Research Article

'Silver splits' in Europe: The role of grandchildren and other correlates

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Contents

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Abstract

BACKGROUND
'Silver splits' – the union dissolutions after the age of 50 – have received growing attention in both the press and nonacademic discourse. Nonetheless, while there is a vast amount of research on the sociodemographic, health-related, and economic consequences of late union dissolution, no studies have yet (to the best of our knowledge) analysed the correlates of silver splits in Europe.

OBJECTIVE
This paper aims to document the correlates of union dissolution in later life in Europe, with a specific focus on the role played by grandchildren.

METHODS
We used data from the Survey of Health, Ageing and Retirement in Europe (SHARE) and employed logistic regression to model the probability of experiencing union dissolution after the age of 50.

RESULTS
Our results show that (1) having grandchildren is related to a lower probability of experiencing a silver split, (2) the other correlates of silver splits generally do not differ from the classical correlates of union dissolution early in life, and (3) the European correlates of silver splits accord with those found in the literature for North America.

CONTRIBUTION
This study sheds light on an increasingly relevant new family process occurring later in life (silver splits), thereby filling a clear gap in the European literature. Among the correlates of silver splits, the role of grandchildren appears crucial. They serve to 'refill

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the nest' once a couple's children have left, thereby inhibiting silver splits as grandparents assume new responsibilities in the family and society.

1. Introduction

De Shane and Brown-Wilson's (1982) paper "Divorce in Late Life: A Call for Research" emphasises the near absence of late divorces from academic research, with only a handful of papers considering age as a control variable. A possible explanation for this research gap could be the small scale of the phenomenon at the time. Nevertheless, the authors stress both that the number of late divorces could increase in the future and that the antecedents and consequences of divorce at older ages could significantly impact later life stages, thus making the subject a stimulating new topic for gerontological literature on the family life course (De Shane and Brown-Wilson 1982). In their call for research, they suggest some theoretical and operational issues. First, they wonder how society's increasing acceptance of divorce might impact the incoming cohorts of older people, who, until then, had been more averse to divorce. Second, they stress how women's widespread entrance into the job market had offered them interests and activities outside the home, suggesting a possible increase in divorce even later in life. Finally, they emphasise the importance of later life transitions, such as the 'empty nest phase' (for women) and retirement (for men) as potentially important correlates for late divorce. In a study of 121 couples aged 60 and over filing for divorce, Weingarten (1988) – in support of De Shane and Brown-Wilson's (1982) hypothesis – notes that having children was one of the most important aspects influencing the decision to divorce after age 60. De Shane and Brown-Wilson (1982) note that the consequences of late divorce could affect the lives of older people in several important ways. It may generate a decline in support received from the couple's social network and reduced contact with children and grandchildren – especially for divorced men. In addition, it could carry such psychological consequences as increasing the likelihood of divorce in subsequent generations of children and entail serious economic costs – especially for women.

In line with De Shane and Brown-Wilson's (1982) prediction, divorces after the age of 50 increased in the following decades in several wealthy countries, such as the United States (Brown and Lin 2012; Kennedy and Ruggles 2014), Canada (Wu and Penning 1997), the United Kingdom (ONS 2017), and France (Solaz 2021), while concurrently levelling in younger age groups. This increase has been ascribed to the ageing of the most divorce-prone cohort, namely those born in the baby boom (Cohen 2019; Crowley 2019), and to the elevated presence of older people in second or higher-order marriages – both of which are at greater risk of divorce (Brown and Lin 2012; Crowley 2019). More recent

cohorts show later ages at marriage and higher levels of cohabitation, which have contributed to flattening divorce rates (Raley and Sweeney 2020; Rotz 2016). However, it should be noted that it may be too early to detect whether this association persists later in life. In spite of increasing divorce rates, the correlates of so-called 'grey divorces' (marital dissolutions after the age of 50) – or more generally, 'silver splits'[4] (the union dissolutions after the age of 50) – have only been described in a limited number of studies, despite the wide consensus that silver splits may have potentially relevant consequences for both men and women. Moreover, the few studies which have examined silver splits are largely limited to a US context (Brown and Lin 2012; Karraker and Latham 2015; Lin et al. 2018). Surprisingly, the importance of the role of children and grandchildren – originally emphasised by De Shane and Brown-Wilson (1982) and Weingarten (1988) – has received scant attention, except for a recent paper based in the United States (Brown, Lin, and Mellencamp 2021). In fact, following a life course approach, experiences at one stage of life will impact later stages (Bernardi, Huinink, and Settersten 2019; Elder 1994), suggesting that becoming parents and grandparents may have consequences on late-life family transitions (Esterberg, Moen, and Dempster-McCain 1994), including experiencing a silver split. While the negative relation between childbearing and union dissolution for couples in a reproductive age has been an enduring finding, comparatively nothing is known about how they relate to late union dissolutions. Moreover, having grandchildren – a distinct feature of later life – represents the continuation of the family lineage and may improve marital stability at later ages, thus operating as a new shared project for grandparents (Bair 2007; Berger and Kellner 1964; Brown, Lin, and Mellencamp 2021).

Little is known about European silver splits. Indeed, information on their correlates may be gathered from only longitudinal surveys, and few European studies have combined a longitudinal design with a sample size large enough to allow such an infrequent event to be studied. Surveys with retrospective questions are unable to provide information on the previous partners of divorced or separated individuals, and the potential determinants are collected at the time of the interview, thus hindering the identification of accurate measures of the phenomenon's causes (Uhlenberg, Cooney, and Boyd 1990; Hoem and Kreyenfeld 2006). While data from population registers may be used, they lack information on several correlates (e.g., physical and mental health, and relations with children and grandchildren) that have been recognised as important for understanding silver splits. Survey data also extend the possibility to focus not only on grey divorces but also (more generally) late union dissolution, thus acknowledging the increasing importance of cohabitation later in life. Additionally, while longitudinal surveys have surely improved our understanding of the union dissolution process, methodological problems arise when studying the antecedents or consequences of union

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[4] In this paper, we use the terms 'silver split' and 'late union dissolution' interchangeably.

dissolution due to attrition since union dissolution itself may be responsible for losing participants before follow-up stages.

This paper aims to (1) detect the role of children and grandchildren – who are a distinctive feature of later life – in facilitating or inhibiting union dissolution and (2) compare European correlates of late union dissolution with those from previous research in North America.

