregiving transitions—can help public authorities design better-targeted interventions to mitigate these costs and improve the well-being of older adults and their families.

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Appendix

Table A1: Countries included in the sample and classification by region

Full sample	**Northern region**	**Western region**	**Southern region**	**Eastern region**
Austria	Denmark	Austria	Croatia	Bulgaria
Belgium	Sweden	Belgium	Italy	Czech Republic
Bulgaria	Finland	France	Greece	Estonia
Croatia		Germany	Spain	Hungary
Cyprus		Luxembourg	Cyprus	Latvia
Czech Republic		Netherlands	Malta	Lithuania
Denmark		Switzerland	Portugal	Poland
Estonia				Romania
Finland				Slovakia
France				Slovenia
Germany				
Greece				
Hungary				
Italy				
Latvia				
Lithuania				
Luxembourg				
Malta				
Netherlands				
Poland				
Portugal				
Romania				
Slovakia				
Slovenia				
Spain				
Sweden				
Switzerland				

Table A2: Descriptive statistics by caregiving status – By Region

	Northern		Western		Southern		Eastern	
	No care	Care	No care	Care	No care	Care	No care	Care
Care provision (%)	96.2	3.8	93.8	6.2	93.5	6.5	94.1	5.9
Depressive symptoms								
Mean of EURO-D scale	1.8	2.7	2.2	3.0	2.4	3.6	2.6	3.3
Top 10 distribution (%)	9.1	5.7	7.8	8.2	7.8	5.7	8.1	8.0
Top 50 distribution (%)	47.9	46.8	37.2	36.9	38.5	46.0	42.1	41.1
Quality of life								
Mean of CASP-12 scale	40.3	38.3	39.3	37.0	35.6	33.0	36.3	34.6
Top 10 distribution (%)	6.1	6.1	6.2	9.1	9.9	9.4	6.7	8.0
Top 50 distribution (%)	45.6	48.6	47.5	44.8	46.8	47.3	44.8	46.1
Sex (%)								
Women	46.8	54.1	48.1	55.0	49.2	56.0	50.7	56.7
Men	53.2	45.9	51.9	45.0	50.8	44.0	49.3	43.3
Age group (%)								
50-64	55.9	34.9	57.7	40.6	55.7	42.1	57.6	52.9
65-79	37.1	46.0	34.6	42.1	34.1	41.6	34.5	38.2
80+	6.9	19.1	7.8	17.3	10.2	16.2	7.9	9.0
Education (%)								
Advanced	39.6	33.2	29.7	23.1	10.1	8.1	11.8	11.0
Intermediate	36.7	35.8	46.8	45.1	20.9	17.4	56.5	54.1
Low	23.7	30.9	23.5	31.8	68.9	74.5	31.7	34.9
Work situation (%)								
Working	47.4	26.4	36.8	20.8	29.4	18.3	28.8	21.4
Not working	52.6	73.6	63.2	79.2	70.6	81.7	71.2	78.6
Marital status (%)								
Has a spouse/partner	87.9	92.1	87.9	90.2	86.1	86.7	79.8	81.4
Doesn't have a spouse/partner	12.1	7.9	12.1	9.8	13.9	13.3	20.2	18.6
Making ends meet (%)								
Without difficulty	89.3	85.0	78.1	74.7	45.2	42.5	40.8	38.7
With difficulty	10.7	15.0	21.9	25.3	54.8	57.5	59.2	61.3
Household size (%)								
2	83.0	91.0	76.2	81.3	53.8	59.9	60.3	65.2
3-4	15.5	8.7	21.1	17.2	40.9	35.0	28.8	26.3
5+	1.5	0.3	2.7	1.5	5.3	5.1	10.8	8.5
Chronic conditions (%)								
No	30.3	19.8	25.7	15.3	26.8	17.3	24.8	17.5
Yes	69.7	80.2	74.3	84.7	73.2	82.7	75.2	82.5
Frailty index (%)								
Robust	58.6	40.9	57.0	41.1	44.2	33.9	47.9	39.5
Pre-frail	37.7	50.0	37.4	46.3	45.2	47.6	42.0	47.1
Frail	3.7	9.1	5.6	12.6	10.6	18.5	10.2	13.4
Medical visits in past 12 months (%)								
None	17.9	14.0	7.8	5.8	12.5	9.6	16.3	12.9
1-6 visits	66.2	66.5	59.8	54.8	56.4	51.6	50.7	48.1
7-12 visits	10.7	11.8	20.5	23.7	18.0	19.6	21.4	24.4
13+ visits	5.3	7.6	12.0	15.7	13.2	19.2	11.6	14.5
Relationship with care recipient (%)								
Spouse or partner		91.8		82.5		67.5		65.4
Parent		3.2		9.2		19.3		24.1
Another relative		2.4		5.5		10.4		8.7
Another person		2.6		2.8		2.7		1.9

Notes: Authors' calculations. Weighted data with the survey's calibrated individual cross-sectional weights.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A3: Relationship between informal care provision and well-being in Europe (detailed OLS estimates)

	Depressive symptoms		Quality of life	
	Baseline	**Extended**	**Baseline**	**Extended**
Care inside household				
Yes	0.16***	0.13***	-0.04***	-0.03***
	(0.01)	(0.01)	(0.00)	(0.00)
Lagged dependent variable				
Coefficient	0.44***	0.31***	0.56***	0.44***
	(0.00)	(0.00)	(0.00)	(0.00)
Sex				
Woman	0.13***	0.11***	-0.01***	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Marital status				
Does not have a spouse/partner	0.06***	0.03***	-0.02***	-0.01***
	(0.01)	(0.01)	(0.00)	(0.00)
Age group				
65–79	0.05***	-0.02***	-0.02***	-0.00
	(0.00)	(0.01)	(0.00)	(0.00)
80+	0.20***	-0.06***	-0.06***	-0.01***
	(0.01)	(0.01)	(0.00)	(0.00)
Household size				
3–4		0.01***		-0.00***
		(0.01)		(0.00)
5+		-0.01		-0.00
		(0.01)		(0.00)
Chronic conditions				
Yes		0.07***		-0.02***
		(0.01)		(0.00)
Education				
Intermediate		-0.01***		0.00
		(0.01)		(0.00)
Low		-0.02***		-0.00***
		(0.01)		(0.00)
Work situation				
Not working		-0.00		-0.00***
		(0.01)		(0.00)
Ability to make ends meet				
With difficulty		0.07***		-0.06***
		(0.01)		(0.00)
Frailty index				
Pre-frail		0.45***		-0.05***
		(0.00)		(0.00)
Frail		0.77***		-0.13***
		(0.01)		(0.00)
Medical visits in past 12 months				
1–6 visits		0.02***		-0.01***
		(0.01)		(0.00)
7–12 visits		0.08***		-0.02***
		(0.01)		(0.00)
13+ visits		0.13***		-0.03***
		(0.01)		(0.00)
Constant	0.34***	0.22***	1.65***	2.11***
	(0.01)	(0.01)	(0.01)	(0.02)
Number of observations	151,102	70,291	140,468	65,001
R-squared	0.27	0.43	0.44	0.51

Notes: Authors' calculations. Country and wave fixed effects are included. Baseline models control for lagged dependent variable, sex, marital status and age group. Extended models additionally control for household size, chronic conditions, education, work situation, ability to make ends meet, frailty index, and number of medical visits in the past 12 months. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A4: Effect of informal care on well-being in Europe (detailed IV estimates)

	Full sample	
	Depressive symptoms	Quality of life
	First-stage	
Care in t-1		
Coefficient	0.25***	0.25***
	(0.01)	(0.01)
Care in t-2		
Coefficient	0.13***	0.13***
	(0.01)	(0.01)
Lagged dependent variable		
Coefficient	0.01***	-0.06***
	(0.00)	(0.01)
Sex		
Woman	0.02***	0.02***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	-0.03***	-0.03***
	(0.00)	(0.00)
Age group		
65-79	0.02***	0.02***
	(0.00)	(0.00)
80+	0.05***	0.05***
	(0.00)	(0.00)
Constant	0.03***	0.25***
	(0.01)	(0.02)
Number of observations	81,321	78,647
F-statistic	889.62	865.22
	Second-stage	
Care inside household		
Yes	0.22***	-0.06***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.45***	0.58***
	(0.00)	(0.00)
Sex		
Woman	0.12***	-0.00***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.06***	-0.02***
	(0.01)	(0.00)
Age group		
65-79	0.05***	-0.01***
	(0.00)	(0.00)
80+	0.19***	-0.05***
	(0.01)	(0.00)
Constant	0.39***	1.57***
	(0.01)	(0.02)
Number of observations	81,321	78,647
R-squared	0.27	0.46
Hansen J test (p-value)	0.41	0.54

