The relationship between health and partnership history in adulthood: insights through retrospective information from Europeans aged 50 and over

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Abstract The association between health and partnership status is a growing concern within the social sciences. Some partnership situations exhibit positive effects on health, while partnership breakdowns display negative impacts. However, case studies show that these associations may change with age, due to potential sources of heterogeneity within a population. The current analysis explored this association over the adult life course (ages 30–64) of Europeans aged 50 years and older based on retrospective information on health and partnership from SHARELIFE ($N = 23,535$ after data screening). The data allowed us to control for socio-demographic covariates as well as for individual infirmity, measured by childhood health. We also considered contextual survival selection effects by comparing 13 European countries for which pre-adult mortality levels largely differed among the cohorts involved (1907–1958). Discrete-time hazard analyses examined the risk of suffering from a major episode of poor health (self-reported) in adulthood as a function of partnership history, using two approaches: a pooled model and country-specific models. The results revealed no differences between those who lived with a partner (first union) and single individuals in terms of the retrospective hazards of poor health. We hypothesize that this result stems from the cumulative effect of survival selection on

individuals in advanced ages according to partnership status. The results also partially point to the plausibility of a contextual survival selection, which should be confirmed by further research based on additional health indicators.

Keywords Partnership status · Health · Biographical information · Survival Selection · SHARE

Introduction

For the most part, previous research on the relationship between partnership status and health has shown that living with a partner is associated with better health outcomes when measured in terms of mortality (Waite 1995; Valkonen et al. 2004; Martikainen et al. 2005) or morbidity (Joung et al. 1994; Liu and Umberson 2008; Hughes and Waite 2009). Furthermore, some of these studies have uncovered that partnership could determine mortality differentials to a larger extent than socioeconomic status in some circumstances (Martikainen et al. 2005).

Three main mechanisms behind partnership have been emphasized as contributing to explain its health benefits: (1) the reduction of risky behaviors and unhealthy habits (Lillard and Waite 1995; Duncan et al. 2006), (2) the development of a support network that can buffer the effect of poor health episodes (Waite 1995), and (3) the increase in material well-being associated with economies of scale resulting from the addition of resources of both partners and the possibility of task specialization (Lillard and Panis 1996). These processes do not influence males and females identically. First, the benefits appear to be greater and manifest more quickly among males. That is to say, men's health improves shortly after the beginning of a union, whereas its effects on women's health occur more

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gradually. Secondly, women appear to benefit principally from the increase in material well-being, whereas males mainly benefit from the cessation or moderation of risky behaviors and unhealthy habits (Waite 1995; Lillard and Panis 1996; Duncan et al. 2006). In contrast, other partnership situations, as well as the transitions between them, have been associated with negative effects on health, as exemplified by the increases in depressive symptoms and/or chronic morbidity among men and women who either experienced a separation or divorce or became widows (Simon 2002; Wade and Pevalin 2004; Hughes and Waite 2009). In addition, those engaged in subsequent unions after an episode of separation did not completely recover the original advantage they once had in terms of health (Hughes and Waite 2009).

However, the health benefits of partnership among mature and older adults have been questioned (i.e., benefits of partnership with respect to singleness seem to moderate, disappear, or even reverse at these ages) (Goldman et al. 1995; Regidor et al. 2001; Bardage et al. 2005). Some studies explain this result as the effect of survival selection; a major source of heterogeneity within populations, which causes unexpected pattern of a given phenomenon (e.g., health and mortality) as a function of age (Vaupel et al. 1979; Vaupel and Yashin 1985). Survival selection may originate on contextual and/or individual levels. Contextually, it is associated with the living conditions of the population, which strongly determine mortality levels throughout the life course and particularly in childhood. For instance, current populations that were exposed to hard living conditions and high-mortality levels at pre-adult ages are more likely to be selected in terms of survival. Accordingly, these populations might exhibit better or less disadvantaged than expected health outcomes at old ages than populations with better living conditions and lower mortality levels. At the individual level, survival selection may be determined by a number of behavioral, socioeconomic, and/or genetic factors. For instance, if singleness is associated with risky health behaviors, then it is expected that singles suffer from higher mortality levels and thus become a more selected segment of the population when reaching old age.