2. Background

Studies published in recent decades have improved our understanding of the correlates of divorce. This improvement is, to a great extent, thanks to the availability of large-scale longitudinal surveys that allow researchers to control for spurious associations and reverse causation, which could have affected previous research based on cross-sectional data (Glenn and Supancic 1984). Although longitudinal studies have certainly helped identify the antecedents and consequences of divorce in general, they have rarely been used to study grey divorce despite growing attention in the press and nonacademic discourses. Only in the last ten years has gerontological and family research begun to address divorce and repartnering in later life. Below, we briefly review the factors associated with union dissolution at all ages. This review offers input for selecting correlates of silver splits for our empirical analysis. Among these factors, we have devoted particular consideration to having children and grandchildren and the role they play in silver splits between different cohorts of older people.

2.1 Emptying, then refilling, the nest: The role of children and grandchildren

The various sociodemographic perspectives that explain the association between childbearing and union dissolution all agree upon the fact that having children relates to more stable unions, as children are a 'union-specific capital' that improves union stability (e.g., Becker, Landes, and Michael 1977). Such a relationship could also be due to selection mechanisms as family-oriented individuals are both more likely to have children and less likely to end a union (Lesthaeghe and Moors 2000). An extensive body of literature shows that having children (especially when they are young) usually discourages divorce (see Lyngstad and Jalovaara 2010, for a review). However, scant evidence is available about late union dissolutions. Weingarten (1988) conducts one of the first studies on grey divorces by employing qualitative research methods. The author finds that, among both men and women, having a relationship with children was one of the most important factors to consider when deciding on whether to divorce after the age

of 60. Children can be important sources of support for older parents through their provision of functional, emotional, and other forms of assistance (Brines and Joyner 1999; De Jong Gierveld, van Tilburg, and Dykstra 2016). This may contribute to the quality of marital unions and thus positively influence their stability. However, as parents (and children) age, "older children tend to be detrimental to marital stability due to strained relationships associated with family conflicts, inheritance concerns and other issues" (Wu and Penning 2018: 4), and such conflicts may jeopardise union stability. Furthermore, older parents may postpone their silver split until the 'empty nest' phase for the sake of their children since they are no longer responsible for supporting dependent children (Bair 2007; Hiedemann, Suhomlinova, and O'Rand 1998). However, other studies have found neither evidence for such a pattern nor an association between the empty nest phase and grey divorce (Lin et al. 2018).

Less attention has been devoted to the role of grandchildren in shaping the risk of silver splits. Grandchildren play a central role in later life, even if quantitative data from longitudinal surveys on the importance of being a grandparent (and its associations with other demographic events) remain scarce (Hank et al. 2018). Grandparenthood and grandparental childcare (when not particularly intense) are found to be positively associated with grandparents' subjective well-being (Arpino, Bordone, and Balbo 2018). The birth of the first grandchild is usually associated with feelings of youthfulness for the grandparents, providing new meaning to life (Cunningham-Burley 1986). Conversely, the loss of contact with grandchildren (e.g., after separation or divorce) is found to be associated with reduced psychological well-being given the importance of such ties for older people (Drew and Silverstein 2007; Drew and Smith 2002). Through examining US data, Brown, Lin, and Mellencamp (2021) find that becoming a biological grandparent lowers the likelihood of grey divorce compared to those not experiencing grandparenthood. However, the relationship between grandparenthood and other late-life transitions may be context-dependent because of country-specific forms of intergenerational support, leaving the parental home at different ages, and other social norms regarding intergenerational ties that differ across birth cohorts (e.g., Aassve, Arpino, and Billari 2013; Tomassini et al. 2004). Numerous studies (e.g., Uhlenberg and Hamill 1998) examine the consequences of divorce on grandparent–grandchild relations, showing how divorced grandparents have less contact with their grandchildren compared to their married counterparts. King (2003) finds that many aspects of grandparenting were negatively associated with having experienced a grey divorce; for example, divorced grandparents were less likely to agree that a valuable part of grandparenthood is the involvement of grandchildren in their lives. Hence, grandchildren may act as an inhibitor to silver splits since grandparents assume new responsibilities and, in a certain way, 'refill the nest' after their children's departure. To conclude, in light of the literature's findings on the positive effects of children and grandchildren on individual well-being and union

stability, we expect having children and grandchildren to be negatively associated to silver splits.

2.2 Other factors (potentially) related to late union dissolutions

The majority of research on union dissolution has focused on young adults (see Lyngstad and Jalovaara 2010 for a review). Therefore, when necessary, we cite a number of studies related to young adults' union dissolution in order to integrate the scant knowledge on silver splits, bearing in mind that these results are not directly transferable to union dissolution after the age of 50.

Birth cohort. Individuals belonging to different birth cohorts – or, similarly, to different union cohorts – tend to have different values and thus bring different expectations to their unions, possibly translating (for example) into a higher risk of union dissolution among younger cohorts (Lyngstad and Jalovaara 2010). The social acceptance of union dissolution can also differ by birth cohort (e.g., the baby boom cohort) (see Cohen 2019), which we assume might especially be the case when considering dissolutions after the age of 50. Brown and Wright (2019) find a sharp increase in the acceptance of divorce among the baby boom cohorts. In line with the available evidence on the relationship between birth cohort and union dissolution, we expect the baby boom cohort to show the highest risk of late union dissolution.

Partnership history. Studies on grey divorce consistently find that divorce rates decline as marital duration increases (Brown and Lin 2012; Wu and Pennig 1997). The characteristics of the union (e.g., cohabitation versus marriage, first marriage versus higher-order marriages) may also contribute to the risk of silver splits. Brown and Lin (2012) find that the divorce rate was 2.5 times higher for remarriages than first marriages. Based on Canadian data, Wu and Penning (2018) show that, although nonmarried cohabiting couples aged 45 and over had on average a ten-year-long union, they still had a higher risk of dissolution compared to married couples. This finding suggests that, despite appearances, cohabitation in later life tends not to be as stable as marriage, even if having biological children (rather than step-children) reduces such an association. Wu and Penning (2018) address the impact of union and family biography (i.e., marital and fertility history) on union dissolution in later life, highlighting how their effect on the risk of grey divorce differs by sex. They stress that "short- and long-term transitions, in turn, must be addressed within the context of individuals' cohort experiences as well as their location within the social structure as indexed by age, gender, and other factors" (Wu and Penning 2018:3). Union duration is usually included among the main control variables when studying the determinants of union dissolutions earlier in life due to its strong relation to the risk of divorce (Jalovaara 2002; Kulu and Boyle 2010). The literature

shows that the risk of divorce is low in the first months of marriage, after which it rises, reaches a maximum, and thereafter declines (Kulu 2014). In our study, we expect that longer-lasting unions are also less likely to dissolve above the age of 50, in line with previous findings on the generally negative effect of union duration on the risk of union dissolution.