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equals 1 if the respondent provides informal care inside the household in time t (0 otherwise). Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A5: Relationship between lagged and current informal care provision in Europe (first-stage IV estimates with additional covariates)

	Full sample	
	Depressive symptoms	**Quality of life**
Care in t-1		
Yes	0.28***	0.28***
	(0.01)	(0.01)
Care in t-2		
Yes	0.14***	0.14***
	(0.01)	(0.01)
Lagged dependent variable		
Coefficient	0.01***	-0.03***
	(0.00)	(0.01)
Sex		
Woman	0.02***	0.02***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	-0.03***	-0.03***
	(0.00)	(0.00)
Age group		
65-79	0.02***	0.02***
	(0.00)	(0.00)
80+	0.05***	0.05***
	(0.01)	(0.01)
Household size		
3-4	0.01*	0.01**
	(0.00)	(0.00)
5+	0.00	0.00
	(0.01)	(0.01)
Chronic conditions		
Yes	0.01**	0.01***
	(0.00)	(0.00)
Education		
Intermediate	0.01*	0.00
	(0.00)	(0.00)
Low	0.01***	0.01***
	(0.00)	(0.00)
Work situation		
Not working	0.00	0.00
	(0.00)	(0.00)
Making ends meet		
With difficulty	0.01***	0.01**
	(0.00)	(0.00)
Medical visits		
1-6 visits	-0.01**	-0.01**
	(0.00)	(0.00)
7-12 visits	-0.02***	-0.02***
	(0.01)	(0.01)
13+ visits	0.00	0.00
	(0.01)	(0.01)
Frailty index		
Pre-frail	0.02***	0.02***
	(0.00)	(0.00)
Frail	0.02***	0.01**
	(0.01)	(0.01)
Constant	0.03***	0.16***
	(0.01)	(0.04)
Number of observations	40,400	39,109
F-statistic	575.55	554.23

Notes: Authors' calculations. The dependent variable is a binary indicator equals 1 if the respondent provides informal care inside the household in time t (0 otherwise). Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status, age group, household size, chronic conditions, education, work situation, ability to make ends meet, frailty index and medical visits in past 12 months. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A6: Effect of informal care on well-being in Europe (second-stage IV estimates with additional covariates)

	Full sample	
	Depressive symptoms	**Quality of life**
Care inside household		
Yes	0.12***	-0.05***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.32***	0.46***
	(0.00)	(0.01)
Sex		
Woman	0.11***	0.00
	(0.01)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.02***	-0.01***
	(0.01)	(0.00)
Age group		
65-79	-0.02***	0.00
	(0.01)	(0.00)
80+	-0.05***	-0.01***
	(0.01)	(0.00)
Household size		
3-4	0.01*	-0.00***
	(0.01)	(0.00)
5+	-0.02	-0.00
	(0.02)	(0.00)
Chronic conditions		
Yes	0.07***	-0.01***
	(0.01)	(0.00)
Education		
Intermediate	-0.02***	0.00
	(0.01)	(0.00)
Low	-0.02**	-0.01***
	(0.01)	(0.00)
Work situation		
Not working	-0.00	-0.01***
	(0.01)	(0.00)
Making ends meet		
With difficulty	0.06***	-0.05***
	(0.01)	(0.00)
Medical visits		
1-6 visits	0.03***	-0.01***
	(0.01)	(0.00)
7-12 visits	0.08***	-0.02***
	(0.01)	(0.00)
13+ visits	0.14***	-0.03***
	(0.01)	(0.00)
Frailty index		
Pre-frail	0.44***	-0.04***
	(0.01)	(0.00)
Frail	0.74***	-0.12***
	(0.01)	(0.00)
Constant	0.26***	2.04***
	(0.02)	(0.02)
Number of observations	40,400	39,109
R-squared	0.43	0.52
Hansen J test (p-value)	0.63	0.31

Notes: Authors' calculations. Country and wave fixed effects are included. Instruments: informal care provision in $t-1$ and $t-2$. Controls included: lagged dependent variable, sex, marital status, age group, household size, chronic conditions, education, work situation, ability to make ends meet, frailty index and medical visits in past 12 months. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A7: Relationship between informal care and well-being in Europe, conditional on relationship with the care recipient (detailed OLS estimates)

Panel A. Baseline specification

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household								
Yes	0.18***	-0.04***	0.06***	-0.01*	0.00	0.01	0.10**	-0.03***
	(0.01)	(0.00)	(0.02)	(0.00)	(0.02)	(0.01)	(0.04)	(0.01)
Lagged dependent variable								
Coefficient	0.44***	0.56***	0.45***	0.56***	0.45***	0.56***	0.45***	0.56***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex								
Woman	0.13***	-0.01***	0.13***	-0.01***	0.13***	-0.01***	0.13***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status								
Doesn't have a spouse/partner	0.06***	-0.02***	0.05***	-0.02***	0.05***	-0.02***	0.05***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group								
65–79	0.05***	-0.01***	0.06***	-0.02***	0.06***	-0.02***	0.06***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.20***	-0.06***	0.22***	-0.06***	0.22***	-0.06***	0.22***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.34***	1.65***	0.34***	1.63***	0.35***	1.63***	0.35***	1.63***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of observations	151,099	140,466	151,099	140,466	151,099	140,466	151,099	140,466
R-squared	0.27	0.44	0.26	0.43	0.26	0.43	0.26	0.43

Panel B. Additional covariates included

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household								
Yes	0.14***	-0.03***	0.10***	-0.01**	0.05	-0.01	0.03	-0.01
	(0.01)	(0.00)	(0.02)	(0.01)	(0.03)	(0.01)	(0.05)	(0.01)
Lagged dependent variable								
Coefficient	0.31***	0.44***	0.31***	0.44***	0.31***	0.44***	0.31***	0.44***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex								
Woman	0.11***	0.00	0.11***	-0.00	0.11***	-0.00	0.11***	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status								
Doesn't have a spouse/partner	0.03***	-0.01***	0.02***	-0.01***	0.02***	-0.01***	0.02***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group								
65–79	-0.03***	-0.00	-0.02***	-0.00*	-0.02***	-0.00	-0.02***	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	-0.06***	-0.01***	-0.05***	-0.02***	-0.05***	-0.02***	-0.05***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Household size								
3–4	0.02***	-0.00***	0.01***	-0.00***	0.01***	-0.00***	0.02***	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
5+	-0.00	-0.00	-0.01	-0.00	-0.01	-0.00	-0.01	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Chronic conditions								
Yes	0.07***	-0.02***	0.07***	-0.02***	0.07***	-0.02***	0.07***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Education								
Intermediate	-0.01***	0.00	-0.01**	0.00	-0.01**	0.00	-0.01**	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Low	-0.02***	-0.00***	-0.01**	-0.00***	-0.01**	-0.00***	-0.01**	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Work situation								
Not working	-0.00	-0.00***	-0.00	-0.00***	-0.00	-0.00***	-0.00	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Making ends meet								
With difficulty	0.07***	-0.06***	0.07***	-0.06***	0.07***	-0.06***	0.07***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frailty index								
Pre-frail	0.45***	-0.04***	0.45***	-0.05***	0.45***	-0.05***	0.45***	-0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Frail	0.77***	-0.13***	0.77***	-0.13***	0.77***	-0.13***	0.77***	-0.13***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Medical visits in past 12 months								
1–6 visits	0.02***	-0.01***	0.02***	-0.01***	0.02***	-0.01***	0.02***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
7–12 visits	0.08***	-0.02***	0.08***	-0.02***	0.08***	-0.02***	0.08***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
13+ visits	0.13***	-0.03***	0.13***	-0.03***	0.13***	-0.03***	0.13***	-0.03***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.22***	2.11***	0.22***	2.10***	0.22***	2.10***	0.22***	2.10***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Number of observations	70,290	65,000	70,290	65,000	70,290	65,000	70,290	65,000
R-squared	0.43	0.51	0.43	0.51	0.43	0.51	0.43	0.51