Educational level. Education may be salient to shaping the risk of silver splits, both as a proxy for socioeconomic status and through its correlation with earning potential and labour market activity. Studying grey divorces in Canada, Wu and Penning (1997) find education to have a positive effect on late divorce among both men and women, while US-based studies show that educational level has only a limited effect on the probability of divorce (Brown and Lin 2012; Lin et al. 2018). The majority of studies about (not only grey) divorces in the United States and in Scandinavian countries report a negative effect of both spouses' educational attainments on the risk of divorce (Hoem 1997; Jalovaara 2001; Martin 2006; Ono 1999; Pezzin and Schone 1999), while evidence from the rest of Europe has been mixed (e.g., Poortman and Kalmijn 2002 [Netherlands]; De Rose 1992, and Vignoli and Ferro 2009 [Italy]; Blossfeld et al. 1995 [various European countries]). Generally speaking, the positive educational gradient weakens over time and even turns negative as divorce diffused and became socially institutionalised (Matysiak, Styrk, and Vignoli 2014). However, our analyses do not include the recent cohorts who might have experienced the reverse in the educational gradient of divorce. Accordingly, we expect to find a positive relationship between high educational level and the risk of a silver split.

Employment condition. How economic factors operate for retired older adults or those with regular incomes is unclear, and related evidence is scarce. In their study about divorce after the age of 50 in the United States, Brown and Lin (2012) find that unemployed and full-time workers are more likely to divorce than those outside of the labour force and that economic factors figure more prominently in women's divorce experiences. In another US-based study, Lin et al. (2018) find that the wife's or husband's retirement is unrelated to grey divorce probability. Studies about divorce at younger ages show that employment and earnings are negatively related to the risk of divorce (Amato 2010), while others also suggest that the effect of employment and income is ambiguous among women. When the wife is employed, she increases the family's total resources, thus possibly benefiting marital stability (through the 'income effect'). The wife's greater resources might also have a divorce-promoting effect, known as the 'independence effect.' Indeed, rising female employment makes divorce a viable option since employment provides women with the economic capacity to support themselves outside of marriage (Bukodi and Robert 2003; Chan and Halpin 2002; Svarer and Verner 2006; Vignoli et al. 2018). Finally, the role of perceived financial situations is gaining importance in the literature as a factor associated with late divorce (e.g., Canham et al. 2014). To conclude, based on the available evidence about the relationship between

employment and (late) union dissolution, we cautiously expect female employment to be positively related to silver splits (due to the independence effect) while expecting that male employment may be negatively related to silver splits (in line with traditional gender roles). However, we do not to make any specific predictions regarding the overall association between employment and silver splits as investigating the gender-specific relationship goes beyond the scope of this paper.

Tenure. One's economic condition is not entirely dependent on employment or income. Among the various types of assets, housing is often the most significant in the majority of Western countries. Indeed, homes appear to be the most important bequeathable token of wealth across the continent – especially for older Europeans (Angelini, Laferrère, and Weber 2013). For the aged, a housing property provides a financial buffer against such contingencies as ill health or economic hardships and offers a nest egg for later life (Gaymu 2003). Despite between-country differences in terms of state welfare protection, from a strictly economic point of view, exclusion from homeownership translates into the absence of the most important (and safeguarding) asset in old age (Vignoli, Tanturri, and Acciai 2016). Because economic and financial stress may seep into private lives, we surmise that homeownership is negatively associated to the risk of silver splits.

Health. Research on health and union dissolution mostly focuses on the health-related consequences of divorce for spouses and their children (Lyngstad and Jalovaara 2010; Tosi and Van den Broek 2020). In fact, health may be prominent in shaping the risk of silver splits due in large part to the fact that health problems increase with age. Physical illness, as a stressor on the marital union, may increase divorce risk by reducing marital quality (Daniel et al. 2009; Yorgason, Booth, and Johnson 2008). Research into health as a determinant of grey divorces confirms that worsening health deteriorates marital quality and increases the likelihood of divorce (Booth and Johnson 1994), and that differences in spouses' health statuses increase divorce risk (Wilson and Waddoups 2002). Examining a selected sample of couples who were physically healthy at the beginning of the study, Karraker and Latham (2015) find that only the wives' illness onsets are associated with an elevated risk of late union dissolution. Similar studies focusing on the risk of divorce at younger ages find that individuals with high levels of psychological well-being are less likely to divorce (Mastekaasa 1994) and that married persons reporting health complaints or chronic illnesses have an increased divorce risk (Joung et al. 1998). However, other studies find no association between these factors (Charles and Stephens 2004). In our study, we explore the role of health as an antecedent of silver splits in terms of both physical and mental health. Based on previous findings, we expect that the risk of silver splits is higher for individuals with health problems compared to their healthy counterparts.

3. Data and methods

3.1 Sample selection

We used data from the Survey of Health, Ageing and Retirement in Europe (SHARE), a multidomain longitudinal study that collects detailed information on adults aged 50 and over and their current partner (if cohabiting), regardless of age. We used waves 1 (2004–2005) through 7 (2017), with the exception of wave 3, which we excluded due to its collection of retrospective information and lack of most current sociodemographic and health variables. Therefore, our analysis is based on six time points. In order to observe late union dissolutions, we dropped countries that participated in only one wave. We also discarded countries in which the number of union dissolutions observed throughout the study period was too small (i.e., fewer than 10). Our sample included respondents from 14 European countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, the Netherlands, Portugal, Spain, Sweden, and Switzerland. Differently from previous studies (e.g., Weingarten 1988), we studied union dissolution rather than divorce in the strict sense of the word to avoid underestimating the phenomenon. To this end, we restricted our sample to individuals who were (1) married or in a registered cohabitation or (2) in an informal cohabiting relationship. We included individuals who were 'living with a partner' but not in a formal relationship (i.e., marriage or registered cohabitation) only if they were assigned a 'couple ID.'[5] However, the share of individuals in registered or informal cohabitations in our dataset was negligible (less than 2% and 5%, respectively) in terms of the share of married cohabitations (approximately 93% of the sample). Accordingly, we did not distinguish between marriages and cohabitations. Married or cohabiting respondents in one wave who subsequently reported being single or not being in a cohabiting union (i.e., without a couple ID) in the following wave were considered to have experienced a union dissolution. All individuals who were not at risk of experiencing union dissolution, such as older people living without a coresident partner, were excluded from the risk set (roughly 24% of observations).

The initial sample consisted of 72,032 eligible individuals. To observe union dissolutions across waves, the dataset included only those individuals interviewed at least twice between waves 1 and 7. This resulted in the loss of 18,721 individuals (25.9%) by the follow-up stage. The models included a wide set of control variables, including all factors that were found to be associated with sample attrition. Using as much information as possible about selection on available covariates in the data reduces the amount of its

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[5] In SHARE, respondents are assigned a 'couple ID' if they have a coresiding partner. Accordingly, all individuals in a union involving cohabitation have a couple ID (including the respondent's partner, regardless of age). For further information about SHARE surveying characteristics, see Alcser et al. (2005).

residual and unexplained variation due to attrition, likely reducing bias due to selection on observables (Alderman et al. 2001).

Our final sample consisted of 53,311 individuals (26,001 men and 27,310 women) – of whom 14,198 entered at wave 1; 5,474 at wave 2; 19,804 at wave 4; 11,310 at wave 5; and 2,525 at wave 6 – and all of whom were present in at least one subsequent wave. Among these, 17,392 individuals who responded to at least two waves did not remain under observation until the last wave (approximately 32% of the final sample). However, among the latter, 3,448 left the survey due to their deaths (censored), and 135 left after having experienced union dissolution (i.e., 18% of our silver splits), while the remaining 13,809 were lost due to attrition. Of this last group, we were able to recover information about 1,831 respondents because their partners were still under observation (see Figure A-1 in the Appendix for a flow chart of the sample selection process). We provide an analysis and discussion of the characteristics associated with attrition in the Appendix (see paragraph 'Sample attrition').

3.2 Variables and imputations

The dependent variable was the experience of divorce or union dissolution for those who were married or in a relationship ($n = 745$). Explanatory variables were measured at the last (observed) wave preceding union dissolution. In some cases (roughly 20% of those experiencing union dissolutions), one or more explanatory variables were missing at the wave before union dissolution. To counter this, we exploited the longitudinal nature of data and recovered missing information from previous waves. If the respondent reported missing information at wave t–1, we fixed covariates at the previous wave (t–2) or at the closest wave with nonmissing information.[6] We employed two main explanatory variables to study the influence of children and grandchildren. The first focused on the number of grandchildren and distinguished between childless individuals, those who have children but no grandchildren, those who have one or two grandchildren, and those who have three or more grandchildren. The second captured the dimension of the intensity of family ties by exploiting the information on the number of grandchildren and the frequency of contact with their children. We therefore assumed that individuals in regular contact with their children would consequently have regular contact with their grandchildren. This variable distinguished between childless individuals, those who have children but no grandchildren, those who have grandchildren but rare contact with their children, and those who have grandchildren and have frequent contact with their

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[6] Among those who experienced a silver split, only 20% of individuals had missing values to one or more variables at t–1. Among the latter, we imputed roughly 80% from wave t–2. For the rest, missing information was imputed from waves t–3, t–4, or t–5.

children.[7] The set of explanatory variables also included gender, birth cohort (born pre-1945, between 1945–1955, and post-1955), education level (primary, secondary, tertiary education), employment status (retired, working, other), union duration (measured as a continuous variable), previous divorce experiences[8] (has never divorced versus has already divorced at least once), homeownership (yes or no), perceived financial distress (household makes ends meet with great difficulty, with some difficulty, fairly easily, easily), number of limitations in daily activities (scored from 0 to 6), depression level (a 0-to-12 scale based on the EURO-D depression scale, where 0 is 'not depressed' and 12 is 'very depressed') (see Prince et al. 1999), country of residence, and the wave in which the respondent entered the observation. Descriptive statistics are reported in Table 1.

Unfortunately, two of our dataset's variables were characterised by a non-negligible number of missing values: union duration (approximately 10% of the sample) and homeownership (roughly 3%). Importantly, missing information about union duration showed no specific pattern by gender, country, birth cohort, or socioeconomic status, whereas it was slightly more frequent in more recent waves. As union duration and homeownership are key variables in our analysis, eliminating such a large share of respondents would have remarkably reduced the final number of observations. Consequently, we decided to retain them in the sample after having imputed the missing information – which we achieved through multiple imputations by chained equations (MICE) using STATA (see Lee and Carlin 2010). This technique allows each variable to be imputed using its own conditional distribution and specifying different models. Accordingly, we imputed union duration (a continuous variable) using a linear regression model and a logistic regression for homeownership (a dummy variable). Multiple imputation estimates several values for each missing data point, thus introducing the uncertainty associated with the missing data into the model. We then used these values in the analysis and combined the results following Rubin's (1987) rule.

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[7] The variable about the frequency of contact is available in SHARE with the following categories: 'coresiding child(ren),' 'daily,' 'several times a week,' 'about once a week,' and 'rarely.' Contact is considered either personally, by phone, mail, email, or any other electronic mean during the previous 12 months. We used this information for the dichotomisation made between those with grandchildren and report having coresiding children or daily contact with them ('frequent contact,' about 60% of the sample), and those who have grandchildren and report having contact with children several times a week or less ('weak contact,' about 40% of the sample). Nevertheless, given the relatively small number of events, a finer division of the variable into more categories would have resulted in imprecise effect estimates, leading to inconclusive findings.

[8] We considered only previous divorces and not previous union dissolutions as SHARE collects only information on the former.

Table 1:   Sample characteristics. $N = 53,311$

Variable	% or mean with SD in brackets
Silver splits	1.40%
Gender	
Men	48.77%
Women	51.23%
Birth cohort	
<1946	40.72%
1946–1955	36.42%
>1955	22.86%
Educational level	
Primary	39.86%
Secondary	37.12%
Tertiary	23.02%
Employment status	
Retired	45.26%
Working	36.84%
Other (e.g., unemployed, homemaker)	17.90%
Union duration (in years)	34.81 (12.87)
Has already divorced at least once	2.74%
Homeownership	82.92%
Financial stress	
Can make ends meet easily	32.28%
Can make ends meet fairly easily	34.42%
Can make ends meet with some difficulty	24.99%
Can make ends meet with great difficulty	8.31%
Number of limitations with daily activities	
No limitations	92.36%
At least one limitation	7.64%
Depression scale	2.23 (2.13)
Number of grandchildren	
Childless	5.87%
Has children, no grandchildren	31.67%
Has one or two grandchildren	26.82%
Has three or more grandchildren	35.64%
Grandchildren and intensity of ties	
Childless	5.87%
Has children, no grandchildren	31.67%
Has grandchildren, rare contact with children	8.58%
Has grandchildren, frequent contact with children	52.22%
Missing	1.66%
Wave of entrance	
Wave 1	26.63%
Wave 2	10.27%
Wave 4	37.15%
Wave 5	21.21%
Wave 6	4.74%

3.3 Modelling

Using logistic regression, we modelled the probability of experiencing union dissolution, taking into consideration demographic, socioeconomic, and health-related factors. We replicated the same model twice in order to test both variables about grandchildren (i.e., the number of grandchildren and the intensity of family ties). We clustered the standard errors at the country level to account for possible correlations in the error terms.