Notes: Authors' calculations. Panel A controls for lagged dependent variable, sex, marital status and age group. Panel B additionally controls for chronic conditions, household size, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Country and wave fixed effects are included in all models. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A8: Relationship between lagged and current informal care provision in Europe, conditional on relationship with care recipient (first-stage IV estimates)

Panel A. Baseline specification

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care in t-1								
Yes	0.27***	0.27***	0.26***	0.26***	0.19***	0.19***	0.07**	0.06*
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Care in t-2								
Yes	0.16***	0.16***	0.05***	0.05***	0.06***	0.06***	0.04	0.04
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)
Lagged dependent variable								
Coefficient	0.01***	-0.05***	-0.00	0.00	-0.00	0.00	0.00	-0.00
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex								
Woman	0.02***	0.02***	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)
Marital status								
Doesn't have a spouse/partner	-0.04***	-0.04***	0.01***	0.01***	0.01***	0.01***	0.00**	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age group								
65–79	0.02***	0.02***	-0.01***	-0.01***	-0.00***	-0.00***	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.06***	0.06***	-0.01***	-0.01***	-0.00***	-0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.03***	0.23***	0.01***	0.01	0.00***	-0.00	0.00	0.00
	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	81,317	78,643	81,317	78,643	81,317	78,643	81,317	78,643
First-stage F-statistic	804.39	779.90	114.70	111.96	34.34	32.33	2.66	2.11

Panel B. Additional covariates included

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care in t-1								
Yes	0.29***	0.29***	0.29***	0.29***	0.23***	0.22***	0.07	0.07
	(0.01)	(0.01)	(0.03)	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)
Care in t-2								
Yes	0.16***	0.16***	0.09***	0.09***	0.09***	0.09***	0.03	0.03
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Lagged dependent variable								
Coefficient	0.01***	-0.03***	-0.00	-0.01**	-0.00	0.00	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex								
Woman	0.02***	0.02***	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)
Marital status								
Doesn't have a spouse/partner	-0.05***	-0.05***	0.01***	0.01***	0.01***	0.01***	0.00**	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age group								
65–79	0.02***	0.02***	-0.01***	-0.01***	0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.06***	0.06***	-0.01***	-0.01***	-0.00	0.00	0.00*	0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Household size								
3–4	-0.01**	-0.01**	0.01***	0.01***	0.00***	0.00***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
5+	-0.01	-0.01	0.00	0.00	0.01**	0.01**	-0.00***	-0.00***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Chronic conditions								
Yes	0.01***	0.01***	-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)
Education								
Intermediate	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)	(0.00)	(0.00)
Low	0.01***	0.01**	-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)
Work situation								
Not working	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)	(0.00)	(0.00)
Making ends meet								
With difficulty	0.01***	0.01***	-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)
Frailty index								
Pre-frail	0.02***	0.02***	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)
Frail	0.02***	0.02***	-0.00**	-0.00***	-0.00	-0.00	0.00**	0.00***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Medical visits in past 12 months								
1–6 visits	-0.01**	-0.01**	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)
7–12 visits	-0.01***	-0.01***	-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)
13+ visits	0.00	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.02***	0.13***	0.00	0.03**	0.00	-0.01	-0.00	-0.00
	(0.01)	(0.04)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)
Number of observations	40,399	39,108	40,399	39,108	40,399	39,108	40,399	39,108
First-stage F-statistic	495.73	481.17	87.55	85.51	25.26	23.48	1.09	1.09

Notes: Authors' calculations. The dependent variable is a binary indicator equals 1 if the respondent provides informal care inside the household to the specified care recipient in time t (e.g., spouse/partner, parent, other relative or person), and 0 otherwise. Panel A includes controls for lagged dependent variable, sex, marital status and age group. Panel B additionally includes household size, chronic conditions, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A9: Effect of informal care and well-being in Europe, conditional on relationship with care recipient (second-stage IV estimates)

Panel A. Baseline specification

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household								
Yes	0.26***	-0.07***	0.06	-0.02	0.09	0.07**	-0.29	0.17
	(0.03)	(0.01)	(0.09)	(0.02)	(0.14)	(0.03)	(0.65)	(0.19)
Lagged dependent variable								
Coefficient	0.45***	0.57***	0.46***	0.58***	0.46***	0.58***	0.46***	0.58***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex								
Woman	0.12***	-0.00***	0.12***	-0.01***	0.12***	-0.01***	0.12***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status								
Doesn't have a spouse/partner	0.06***	-0.02***	0.05***	-0.01***	0.05***	-0.02***	0.05***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group								
65–79	0.05***	-0.01***	0.06***	-0.01***	0.06***	-0.01***	0.06***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.19***	-0.05***	0.21***	-0.06***	0.21***	-0.05***	0.21***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.40***	1.58***	0.40***	1.55***	0.40***	1.55***	0.40***	1.55***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Number of observations	81,317	78,643	81,317	78,643	81,317	78,643	81,317	78,643
R-squared	0.27	0.46	0.27	0.46	0.27	0.46	0.27	0.46
Hansen J test (p-value)	0.03	0.02	0.01	0.02	0.86	0.18	0.67	0.97

Panel B. Additional covariates included

	Spouse/partner		Parent		Other relative		Other person	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household								
Yes	0.14***	-0.06***	0.08	-0.05**	-0.05	0.05	-0.17	0.04
	(0.03)	(0.01)	(0.08)	(0.02)	(0.16)	(0.04)	(0.84)	(0.15)
Lagged dependent variable								
Coefficient	0.32***	0.46***	0.32***	0.47***	0.32***	0.47***	0.32***	0.47***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Sex								
Woman	0.11***	0.00	0.11***	0.00	0.11***	-0.00	0.11***	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Marital status								
Doesn't have a spouse/partner	0.03***	-0.01***	0.02**	-0.00**	0.02**	-0.01***	0.02**	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group								
65–79	-0.02***	0.00	-0.02**	-0.00	-0.02**	-0.00	-0.02**	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	-0.05***	-0.01***	-0.04***	-0.02***	-0.04***	-0.01***	-0.04***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Household size								
3–4	0.02**	-0.01***	0.01*	-0.00**	0.01**	-0.01***	0.01*	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
5+	-0.02	-0.00	-0.02	-0.00	-0.02	-0.00	-0.02	-0.00
	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)
Chronic conditions								
Yes	0.07***	-0.01***	0.07***	-0.01***	0.07***	-0.01***	0.07***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Education								
Intermediate	-0.02***	0.00	-0.02***	0.00	-0.02***	0.00	-0.02***	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Low	-0.02**	-0.01***	-0.01*	-0.01***	-0.01*	-0.01***	-0.01*	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Work situation								
Not working	-0.00	-0.01***	-0.00	-0.01***	-0.00	-0.01***	-0.00	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Making ends meet								
With difficulty	0.06***	-0.05***	0.07***	-0.06***	0.07***	-0.06***	0.07***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frailty index								
Pre-frail	0.44***	-0.04***	0.44***	-0.04***	0.44***	-0.04***	0.44***	-0.04***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frail	0.74***	-0.12***	0.75***	-0.12***	0.75***	-0.12***	0.75***	-0.12***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Medical visits in past 12 months								
1–6 visits	0.03***	-0.01***	0.02**	-0.01***	0.02**	-0.01***	0.02**	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
7–12 visits	0.08***	-0.02***	0.08***	-0.02***	0.08***	-0.02***	0.08***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
13+ visits	0.14***	-0.03***	0.14***	-0.03***	0.14***	-0.03***	0.14***	-0.03***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.26***	2.04***	0.26***	2.03***	0.26***	2.03***	0.26***	2.03***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Number of observations	40,399	39,108	40,399	39,108	40,399	39,108	40,399	39,108
R-squared	0.43	0.52	0.43	0.52	0.43	0.52	0.43	0.52
Hansen J test (p-value)	0.62	0.85	0.04	0.13	0.77	0.10	0.27	0.51

Notes: Authors' calculations. Panel A controls for lagged dependent variable, sex, marital status and age group. Panel B additionally controls for household size, chronic conditions, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Instruments: Informal care provision to the same recipient in $t-1$ and $t-2$. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A10: Relationship between changes in the informal caregiving situation and well-being in Europe (detailed OLS estimates)