We computed the average marginal effects (AMEs) to facilitate substantive interpretations. AMEs express the effect on $P(Y = 1)$ as a categorical covariate changes between categories or as a continuous covariate increases by 1 unit, averaged across the values of the other covariates included in the model equations. In some instances, we also present predicted probabilities with 95% confidence intervals for pairwise comparisons. These intervals are centred on the predictions and have lengths equal to $2 \times 1.39 \times$ standard errors – which is necessary for achieving an average level of 5% for Type I errors in pairwise comparisons of a group of means (Goldstein and Healy 1995). After presenting some descriptive findings about country differences in late union dissolution, we then scrutinise the relationship between children, grandchildren, and the risk of a silver split before investigating the roles played by the other (potential) correlates.

4. Results

4.1 Descriptive findings: Country differences in late union dissolution

Figure 1 displays the (adjusted) predicted probability of silver split by country. Denmark had the highest (2.17%), followed by Sweden and Austria (2.13% and 1.98%, respectively). Estonia, Spain, Belgium, and Switzerland also showed above-average probabilities of late union dissolution (1.35%). Central-Eastern European countries (the Czech Republic, Slovakia, and Hungary) and the other Southern European countries (Italy and Portugal) had lower probabilities of union dissolution together with France, Germany, and the Netherlands. We found Italy to have the lowest probability of union dissolution after the age of 50 (0.59%). Generally speaking, late union dissolutions seem to be a rare demographic phenomenon; however, the countries analysed displayed interesting variability. Unfortunately, although we pooled six waves, the small number of silver splits registered in each country prohibited any country-specific (nor country-group-specific) analyses.

Figure 1:   **Adjusted predicted probabilities of union dissolution by country**
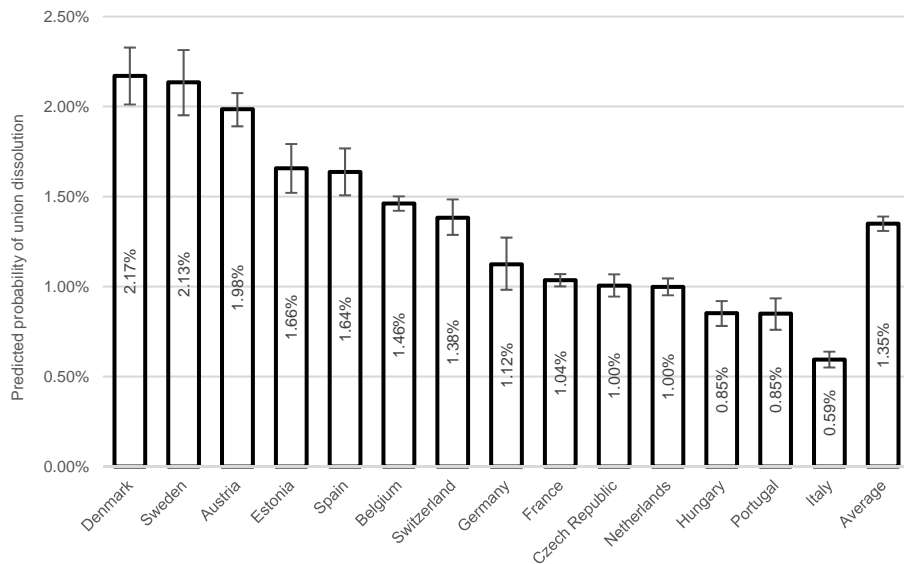
4.2 The role of children and grandchildren for silver splits

Our primary focus is the exploration of the role played by grandchildren in shaping silver split behaviours. Table 2 reports AMEs of the children and grandchildren variables from logistic regression models of the probability of experiencing a late union dissolution (the remaining variables are discussed in Table 3; see Section 4.3). Model 1 includes the variable about the number of grandchildren, while Model 2 includes the variable considering the intensity of family exchanges. Both models include identical control variables. For Model 1, we found that individuals with children – even if without grandchildren – have a lower risk of late union dissolution compared to childless individuals (AME = –0.0038, p-value = 0.101). Moreover, having grandchildren seems related to a further decrease in the probability of experiencing late union dissolution, with people having one or two grandchildren and those having three or more being less likely to experience a silver split by 0.65 and 0.79 percentage points (pp), respectively. When

setting individuals with children but no grandchildren as the reference category (not shown in Table 2), we found that having one or two grandchildren decreases the risk of a silver split by 0.27 pp (p-value = 0.121), and having three or more reduces the risk by 0.41 pp (p-value = 0.007). The results from Model 2 (i.e., considering the intensity of family exchanges) suggest that the strength of the negative association between having grandchildren and the risk of late union dissolution is stronger for individuals with grandchildren and frequent contact with their children. We found that the respondents with grandchildren have lower chances of experiencing a silver split by 0.57 pp, even if they reported having only infrequent contact with their children, and by 0.77 pp if they have regular contact with their children. This indicates that having grandchildren relates negatively not only to late union dissolution but also the intensity of family exchanges. Switching the reference category to people with children but no grandchildren, we found that those who have grandchildren and are in infrequent contact with their children are less likely to experience a silver split by 0.18 pp (p-value = 0.481), while those in frequent contact with their children are less likely to experience a silver split by 0.37 pp (p-value = 0.021).

Next, we explored if and how the relationship between having grandchildren and silver splits changes across birth cohorts. We followed Brown and Wright (2019), who suggest that cohorts tend to have different attitudes towards grey divorce. This begs the question of whether grandchildren may (partly) explain such variation. We replicated the analysis shown in the previous paragraph but added an interaction term between the birth cohort and each of the two variables about grandchildren. The results concerning the other explanatory variables remained virtually unchanged to those reported in Table 2. Accordingly, we show only the results of the interactions. We calculated the predicted probabilities of late union dissolution for different birth cohorts separately for each category described by the two variables about grandchildren.