Panel A. Baseline specification

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household						
Yes	0.17***	-0.04***	0.04***	-0.01***	0.14***	-0.03***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Lagged dependent variable						
Coefficient	0.44***	0.55***	0.44***	0.55***	0.44***	0.56***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex						
Woman	0.13***	-0.01***	0.12***	-0.01***	0.12***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status						
Does not have a spouse/partner	0.06***	-0.02***	0.06***	-0.02***	0.06***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group						
65–79	0.05***	-0.02***	0.05***	-0.01***	0.05***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.21***	-0.06***	0.21***	-0.06***	0.20***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.34***	1.66***	0.34***	1.66***	0.34***	1.65***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of observations	142,484	132,499	140,636	130,808	137,924	128,287
R-squared	0.26	0.43	0.26	0.43	0.26	0.44

Panel B. Additional covariates included

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care inside household						
Yes	0.13***	-0.03***	-0.01	-0.00	0.13***	-0.04***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Lagged dependent variable						
Coefficient	0.31***	0.44***	0.31***	0.44***	0.31***	0.44***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sex						
Woman	0.11***	-0.00	0.11***	0.00	0.11***	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status						
Does not have a spouse/partner	0.03***	-0.01***	0.03***	-0.01***	0.03***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group						
65–79	-0.03***	-0.00	-0.02***	-0.00	-0.02***	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	-0.06***	-0.01***	-0.06***	-0.01***	-0.06***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Household size						
3–4	0.02***	-0.00***	0.02***	-0.00***	0.02***	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
5+	-0.01	-0.00	-0.00	-0.01*	-0.01	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Chronic conditions						
Yes	0.07***	-0.01***	0.07***	-0.02***	0.07***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Education						
Intermediate	-0.01**	0.00	-0.01***	0.00	-0.01***	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Low	-0.02**	-0.00***	-0.02***	-0.00***	-0.02***	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Work situation						
Not working	-0.00	-0.00***	-0.01	-0.00***	-0.01	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Ability to make ends meet						
With difficulty	0.07***	-0.06***	0.07***	-0.06***	0.07***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frailty index						
Pre-frail	0.45***	-0.04***	0.45***	-0.05***	0.45***	-0.04***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Frail	0.77***	-0.12***	0.78***	-0.13***	0.78***	-0.12***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Medical visits in past 12 months						
1–6 visits	0.02***	-0.01***	0.02***	-0.01***	0.02***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
7–12 visits	0.08***	-0.02***	0.08***	-0.02***	0.08***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
13+ visits	0.13***	-0.03***	0.13***	-0.03***	0.13***	-0.03***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.22***	2.12***	0.23***	2.13***	0.23***	2.11***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Number of observations	66,237	61,276	65,300	60,400	64,208	59,395
R-squared	0.43	0.51	0.43	0.51	0.43	0.51

Notes: Authors' calculations. Panel A includes controls for lagged dependent variable, sex, marital status and age group. Panel B additionally includes household size, chronic conditions, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A11: Relationship between lagged informal caregiving situation and current caregiving transition in Europe (first-stage IV estimates)

Panel A. Baseline specification

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care in t-2						
Yes	0.09***	0.09***	0.15***	0.15***	0.18***	0.18***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Care in t-3						
Yes	0.04***	0.04***	0.08***	0.07***	0.08***	0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Lagged dependent variable						
Coefficient	0.01***	-0.06***	0.02***	-0.08***	0.01***	-0.05***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Sex						
Woman	0.01***	0.01***	-0.00	0.00*	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status						
Doesn't have a spouse/partner	-0.03***	-0.03***	0.00	0.00	-0.01	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age group						
65–79	0.01***	0.01***	0.00*	0.00*	0.00**	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.05***	0.05***	0.02***	0.02***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.02***	0.24***	0.01**	0.32***	0.01**	0.19***
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Number of observations	38,539	37,347	38,055	36,898	37,389	36,246
First-stage F-statistic	56.23	56.68	184.16	176.08	145.12	143.21

Panel B. Additional covariates included

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Care in t-2						
Yes	0.09***	0.10***	0.16***	0.16***	0.21***	0.21***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Care in t-3						
Yes	0.04***	0.04***	0.08***	0.08***	0.10***	0.10***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Lagged dependent variable						
Coefficient	0.01***	-0.03**	0.02***	-0.06***	0.01***	-0.06***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Sex						
Woman	0.02***	0.02***	-0.00	0.00	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status						
Doesn't have a spouse/partner	-0.04***	-0.04***	-0.00	-0.00	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age group						
65–79	0.01***	0.01***	0.01	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.05***	0.04***	0.02***	0.02***	0.02***	0.01***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Household size						
3–4	0.00	0.00	-0.00	-0.00	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
5+	0.01	0.01	-0.01	-0.01	0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Chronic conditions						
Yes	0.00	0.00	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education						
Intermediate	-0.00	-0.00	0.00	0.00	0.01**	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Low	-0.00	-0.00	0.00	0.00	0.01**	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Work situation						
Not working	0.01	0.00	0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Making ends meet						
With difficulty	0.02***	0.02***	0.01**	0.01	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Frailty index						
Pre-frail	0.02***	0.02***	0.01*	0.01**	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Frail	0.02***	0.02**	0.01*	0.01	-0.01**	-0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Medical visits in past 12 months						
1–6 visits	-0.02**	-0.02**	-0.01**	-0.01**	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
7–12 visits	-0.02**	-0.02**	-0.01	-0.01	-0.01*	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
13+ visits	-0.01	-0.01	-0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.04	0.17***	0.02	0.27***	0.03	0.26***
	(0.02)	(0.06)	(0.02)	(0.05)	(0.02)	(0.05)
Number of observations	18,760	18,235	18,468	17,959	18,233	17,723
First-stage F-statistic	28.05	29.09	89.43	90.21	101.43	96.97

Notes: Authors' calculations. The dependent variable is a binary indicator for caregiving transition at time t: started/stopped/continued caregiving (relative to t-1). Panel A controls for lagged dependent variable, sex, marital status and age group. Panel B additionally controls for chronic conditions, household size, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level in parentheses.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A12: Effect of changes in informal care situation on well-being in Europe (second-stage IV estimates)

Panel A. Baseline specification

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Caregiving situation between two waves						
Yes	0.94***	-0.15***	0.43***	-0.07***	0.42***	-0.08***
	(0.17)	(0.04)	(0.08)	(0.02)	(0.07)	(0.02)
Lagged dependent variable						
Coefficient	0.45***	0.58***	0.46***	0.59***	0.46***	0.59***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sex						
Woman	0.11***	-0.00**	0.12***	-0.00***	0.11***	-0.00***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Marital status						
Doesn't have a spouse/partner	0.07***	-0.02***	0.05***	-0.01***	0.06***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group						
65–79	0.04***	-0.01***	0.05***	-0.01***	0.05***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	0.16***	-0.04***	0.19***	-0.05***	0.19***	-0.05***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.30***	1.55***	0.32***	1.55***	0.31***	1.52***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Number of observations	38,539	37,347	38,055	36,898	37,389	36,246
R-squared	0.22	0.45	0.27	0.46	0.28	0.47
First-stage F-statistic	56.23	56.68	184.16	176.08	145.12	143.21
Hansen J test (p-value)	0.66	0.36	0.49	0.37	0.80	0.59

Panel B. Additional covariates included

	Started caregiving		Stopped caregiving		Continued caregiving	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
Caregiving situation between two waves						
Yes	0.44**	-0.03	0.12	-0.02	0.22***	-0.04**
	(0.19)	(0.04)	(0.10)	(0.02)	(0.07)	(0.02)
Lagged dependent variable						
Coefficient	0.33***	0.48***	0.33***	0.47***	0.33***	0.49***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sex						
Woman	0.10***	0.00	0.10***	0.00	0.10***	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Marital status						
Doesn't have a spouse/partner	0.03**	-0.00	0.02*	-0.00	0.03**	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group						
65–79	-0.03**	-0.00	-0.03**	0.00	-0.02**	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	-0.06***	-0.01***	-0.05***	-0.01***	-0.05***	-0.01***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Household size						
3–4	0.01	-0.00	0.00	-0.00	0.00	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
5+	-0.02	-0.00	-0.01	-0.00	-0.04	-0.00
	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)
Chronic conditions						
Yes	0.07***	-0.01***	0.07***	-0.01***	0.07***	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Education						
Intermediate	-0.02*	-0.00	-0.02**	-0.00	-0.02**	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Low	-0.01	-0.01***	-0.01	-0.01***	-0.01	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Work situation						
Not working	-0.00	-0.01**	-0.00	-0.01***	-0.00	-0.01***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Making ends meet						
With difficulty	0.05***	-0.05***	0.05***	-0.05***	0.05***	-0.05***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frailty index						
Pre-frail	0.42***	-0.04***	0.43***	-0.04***	0.42***	-0.04***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Frail	0.71***	-0.11***	0.72***	-0.11***	0.72***	-0.11***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Medical visits in past 12 months						
1–6 visits	0.06***	-0.01***	0.06***	-0.01***	0.05***	-0.01***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
7–12 visits	0.12***	-0.02***	0.11***	-0.02***	0.10***	-0.02***
	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)
13+ visits	0.18***	-0.03***	0.19***	-0.03***	0.17***	-0.03***
	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)
Constant	0.43***	1.95***	0.47***	1.98***	0.48***	1.93***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Number of observations	18,760	18,235	18,468	17,959	18,233	17,723
R-squared	0.42	0.52	0.43	0.52	0.43	0.53
First-stage F-statistic	28.05	29.09	89.43	90.21	101.43	96.97
Hansen J test (p-value)	0.74	0.46	0.83	0.62	0.62	0.93