Panel A of Figure 2 shows the predicted probability with confidence intervals of late union dissolution for childless individuals, those with children but no grandchildren, those with one or two grandchildren, and those with three or more. Panel B shows the predictions according to the variable about the intensity of family exchanges. First, both figures clearly show that the probability of experiencing a silver split increases, on average, among recent cohorts – especially among those born post-1955. Regarding grandchildren (Panel A), the results suggest that the role of grandchildren in shaping divorce behaviours has become increasingly important in younger generations. There is a clear gradient among individuals born between 1946–1955 and those born after 1955, suggesting that individuals with grandchildren are less prone to dissolve their unions after the age of 50, especially if they have three or more grandchildren. For example, for those born after 1955, the probability of late union dissolution for childless individuals was approximately 2.6%; for individuals with children but no grandchildren it was 2.4%; and

it was roughly 1.8% for those with one or two grandchildren and 1.6% for three or more grandchildren. Such a gradient is slightly less evident in the 1946–1955 cohort, even if the difference in the probability of silver splits between childless individuals and those with more than two grandchildren is relatively large. These differences virtually disappear in the oldest cohort (i.e., those born before 1946). In the oldest cohort, the (predicted) probability of silver splits is much smaller than for the other cohorts and remains virtually unchanged among the respondents with children, with one or two grandchildren, and with three or more grandchildren. Panel B shows that the intensity of family exchanges is a particularly relevant dimension for individuals from the older cohorts. Indeed, the risk of silver splits is higher among individuals with grandchildren who report having rare contact with their children (0.008), as compared to both individuals with children but no grandchildren (0.005) and those who have grandchildren and frequent contact with their children (0.004). Among the two younger cohorts, our findings confirmed that having grandchildren is linked to a decrease in the probability of experiencing late union dissolution (although the estimates have a low statistical precision).

Table 2: **Logistic model for the probability of experiencing union dissolution after the age of 50. AMEs for the variables about children and grandchildren are reported.** $N = 53,311$

		AME	p-value
Model 1	number of grandchildren (ref. childless)		
	has children, no grandchildren	−0.0038	0.101
	has one or two grandchildren	−0.0065	0.006
	has three or more grandchildren	−0.0079	0.000
Model 2	contact with grandchildren (ref. childless)		
	has children, no grandchildren	−0.0038	0.100
	has children and grandchildren but rare contact	−0.0057	0.065
	has children and grandchildren with frequent contact	−0.0077	0.000

Source: Authors' elaboration on SHARE data, waves 1–7 (wave 3 excluded).
Note: The models control for gender, birth cohort, educational level, employment status, union duration, previous divorce experience, homeownership, perceived financial stress, limitations with daily activities, depression scale, wave of entrance, and country of residence.

Figure 2: **Adjusted predicted probability of union dissolution by number of grandchildren and birth cohort. Confidence intervals are reported**

(A)

(B)
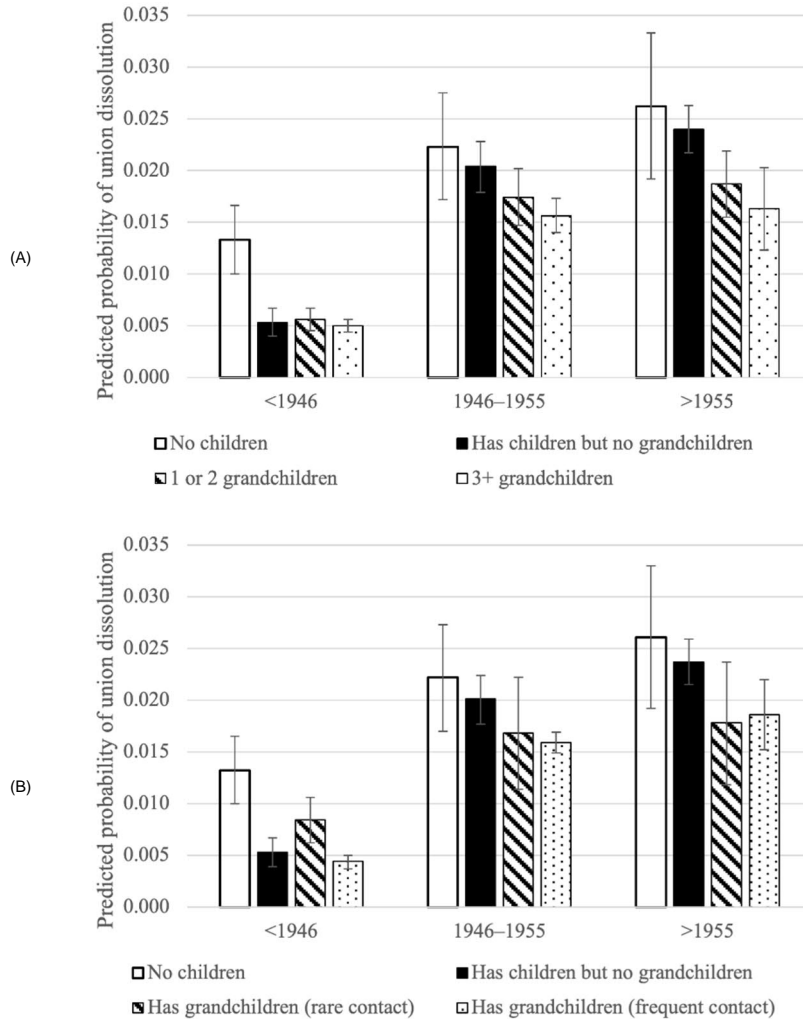
Source: Authors' elaboration on SHARE data, waves 1–7 (wave 3 excluded).
Notes: Predicted probabilities are adjusted by gender, education level, employment status, union duration, previous divorce experiences, homeownership, perceived financial stress, depression level, limitations in daily activities, and entrance wave. Predicted probabilities refer to the population average.

4.3 The other correlates of silver splits

Table 3 illustrates the relationship between the other variables and the risk of silver splits. As expected, we found no difference by gender (AME = 0.0005, p-value = 0.505). Individuals born between 1946–1955 and post-1955 (i.e., the baby boom cohorts) are more likely to experience union dissolution than the oldest cohort (pre-1946). The model highlighted no remarkable differences in the probability of silver splits according to educational level (robust to different specifications of the education variable).[9] Regarding employment status, retired individuals are more likely to experience a silver split than those working or otherwise not retired. Our findings confirm that union duration is negatively related to late union dissolution, meaning that the longer the marital duration, the smaller the probability of experiencing a silver split. Previous divorce experiences also play an important role in shaping silver split probability, with those who have already divorced at least once being 9.95 pp more likely to experience a/another dissolution compared to first-time divorcers. Homeownership is negatively related to silver split probability, with a related AME of –0.0067 (p-value < 0.001). Regarding perceived financial stress, we found that people who could make ends meet with difficulty or with great difficulty had a higher probability of late union dissolution. Interestingly, regarding health, we noted different results depending on the sphere of health considered. The indicator for functional health revealed that a higher number of limitations in daily activities related to a lower probability of late union dissolution (AME = –0.0020), whereas we observed an opposing correlation for depression (AME = 0.0011). Finally, those who entered the survey in the latest waves had a lower probability of late dissolution (possibly due to their spending less time in observation).