Notes: Authors' calculations. Panel A controls for lagged dependent variable, sex, marital status and age group. Panel B additionally controls for chronic conditions, household size, education, work situation, ability to make ends meet, frailty index and medical visits in the past 12 months. Instruments: informal care provision in $t-2$ and $t-3$. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group), 2 (household size), no (chronic conditions), advanced (education), working (work situation), without difficulty (make ends meet), robust (frailty index) and none (medical visits in past 12 months). Clustered standard errors at the individual level in parentheses.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A13: Effect of informal care on well-being in Europe – by region

	Northern		Western		Southern		Eastern	
	Depressive symptoms	**Quality of life**	**Depressive symptoms**	**Quality of life**	**Depressive symptoms**	**Quality of life**	**Depressive symptoms**	**Quality of life**
				OLS				
Care inside household								
Yes	0.17***	-0.03***	0.14***	-0.03***	0.22***	-0.05***	0.14***	-0.03***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Lagged dependent variable								
Coefficient	0.47***	0.66***	0.47***	0.63***	0.40***	0.47***	0.42***	0.52***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of observations	19,154	17,946	59,077	54,057	35,904	33,647	36,967	34,818
R-squared	0.26	0.45	0.28	0.42	0.26	0.32	0.25	0.35
				IV				
Care inside household								
Yes	0.28***	-0.01	0.20***	-0.05***	0.24***	-0.09***	0.24***	-0.05***
	(0.09)	(0.02)	(0.04)	(0.01)	(0.07)	(0.02)	(0.05)	(0.01)
Lagged dependent variable								
Coefficient	0.47***	0.68***	0.47***	0.63***	0.41***	0.49***	0.45***	0.56***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of observations	11,213	10,884	33,914	32,526	18,569	18,200	17,625	17,037
R-squared	0.26	0.46	0.28	0.42	0.27	0.33	0.27	0.37
First-stage F-statistic	63.45	59.78	378.90	369.74	189.10	182.39	265.47	261.92
Hansen J test (p-value)	0.34	0.05	0.29	0.47	0.43	0.95	0.56	0.75

Notes: Authors' calculations. Country and wave fixed effects included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments for the IV regression: lagged informal care provision in $t-1$ and $t-2$. Standard errors clustered at individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A14: Effect of informal care provision on life satisfaction in Europe

	Life satisfaction
	OLS
Care inside household	
Yes	-0.05***
	(0.00)
Lagged dependent variable	
Coefficient	0.38***
	(0.01)
Number of observations	137,954
R-squared	0.22
	IV
Care inside household	
Yes	-0.08***
	(0.01)
Lagged dependent variable	
Coefficient	0.39***
	(0.01)
Number of observations	82,208
R-squared	0.21
First-stage F-statistic	915.16
Hansen J test (p-value)	0.16

Notes: Authors' calculations. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Reference category: no caregiving. Instruments for IV regressions: informal care provision in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 2, 4, 5, 6, 8 and 9.

Table A15: Effect of informal care provision on well-being in Europe - by gender

Panel A. Men

	Depressive symptoms		Quality of life	
	OLS	IV	OLS	IV
Care inside household				
Yes	0.15***	0.29***	-0.04***	-0.06***
	(0.01)	(0.05)	(0.00)	(0.01)
Lagged dependent variable				
Coefficient	0.43***	0.44***	0.55***	0.56***
	(0.00)	(0.01)	(0.00)	(0.01)
Number of observations	73,322	39,764	68,326	38,561
R-squared	0.23	0.23	0.42	0.44
First-stage F-statistic		286.19		275.72
Hansen J test (p-value)		0.11		0.79

Panel B. Women

	Depressive symptoms		Quality of life	
	OLS	IV	OLS	IV
Care inside household				
Yes	0.17***	0.18***	-0.04***	-0.05***
	(0.01)	(0.03)	(0.00)	(0.01)
Lagged dependent variable				
Coefficient	0.45***	0.46***	0.56***	0.58***
	(0.00)	(0.00)	(0.00)	(0.01)
Number of observations	77,780	41,557	72,142	40,086
R-squared	0.26	0.27	0.45	0.48
First-stage F-statistic		613.66		600.76
Hansen J test (p-value)		0.74		0.58

Notes: Authors' calculations. Country and wave fixed effects are included. All models include controls for lagged dependent variable, marital status and age group. Reference category: no caregiving. Instruments for IV regressions: informal care provision in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A16: Effect of informal care provision on well-being in Europe (balanced panel)

	Depressive symptoms	Quality of life
	OLS	
Care inside household		
Yes	0.16***	-0.03***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.46***	0.56***
	(0.01)	(0.02)
Number of observations	9,452	8,630
R-squared	0.29	0.45
	IV	
Care inside household		
Yes	0.18*	-0.06***
	(0.10)	(0.02)
Lagged dependent variable		
Coefficient	0.46***	0.56***
	(0.01)	(0.02)
Number of observations	7,864	7,599
R-squared	0.29	0.46
First-stage F-statistic	56.40	52.46
Hansen J test (p-value)	0.71	0.09

Notes: Authors' calculations. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Reference category: no caregiving. Instruments for IV regressions: informal care provision in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table A17: Effect of informal care provision to a spouse/partner on well-being in Europe (with spouse/partner health as covariate)

	Depressive symptoms	Quality of life
	OLS	
Care inside household		
Yes	0.14***	-0.03***
	(0.01)	(0.00)
Lagged dependent variable		
Coefficient	0.43***	0.53***
	(0.00)	(0.00)
Spouse/partner health		
Fair or poor	0.13***	-0.03***
	(0.00)	(0.00)
Number of observations	118,635	110,563
R-squared	0.27	0.44
	IV	
Care inside household for a spouse/partner		
Yes	0.13***	-0.05***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.45***	0.56***
	(0.00)	(0.00)
Spouse/partner health		
Fair or poor	0.12***	-0.03***
	(0.01)	(0.00)
Number of observations	64,766	62,749
R-squared	0.28	0.46
First-stage F-statistic	642.83	625.49
Hansen J test (p-value)	0.05	0.23

Notes: Authors' calculations. The caregiving indicator equals 1 if the respondent provides informal care to a spouse/partner and 0 otherwise. Respondents with a spouse/partner are included in the sample for these regressions. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Reference category: no caregiving. Instruments for IV regressions: informal care provision to a spouse/partner in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Online Appendix

Tables OA1 to Table OA6 present first the OLS and IV results when trimming outcome outliers, when estimating outcomes in levels and when redefining depressive symptoms by a binary variable (see footnote 8 of the paper). Second, Tables OA7–OA16 report the extended versions of Tables A13–A17 from the robustness checks section of the main text. In addition, Tables OA17 and OA18 report the extended results for the analysis restricted to respondents with at least one living parent and controlling for parental health. For all appendix tables, we report the full set of coefficient estimates under the parsimonious specification.