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[9] We also tested education in the model as a binary variable with two different specifications: primary education versus secondary or tertiary education, and primary or secondary education versus tertiary education.

Table 3: **Logistic model for the probability of experiencing union dissolution after the age of 50. AMEs are reported.** $N = 53{,}311$

	AME	p-value
gender (ref. male)		
female	0.0005	0.505
birth cohort (ref. before 1945)		
1946–1955	0.0086	0.000
after 1955	0.0078	0.000
education (ref. primary)		
secondary	−0.0017	0.465
tertiary	0.0013	0.556
employment status (ref. retired)		
working	−0.0070	0.000
other (e.g., unemployed, homemaker)	−0.0093	0.000
union duration	−0.0006	0.000
has already divorced at least once (ref. no)		
yes	0.0995	0.000
homeownership (ref. no)		
yes	−0.0067	0.000
making ends meet (ref. easily)		
fairly easily	0.0024	0.214
with some difficulty	0.0041	0.017
with great difficulty	0.0077	0.013
number of limitations with daily activities	−0.0020	0.073
depression scale	0.0011	0.000
wave of entrance (ref. wave 1)		
wave 2	0.0006	0.861
wave 4	−0.0029	0.049
wave 5	−0.0062	0.004
wave 6	−0.0125	0.000
number of grandchildren	YES	
country fixed effects	YES	

Source: Authors' elaboration on SHARE data, waves 1–7 (wave 3 excluded).

4.4 Robustness checks and further analyses

Our findings are confirmed across various additional analyses and robustness checks. Due to space constraints, the results are not shown here but are available upon request. First, we added an interaction term between the number of children and the country of residence in order to consider possible country-level differences but found no relevant result (quite possibly due to reduced sample size). Moreover, to operationalise the 'empty nest' concept, we also tested interaction terms between the number of grandchildren and the fact that none, some, or all children had left the parental home. However, the cells

became too small and yielded inconclusive results. Regarding the role of children, we conducted a specific analysis to check whether the number of children was also significant and found that individuals with two or more children are less likely to experience silver splits than those with only one child. Additionally, since we used multiple imputation techniques to manage missing information, all models estimated on the imputed dataset were replicated on the original dataset (i.e., without imputations). While the estimates remained virtually unchanged, they clearly lost part of their statistical precision. Finally, we replicated the analysis excluding individuals whose missing information was recovered from previous waves. Again, the results remain virtually unchanged but lost part of their statistical precision due to the reduced sample size.

5. Conclusions

Union dissolution in later life has become increasingly relevant as a social and demographic phenomenon. Despite this growing importance, the correlates of silver splits remain underexplored – especially in Europe. Using data from six waves of the SHARE dataset, we explored the role of several factors as potential correlates of late union dissolution, with a special emphasis on the role of children and grandchildren. We studied union dissolution rather than divorce in the strict sense of the word to acknowledge the increasing diversity of family life at older ages.

Our analysis suggests that having children and grandchildren is associated with a lower probability of experiencing a silver split. Indeed, we found that late union dissolution is less likely when individuals have children, let alone grandchildren. This finding is unsurprising and aligns with prior research showing that having children is a well-established factor that consolidates unions among the analysed birth cohorts (e.g., De Rose 1992; Hoem and Hoem 1992; Lyngstad and Jalovaara 2010; White 1990), and that family-oriented individuals are both more likely to have children and less likely to dissolve their union (Lesthaeghe and Moors 2000). Becker, Landes, and Michae (1977) observe that children are a 'marital-specific capital,' thus representing a sign of family harmony with positive implications for union stability. However, it remains to be seen whether this association will be confirmed in future generations.

The effect of grandchildren in shaping silver splits is especially interesting. To explore this effect, we employed two variables (the number of grandchildren and the intensity of family exchanges) and explored their relationship with the risk of a silver split. Our findings indicate that having grandchildren reduces this risk and that both their number and the frequency of contact with children and grandchildren play a significant role. Not only having grandchildren but also maintaining frequent contact with them relates to a lower probability of late union dissolution. While it has been widely

established that having children is a strong inhibitor to divorce at younger ages (i.e., when children are young), as children (and parents) age, this relationship may weaken. At later ages, having grandchildren – in addition to that of children – and the intensity of family exchanges influence the probability of union dissolution, possibly due to the positive relationship between becoming grandparents and individual well-being (e.g., Arpino, Bordone, and Balbo 2018). Interestingly, this correlation differs across birth cohorts. On the one hand, younger cohorts have higher divorce rates than their older counterparts, and childless individuals are always the most likely to experience late union dissolutions. On the other hand, our findings suggest that, compared to individuals who only have children, those who have also grandchildren have an even lower risk of silver splits – especially among those born after 1946. This result may be explained by the fact that more recent cohorts have young grandchildren whose grandparents are more involved in childcare (which may be a form of positive engagement for the couple) compared to those with older grandchildren who are less in need of care (Pasqualini, Di Gessa, and Tomassini 2021). However, such an interpretation should be made cautiously since the timing of fertility and childcare attitudes have changed over time and differ between countries.

As an ancillary but important outcome of the study, we suggest that the European correlates of silver splits are similar to those found previously in a North American context. Regarding birth cohorts, we found that individuals born after 1946 were more likely to experience late union dissolutions than those born previously. This aligns with previous findings in the United States showing that the baby boom cohorts are the most prone to divorce and sparked the silver split phenomenon as they aged (Brown and Lin 2012; Cohen 2019; Lin et al. 2018). We confirmed union duration to be negatively related to silver splits, while previous divorce experiences proved to be important predictors of silver splits at later ages. Retired individuals have a higher risk of experiencing union dissolution after the age of 50 compared to those not retired. Regarding economic conditions, our findings suggest a positive correlation between financial stress and silver splits since individuals who struggle to make ends meet are more likely to dissolve their unions after the age of 50, and homeowners are less likely to experience a silver split compared to those who do not own a house. The latter finding suggests that a stable housing situation may improve marital quality in later life, which accords with previous research on the importance of housing for the aged (Angelini, Laferrère, and Weber 2013; Vignoli, Tanturri, and Acciai 2016). Finally, our study supports the hypothesis of a negative relationship between deteriorating mental health (i.e., depression) and late union dissolution, thereby corroborating previous findings (Davies, Avison, and McAlpine 1997; Idstad et al. 2015; Kessler, Walters, and Forthofer 1998; Torvik et al. 2015). Conversely, we found that poor physical health – measured through the number of limitations to daily activities – was associated with a reduced likelihood of union

dissolution. Education level seemed irrelevant to silver splits. This is in line with existing studies showing that educational level has only a limited effect on the probability of grey divorce in the United States (Brown and Lin 2012; Lin et al. 2018).

It would be important to note several limitations to our study. First, the small number of cases prohibited a country-specific analysis. This means that our findings reveal average effects computed across several countries and thus obscure any potential country-specific patterns. Furthermore, it is possible that we found no association between some factors (e.g., education) and silver splits simply because opposing country-specific effects averaged out. Another limitation relates to attrition. Different solutions have been proposed on how to most effectively control for attrition, depending on the mechanisms generating loss at follow-up (see e.g., Enders 2010; Little and Rubin 2002). Although attrition effects are present in most panel surveys to various extents, their consequences on model results are often disregarded in demographic research, which may lead to a non-negligible bias (Alderman et al. 2001). Despite our efforts to include a wide array of control variables in the models in order to mitigate attrition bias, such a solution can reduce the consequences of attrition only to the extent that it depends on observable characteristics. Nevertheless, it is worth noting that previous analyses have found little evidence of selective attrition bias in SHARE (Bergmann et al. 2017; Kneip, Malter, and Sand 2015). We also encountered certain data limitations. We were unable to follow a couple approach because a substantial number of participants had (totally or partially) nonresponding partners, who would have introduced a further selection in our analyses. Besides, due to the reduced number of cases, we made no distinctions between biological children and step-children, nor did we do so for biological grandchildren and step-grandchildren. We found inconsistencies in marital and partner status across waves (e.g., individuals who were married in one wave and reported being single in the following one). Furthermore, approximately 5,000 individuals reported missing information about their union duration, upon which we opted to impute these missing values. Finally, we inferred family intensity through information concerning the frequency of contact with children, which may possibly have introduced a bias. Unfortunately, information about the frequency of contact with grandchildren was not available, and data regarding whether the respondent cares for grandchildren were accessible only if the latter was younger than 13 years of age.

Despite these limitations, this paper sheds some light on the correlates of a rare but demographically and sociologically relevant phenomenon. Having children has been widely shown to inhibit union dissolution – especially among older cohorts. Indeed, parents may postpone their marital dissolution until after the 'empty nest' phase for the sake of their children. However, grandchildren may serve to 'refill the nest,' thus discouraging silver splits as grandparents assume new familial and social responsibilities. Although predominantly exploratory, our study expands existing knowledge on the

factors related to silver splits in Europe and, we hope, will feed future research on the topic (e.g., scrutinising the role of children and grandchildren specifically by country and gender, or investigating potential differences between biological grandchildren and step-grandchildren).

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Appendix

Sample attrition

We investigated the factors associated with the probability of not entering our analytical sample (i.e., participating in the survey only once). Table A-1 shows the results of a logistic regression for the probability of leaving the survey after only one interview. We reported four-digit AMEs in order to avoid rough approximations due to the small magnitude of coefficients. Respondents who died after their first participation were excluded from the model (n = 1,802, or approximately 10% of those who left). The model revealed no relevant gender difference, while people born after 1955 were more likely to abandon the survey after one wave (it should be noted that we did not consider leaving the survey due to death as attrition). The probability of attrition was 2.67% lower among people with tertiary education. Regarding employment status, retired individuals were the least likely to leave the survey, while the employed and otherwise unretired had a higher attrition risk. Having children was negatively related to attrition: Individuals with one child and those with two or more were 2% and 6.6% less likely to leave the sample, respectively. Having already had previous divorce experiences did not relevantly affect the probability of attrition. Homeownership was related to a lower probability of attrition, and those who reported finding it easy to make ends meet were the least likely to leave due to attrition. These last two findings suggest that individuals with higher socioeconomic status may be less inclined to terminate their participation. Finally, limitations in daily activities played no prominent role, while depression was associated with lower attrition probability (AME = –0.003). All the factors considered in Table 1 were included in the models on the probability of union dissolution due to their correlation with attrition probabilities.

Table A-1: **Logistic model for the probability of leaving the survey after one wave. AMEs are reported.** $N = 72{,}032$

	AME	p-value
gender (ref. male)		
female	−0.0022	0.631
birth cohort (ref. before 1945)		
1946–1955	−0.0071	0.507
after 1955	0.0274	0.098
education (ref. primary)		
secondary	−0.0108	0.202
Tertiary	−0.0267	0.000
employment status (ref. retired)		
working	0.0221	0.012
other (e.g., unemployed, homemaker)	0.0141	0.059
number of children (ref. childless)		
one child	−0.0201	0.062
two or more children	−0.0659	0.000
has already divorced at least once (ref. no)		
yes	−0.0054	0.538
homeownership (ref. no)		
yes	−0.0294	0.000
making ends meet (ref. easily)		
fairly easily	0.0139	0.050
with some difficulty	0.0135	0.222
with great difficulty	0.0001	0.934
number of limitations with daily activities	0.0042	0.210
depression scale	−0.0030	0.043
country fixed effects	YES	
wave	YES	

Source: Authors' elaboration on SHARE data, waves 1–7 (wave 3 excluded).

Figure A-1: Flow chart of the sample selection process

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┌─────────────────────────────────────────────────────┐
│              72,032 eligible observations             │
│  (i.e., they were (1) married or in a registered      │
│  cohabitation or (2) in an                            │
│  informal relationship involving cohabitation at the  │
│  time of the interview)                               │
└─────────────────────────────────────────────────────┘
```

72,032 eligible observations

(i.e., they were (1) married or in a registered cohabitation or (2) in an

informal relationship involving cohabitation at the time of the interview)

18,721 observations lost at follow up (i.e.,

they were interviewed only once)

Analytical sample:

53,311 observations interviewed at least twice

3,448 left because of

death

Out of the 53,311

observations:

17,392 left the survey

before the last wave

(**potential attrition**)

135 left after experiencing

union dissolution

13,809 left because of

attrition

1,831 out of 13,809: information

recovered through the partner