Table OA1: Relationship between informal care provision and well-being in Europe (detailed baseline OLS estimates excluding outliers)

	Depressive symptoms	Quality of life
Care inside household		
Yes	0.15***	-0.03***
	(0.01)	(0.00)
Lagged dependent variable		
Coefficient	0.41***	0.42***
	(0.00)	(0.00)
Sex		
Woman	0.12***	-0.00***
	(0.00)	(0.00)
Marital status		
Does not have a spouse/partner	0.05***	-0.01***
	(0.01)	(0.00)
Age group		
65–79	0.05***	-0.01***
	(0.00)	(0.00)
80+	0.19***	-0.04***
	(0.01)	(0.00)
Constant	0.36***	2.15***
	(0.01)	(0.01)
Number of observations	146,957	127,371
R-squared	0.24	0.37

Notes: Authors' calculations. Outliers are defined as the top/bottom 5% of the dependent variable. Country and wave fixed effects are included. Baseline models control for lagged dependent variable, sex, marital status and age group. Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA2: Effect of informal care on well-being in Europe (detailed baseline IV estimates excluding outliers)

	Full sample	
	Depressive symptoms	Quality of life
	First-stage	
Care in t-1		
Coefficient	0.25***	0.25***
	(0.01)	(0.01)
Care in t-2		
Coefficient	0.13***	0.13***
	(0.01)	(0.01)
Lagged dependent variable		
Coefficient	0.01***	-0.04***
	(0.00)	(0.01)
Sex		
Woman	0.02***	0.02***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	-0.02***	-0.02***
	(0.00)	(0.00)
Age group		
65-79	0.02***	0.02***
	(0.00)	(0.00)
80+	0.05***	0.05***
	(0.00)	(0.00)
Constant	0.03***	0.18***
	(0.01)	(0.03)
Number of observations	79,234	71,428
F-statistic	844.89	780.97
	Second-stage	
Care inside household		
Yes	0.20***	-0.04***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.42***	0.44***
	(0.00)	(0.00)
Sex		
Woman	0.11***	-0.00***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.05***	-0.01***
	(0.01)	(0.00)
Age group		
65-79	0.05***	-0.01***
	(0.00)	(0.00)
80+	0.18***	-0.04***
	(0.01)	(0.00)
Constant	0.42***	2.06***
	(0.01)	(0.01)
Number of observations	79,234	71,428
R-squared	0.25	0.39
Hansen J test (p-value)	0.52	0.45

Notes: Authors' calculations. Outliers are defined as the top/bottom 5% of the dependent variable. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA3: Relationship between informal care provision and well-being in Europe (detailed baseline OLS estimates with outcomes in levels)

	Depressive symptoms	Quality of life
Care inside household		
Yes	0.53***	-1.27***
	(0.02)	(0.05)
Lagged dependent variable		
Coefficient	0.48***	0.56***
	(0.00)	(0.00)
Sex		
Woman	0.37***	-0.19***
	(0.01)	(0.02)
Marital status		
Does not have a spouse/partner	0.18***	-0.57***
	(0.02)	(0.04)
Age group		
65–79	0.17***	-0.52***
	(0.01)	(0.03)
80+	0.66***	-1.94***
	(0.02)	(0.04)
Constant	0.59***	18.16***
	(0.02)	(0.14)
Number of observations	151,102	140,468
R-squared	0.29	0.45

Notes: Authors' calculations. Country and wave fixed effects are included. Baseline models control for lagged dependent variable, sex, marital status and age group. Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA4: Effect of informal care on well-being in Europe (detailed baseline IV estimates with outcomes in levels)

	Full sample	
	Depressive symptoms	Quality of life
	First-stage	
Care in t-1		
Coefficient	0.25***	0.25***
	(0.01)	(0.01)
Care in t-2		
Coefficient	0.13***	0.13***
	(0.01)	(0.01)
Lagged dependent variable		
Coefficient	0.00***	-0.00***
	(0.00)	(0.00)
Sex		
Woman	0.02***	0.02***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	-0.03***	-0.03***
	(0.00)	(0.00)
Age group		
65-79	0.02***	0.02***
	(0.00)	(0.00)
80+	0.05***	0.05***
	(0.00)	(0.00)
Constant	0.04***	0.11***
	(0.01)	(0.01)
Number of observations	81,321	78,647
F-statistic	886.74	865.48
	Second-stage	
Care inside household		
Yes	0.64***	-1.95***
	(0.09)	(0.23)
Lagged dependent variable		
Coefficient	0.50***	0.58***
	(0.00)	(0.00)
Sex		
Woman	0.35***	-0.16***
	(0.01)	(0.03)
Marital status		
Doesn't have a spouse/partner	0.18***	-0.55***
	(0.02)	(0.06)
Age group		
65-79	0.16***	-0.46***
	(0.01)	(0.03)
80+	0.60***	-1.77***
	(0.02)	(0.06)
Constant	0.73***	17.42***
	(0.03)	(0.18)
Number of observations	81,321	78,647
R-squared	0.30	0.47
Hansen J test (p-value)	0.54	0.57

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA5: Relationship between informal care provision and depressive symptoms in Europe (Probit estimates)

	Depressive symptoms
Care inside household	
Yes	0.32***
	(0.01)
Lagged dependent variable	
Coefficient	1.03***
	(0.01)
Sex	
Woman	0.29***
	(0.01)
Marital status	
Does not have a spouse/partner	0.12***
	(0.01)
Age group	
65–79	0.09***
	(0.01)
80+	0.40***
	(0.01)
Constant	-1.49***
	(0.02)
Number of observations	151,102
R-squared	0.15

Notes: Authors' calculations. Country and wave fixed effects are included. Baseline models control for the lagged dependent variable, sex, marital status and age group. Clustered standard errors at the individual level are reported in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA6: Effect of informal care on depressive symptoms in Europe (detailed baseline IV-Probit estimates)

	Full sample
	Depressive symptoms
	First-stage
Care in t-1	
Coefficient	0.26***
	(0.01)
Care in t-2	
Coefficient	0.13***
	(0.01)
Lagged dependent variable	
Coefficient	0.01***
	(0.00)
Sex	
Woman	0.02***
	(0.00)
Marital status	
Doesn't have a spouse/partner	-0.03***
	(0.00)
Age group	
65-79	0.02***
	(0.00)
80+	0.05***
	(0.00)
Constant	0.04***
	(0.01)
Number of observations	81,321
F-statistic (linear IV)	896.71
	Second-stage
Care inside household	
Yes	0.62***
	(0.07)
Lagged dependent variable	
Coefficient	1.04***
	(0.01)
Sex	
Woman	0.29***
	(0.01)
Marital status	
Doesn't have a spouse/partner	0.12***
	(0.02)
Age group	
65-79	0.09***
	(0.01)
80+	0.37***
	(0.02)
Constant	-1.37***
	(0.03)
Number of observations	81,321
Hansen J test (p-value, linear IV)	0.52

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Clustered standard errors in parentheses. A person is considered depressed if their EURO-D score > 4. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA7: Relationship between informal care provision and well-being in Europe – by region (detailed baseline OLS estimates)

	Northern		Western		Southern		Eastern	
	Depressive symptoms	**Quality of life**	**Depressive symptoms**	**Quality of life**	**Depressive symptoms**	**Quality of life**	**Depressive symptoms**	**Quality of life**
Care inside household								
Yes	0.17***	-0.03***	0.14***	-0.03***	0.22***	-0.05***	0.14***	-0.03***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Lagged dependent variable								
Coefficient	0.47***	0.66***	0.47***	0.63***	0.40***	0.47***	0.42***	0.52***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sex								
Woman	0.10***	0.00	0.13***	-0.01***	0.15***	-0.02***	0.11***	0.00
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Marital status								
Does not have a spouse/partner	0.05***	-0.01***	0.03***	-0.01***	0.10***	-0.02***	0.05***	-0.02***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Age group								
65–79	-0.01	-0.01***	0.03***	-0.01***	0.10***	-0.03***	0.08***	-0.02***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	0.13***	-0.04***	0.16***	-0.03***	0.30***	-0.09***	0.23***	-0.07***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.39***	1.24***	0.32***	1.37***	0.39***	1.93***	0.43***	1.69***
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Number of observations	19,154	17,946	59,077	54,057	35,904	33,647	36,967	34,818
R-squared	0.26	0.45	0.28	0.42	0.26	0.32	0.25	0.35

Notes: Authors' calculations. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Reference categories: no caregiving, man, has a spouse/partner and 50-64 (age group). Standard errors clustered at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA8: Effect of informal care provision on well-being in Europe – by region (detailed baseline IV estimates)

	Northern		Western		Southern		Eastern	
	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life	Depressive symptoms	Quality of life
First-stage								
Care in t-1								
Yes	0.27***	0.27***	0.26***	0.27***	0.24***	0.23***	0.25***	0.25***
	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Care in t-2								
Yes	0.10***	0.11***	0.13***	0.14***	0.10***	0.09***	0.15***	0.15***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Lagged dependent variable								
Coefficient	0.01***	-0.07***	0.01***	-0.07***	0.01***	-0.05***	0.01***	-0.05***
	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Sex								
Woman	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marital status								
Does not have a spouse/partner	-0.02***	-0.02**	-0.02***	-0.02***	-0.02*	-0.02*	-0.04***	-0.03***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Age group								
65–79	0.02***	0.02***	0.02***	0.02***	0.01**	0.01*	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.08***	0.08***	0.07***	0.07***	0.03***	0.03***	0.03***	0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.00	0.28***	0.02***	0.30***	0.03***	0.22***	0.03***	0.21***
	(0.01)	(0.08)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.05)
Number of observations	11,213	10,884	33,914	32,526	18,569	18,200	17,625	17,037
First-stage F-statistic	63.45	59.78	378.90	369.74	189.10	182.39	265.47	261.92
Second-stage								
Care inside household								
Yes	0.28***	-0.01	0.20***	-0.05***	0.24***	-0.09***	0.24***	-0.05***
	(0.09)	(0.02)	(0.04)	(0.01)	(0.07)	(0.02)	(0.05)	(0.01)
Lagged dependent variable								
Coefficient	0.47***	0.68***	0.47***	0.63***	0.41***	0.49***	0.45***	0.56***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sex								
Woman	0.09***	0.00	0.12***	-0.00***	0.15***	-0.02***	0.10***	0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Marital status								
Does not have a spouse/partner	0.04**	-0.00	0.03***	-0.01***	0.10***	-0.02***	0.06***	-0.02***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)
Age group								
65–79	0.00	-0.01***	0.04***	-0.01***	0.09***	-0.02***	0.07***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
80+	0.13***	-0.04***	0.15***	-0.03***	0.29***	-0.08***	0.20***	-0.07***
	(0.02)	(0.00)	(0.01)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)
Constant	0.40***	1.17***	0.39***	1.38***	0.46***	1.83***	0.38***	1.60***
	(0.02)	(0.04)	(0.01)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Number of observations	11,213	10,884	33,914	32,526	18,569	18,200	17,625	17,037
R-squared	0.26	0.46	0.28	0.42	0.27	0.33	0.27	0.37
First-stage F-statistic	63.45	59.78	378.90	369.74	189.10	182.39	265.47	261.92
Hansen J test (p-value)	0.34	0.05	0.29	0.47	0.43	0.95	0.56	0.75

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Reference categories: no caregiving, man, has a spouse/partner and 50-64 (age group). Instruments for IV regressions: informal care provision in $t-1$ and $t-2$. Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA9: Effect of informal care provision on life satisfaction in Europe (detailed baseline OLS estimates)

	Life satisfaction
Care inside household	
Yes	-0.05***
	(0.00)
Lagged dependent variable	
Coefficient	0.38***
	(0.01)
Sex	
Woman	-0.00***
	(0.00)
Marital status	
Does not have a spouse/partner	-0.04***
	(0.00)
Age group	
65–79	-0.01***
	(0.00)
80+	-0.02***
	(0.00)
Constant	1.40***
	(0.01)
Number of observations	137,954
R-squared	0.22

Notes: Authors' calculations. Regression controls for lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision to the same recipient in $t-1$ and $t-2$. Country and wave fixed effects are included. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group). Clustered standard errors at the individual level are in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 2, 4, 5, 6, 8 and 9.

Table OA10: Effect of informal care on life satisfaction in Europe (detailed baseline IV estimates)

	Life satisfaction
	First-stage
Care in t-1	
Coefficient	0.25***
	(0.01)
Care in t-2	
Coefficient	0.13***
	(0.01)
Lagged dependent variable	
Coefficient	-0.03***
	(0.00)
Sex	
Woman	0.02***
	(0.00)
Marital status	
Doesn't have a spouse/partner	-0.03***
	(0.00)
Age group	
65-79	0.02***
	(0.00)
80+	0.05***
	(0.00)
Constant	0.11***
	(0.01)
Number of observations	82,208
F-statistic	915.16
	Second-stage
Care inside household	
Yes	-0.08***
	(0.01)
Lagged dependent variable	
Coefficient	0.39***
	(0.01)
Sex	
Woman	-0.00**
	(0.00)
Marital status	
Doesn't have a spouse/partner	-0.03***
	(0.00)
Age group	
65-79	-0.00**
	(0.00)
80+	-0.02***
	(0.00)
Constant	1.37***
	(0.02)
Number of observations	82,208
R-squared	0.21
Hansen J test (p-value)	0.16

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 2, 4, 5, 6, 8 and 9.

Table OA11: Relationship between informal care provision and well-being in Europe (detailed baseline OLS estimates by gender)

	Men		Women	
	Depressive symptoms	**Quality of life**	**Depressive symptoms**	**Quality of life**
Care inside household				
Yes	0.15***	-0.04***	0.17***	-0.04***
	(0.01)	(0.00)	(0.01)	(0.00)
Lagged dependent variable				
Coefficient	0.43***	0.55***	0.45***	0.56***
	(0.00)	(0.00)	(0.00)	(0.00)
Marital status				
Does not have a spouse/partner	0.05***	-0.01***	0.06***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)
Age group				
65–79	0.04***	-0.01***	0.06***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.20***	-0.05***	0.20***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.34***	1.68***	0.46***	1.62***
	(0.01)	(0.02)	(0.01)	(0.02)
Number of observations	73,322	68,326	77,780	72,142
R-squared	0.23	0.42	0.26	0.45

Notes: Authors' calculations. Country and wave fixed effects are included. Regressions control for lagged dependent variable, marital status and age group. Reference categories: no caregiving, has a spouse/partner, 50-64 (age group). Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA12: Effect of informal care on well-being in Europe (detailed baseline IV estimates by gender)

	Men		Women	
	Depressive symptoms	**Quality of life**	**Depressive symptoms**	**Quality of life**
		First-stage		
Care in t-1				
Coefficient	0.21***	0.22***	0.28***	0.28***
	(0.01)	(0.01)	(0.01)	(0.01)
Care in t-2				
Coefficient	0.11***	0.11***	0.13***	0.14***
	(0.01)	(0.01)	(0.01)	(0.01)
Lagged dependent variable				
Coefficient	0.01***	-0.04***	0.01***	-0.07***
	(0.00)	(0.01)	(0.00)	(0.01)
Marital status				
Doesn't have a spouse/partner	-0.00	-0.00	-0.04***	-0.04***
	(0.01)	(0.01)	(0.00)	(0.00)
Age group				
65–79	0.01***	0.01***	0.02***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)
80+	0.05***	0.05***	0.05***	0.05***
	(0.00)	(0.00)	(0.01)	(0.01)
Constant	0.03***	0.19***	0.05***	0.32***
	(0.01)	(0.03)	(0.01)	(0.04)
Number of observations	39,764	38,561	41,557	40,086
F-statistic	286.19	275.72	613.66	600.76
		Second-stage		
Care inside household				
Yes	0.29***	-0.06***	0.18***	-0.05***
	(0.05)	(0.01)	(0.03)	(0.01)
Lagged dependent variable				
Coefficient	0.44***	0.56***	0.46***	0.58***
	(0.01)	(0.01)	(0.00)	(0.01)
Marital status				
Doesn't have a spouse/partner	0.05***	-0.01***	0.06***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)
Age group				
65–79	0.03***	-0.01***	0.07***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.00)
80+	0.18***	-0.05***	0.20***	-0.05***
	(0.01)	(0.00)	(0.01)	(0.00)
Constant	0.41***	1.62***	0.50***	1.53***
	(0.02)	(0.02)	(0.02)	(0.02)
Number of observations	39,764	38,561	41,557	40,086
R-squared	0.23	0.44	0.27	0.48
Hansen J test (p-value)	0.11	0.79	0.74	0.58

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA13: Relationship between informal care provision and well-being in Europe (detailed baseline OLS estimates from a balanced panel)

	Depressive symptoms	Quality of life
Care inside household		
Yes	0.16***	-0.03***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.46***	0.56***
	(0.01)	(0.02)
Sex		
Woman	0.15***	-0.01**
	(0.01)	(0.00)
Marital status		
Does not have a spouse/partner	0.04	-0.01
	(0.03)	(0.01)
Age group		
65–79	0.03**	-0.00
	(0.01)	(0.00)
80+	0.12***	-0.02***
	(0.03)	(0.01)
Constant	0.36***	1.64***
	(0.04)	(0.06)
Number of observations	9,452	8,630
R-squared	0.29	0.45

Notes: Authors' calculations. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA14: Effect of informal care on well-being in Europe (detailed baseline IV estimates from balanced panel)

	Depressive symptoms	Quality of life
	First-stage	
Care in t-1		
Coefficient	0.26***	0.25***
	(0.03)	(0.03)
Care in t-2		
Coefficient	0.13***	0.13***
	(0.03)	(0.03)
Lagged dependent variable		
Coefficient	0.01**	-0.07***
	(0.00)	(0.02)
Sex		
Woman	0.01	0.01
	(0.01)	(0.01)
Marital status		
Doesn't have a spouse/partner	-0.00	-0.01
	(0.02)	(0.02)
Age group		
65-79	0.01	0.01
	(0.01)	(0.01)
80+	0.03**	0.03**
	(0.01)	(0.01)
Constant	0.02	0.29***
	(0.02)	(0.08)
Number of observations	7,864	7,599
F-statistic	56.40	52.46
	Second-stage	
Care inside household		
Yes	0.18*	-0.06***
	(0.10)	(0.02)
Lagged dependent variable		
Coefficient	0.46***	0.56***
	(0.01)	(0.02)
Sex		
Woman	0.15***	-0.01**
	(0.01)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.05	-0.01
	(0.04)	(0.01)
Age group		
65-79	0.04**	-0.01*
	(0.02)	(0.00)
80+	0.13***	-0.03***
	(0.03)	(0.01)
Constant	0.37***	1.63***
	(0.04)	(0.06)
Number of observations	7,864	7,599
R-squared	0.29	0.46
Hansen J test (p-value)	0.71	0.09

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care inside household in time t and 0 otherwise. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status and age group. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA15: Relationship between informal care provision to a spouse/partner and well-being in Europe (detailed baseline OLS estimates with spouse/partner health as covariate)

	Depressive symptoms	Quality of life
Care for a spouse/partner inside household		
Yes	0.14***	-0.03***
	(0.01)	(0.00)
Lagged dependent variable		
Coefficient	0.43***	0.53***
	(0.00)	(0.00)
Sex		
Woman	0.12***	-0.00***
	(0.00)	(0.00)
Age group		
65–79	0.04***	-0.01***
	(0.00)	(0.00)
80+	0.18***	-0.05***
	(0.01)	(0.00)
Spouse/partner health		
Fair or poor	0.13***	-0.03***
	(0.00)	(0.00)
Constant	0.32***	1.74***
	(0.01)	(0.01)
Number of observations	118,635	110,563
R-squared	0.27	0.44

Notes: Authors' calculations. The caregiving indicator equal to 1 if the respondent provides informal to a spouse/partner and 0 otherwise. Respondents with a spouse/partner are included in the sample for these regressions. Country and wave fixed effects are included. Baseline models control for lagged dependent variable, sex, marital status and age group. Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01. Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA16: Effect of informal care provision to a spouse/partner on well-being in Europe (detailed baseline IV estimates with spouse/partner health as covariate)

	Depressive symptoms	Quality of life
	First-stage	
Care for a spouse/partner in t-1		
Coefficient	0.25***	0.25***
	(0.01)	(0.01)
Care for a spouse/partner in t-2		
Coefficient	0.17***	0.17***
	(0.01)	(0.01)
Lagged dependent variable		
Coefficient	0.01***	-0.02***
	(0.00)	(0.01)
Sex		
Woman	0.02***	0.02***
	(0.00)	(0.00)
Age group		
65-79	0.02***	0.02***
	(0.00)	(0.00)
80+	0.05***	0.04***
	(0.00)	(0.00)
Spouse/partner health		
Fair or poor	0.08***	0.08***
	(0.00)	(0.00)
Constant	0.01	0.09***
	(0.01)	(0.03)
Number of observations	64,766	62,749
F-statistic	642.83	625.49
	Second-stage	
Care for a spouse/partner inside household		
Yes	0.13***	-0.05***
	(0.03)	(0.01)
Lagged dependent variable		
Coefficient	0.45***	0.56***
	(0.00)	(0.00)
Sex		
Woman	0.12***	-0.00***
	(0.00)	(0.00)
Age group		
65-79	0.05***	-0.01***
	(0.01)	(0.00)
80+	0.18***	-0.04***
	(0.01)	(0.00)
Spouse/partner health		
Fair or poor	0.12***	-0.03***
	(0.01)	(0.00)
Constant	0.37***	1.65***
	(0.01)	(0.02)
Number of observations	64,766	62,749
R-squared	0.28	0.46
Hansen J test (p-value)	0.05	0.23

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care to a spouse/partner and 0 otherwise in time t. Respondents with a spouse/partner are included in the sample for these regressions. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, age group and spouse/partner health. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA17: Relationship between informal care provision to a parent and well-being in Europe (detailed baseline OLS estimates with parental health as covariate)

	Depressive symptoms	Quality of life
Care for a parent inside household		
Yes	0.09***	-0.02***
	(0.02)	(0.01)
Lagged dependent variable		
Coefficient	0.44***	0.55***
	(0.01)	(0.01)
Sex		
Woman	0.14***	-0.01***
	(0.01)	(0.00)
Marital status		
Does not have a spouse/partner	0.06***	-0.02***
	(0.01)	(0.00)
Age group		
65–79	-0.00	-0.01**
	(0.01)	(0.00)
80+	0.13	-0.11
	(0.13)	(0.07)
Parental health		
Fair or poor	0.12***	-0.03***
	(0.01)	(0.00)
Constant	0.24***	1.70***
	(0.02)	(0.03)
Number of observations	20,581	19,252
R-squared	0.26	0.41

Notes: Authors' calculations. The caregiving indicator equal to 1 if the respondent provides informal care to a parent and 0 otherwise. Respondents with at least one living parent are included in the sample for these regressions. Country and wave fixed effects are included. Regressions control for lagged dependent variable, sex, marital status and age group. Reference categories: no caregiving, man, has a spouse/partner, 50-64 (age group). Clustered standard errors at the individual level in parentheses. Significance levels: * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.

Table OA18: Effect of informal care to a parent on well-being in Europe (detailed baseline IV estimates with parental health as covariate)

	Depressive symptoms	Quality of life
	First-stage	
Care for a parent in t-1		
Coefficient	0.45***	0.45***
	(0.03)	(0.03)
Care for a parent in t-2		
Coefficient	0.16***	0.15***
	(0.04)	(0.04)
Lagged dependent variable		
Coefficient	0.00*	-0.00
	(0.00)	(0.01)
Sex		
Woman	0.01***	0.01***
	(0.00)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.05***	0.05***
	(0.01)	(0.01)
Age group		
65-79	0.00	0.00
	(0.00)	(0.00)
80+	0.06	0.06
	(0.10)	(0.10)
Parental health		
Fair or poor	0.02***	0.02***
	(0.00)	(0.00)
Constant	-0.01	-0.00
	(0.01)	(0.05)
Number of observations	8,799	8,575
F-statistic	132.90	129.39
	Second-stage	
Care for a parent inside household		
Yes	0.05	-0.03*
	(0.08)	(0.02)
Lagged dependent variable		
Coefficient	0.46***	0.58***
	(0.01)	(0.01)
Sex		
Woman	0.13***	-0.01*
	(0.01)	(0.00)
Marital status		
Doesn't have a spouse/partner	0.09***	-0.02***
	(0.02)	(0.00)
Age group		
65-79	0.02	-0.01**
	(0.01)	(0.00)
80+	-0.02	-0.03
	(0.17)	(0.07)
Parental health		
Fair or poor	0.11***	-0.03***
	(0.03)	(0.00)
Constant	0.34***	1.58***
	(0.04)	(0.05)
Number of observations	8,799	8,575
R-squared	0.27	0.45
Hansen J test (p-value)	0.72	0.61

Notes: Authors' calculations. The first-stage dependent variable is a binary indicator equal to 1 if the respondent provides informal care to a parent in time t and 0 otherwise. Respondents with at least one living parent are included in the sample for these regressions. Country and wave fixed effects are included. Controls included: lagged dependent variable, sex, marital status, age group and parental health. Instruments: Informal care provision in $t-1$ and $t-2$. Reference categories: no caregiving, man, has a spouse/partner, 50–64 (age group). Clustered standard errors in parentheses. * p< 0.10, ** p< 0.05, *** p< 0.01.
Source: SHARE data. Waves 1, 2, 4, 5, 6, 8 and 9.