This work aims to explore the association between health and partnership in adulthood, comparing individuals who entered into their first union (either cohabitation or marriage) and those who remained single at mature ages. Biographical information on health status and partnership status (a time-varying variable) provided by Europeans aged 50 and over in the SHARELIFE survey is utilized for this purpose. All 13 countries included in this survey (Austria, Belgium, the Czech Republic, Denmark, France, Germany, Greece, Italy, the Netherlands, Poland, Sweden, Spain, and Switzerland) were analyzed both jointly and

specifically. These countries represent different mortality backgrounds associated with diverse contexts of living conditions for the cohorts that are analyzed in this study (1907–1958), which indirectly permit us to approach the influence of survival selection effects between these populations. Another potential source of heterogeneity at the individual level (i.e., individuals' health trajectories) is partly controlled by utilizing their health status in childhood.

Differences between these populations were also noticeable with regard to the intensity and the timing of some key aspects of the second demographic transition (SDT) that took place from Northwestern to Southeastern regions, mainly during the second half of the twentieth century. SDT proposes that changes in a number of demographic-related behaviors (e.g., the postponement of childbearing and marriage, the diversification of family forms, and the increase of divorce and cohabitation rates) are associated not only with socioeconomic variables, but also with large-scale changes in values (Lesthaeghe 1995). The spread of these values differs across countries and is related to both cultural and legislative aspects (for instance, the official approval of divorce; González and Viitanen 2009), which are important to understand the cross-national partnership-related differentials observed among Europeans aged 50 and older surveyed by SHARELIFE.

Methods

Data

Microdata from the Survey of Health, Ageing and Retirement in Europe (SHARE) were utilized. SHARE is a cross-national panel survey conducted on individuals (interviewees and their partners) aged 50 and over (Börsch-Supan et al. 2005; Schröder 2011). The third wave of SHARE (named SHARELIFE) was held between the autumn of 2008 and the summer of 2009, and it included retrospective questions that permit a life-cycle approach to certain issues such as health and partnership trajectories. The initial sample size of interviewees aged 50+ and their partners was slightly reduced after discarding proxies (indirect informants) and excluding missing cases of any of the variables involved in the analysis and individuals who experienced an event of poor health before turning 30. Valid cases amounted to 89 % overall, ranging from 84 % (Poland and France) to 94 % (Italy). The distribution of cases according to age group and sex prior to and after the data screening remained largely unchanged. The retrospective analysis of health and partnership spanned working ages (30–64) to avoid the potential biases related to changes in socioeconomic status after retirement

(Demakakos et al. 2008). The lower age boundary in this analysis (age 30) responds to the aim of avoiding the effect of age to mediate the relationship between partnership status and health (i.e., younger individuals are more likely to be single as well as to be less likely to experience poor health episodes). At the age of 30, 82.5 % of individuals were already in a partnership status other than single, and this percentage rises slightly to 90.1 % at the age of 64. Individuals younger than 64 at the time of the interview were right-censored in the analysis.

Study variables

The health outcome (SHARELIFE item GL009) represents whether the individual experienced “a distinct period during which your health was poor compared to the rest of your life” over adulthood (ages 30–64) and in the case of an affirmative answer, when this period occurred. The prevalence of this event was 33.5 % among men and 37.1 % among women. Germany displayed the highest prevalence (47.2 % among men and 46.8 % among women) and Greece the lowest prevalence (17.0 % among men and 20.2 % among women). Overall, in approximately 74 % of the cases, this event occurred between the ages of 30 and 64.

As with other self-reported health indicators, this item captures both the objective and subjective dimensions of health, which maintain a solid association for the most part (Idler 1993). Therefore, it approaches the health status of individuals in a more comprehensive manner (WHO 1946) than more specific health indicators (i.e., whether the individual suffers or has suffered from a certain disease¹). This indicator also shows a significant relationship with other subjective health indicators such as the current self-perceived health status at the time of the survey (62 % of those who declared a poor health status experienced the event of poor health, whereas the incidence of the event among those who declared a good health status was 28 %; the χ^2 statistic was significant when both indicators were cross-tabulated). That said, it must be acknowledged that

what constitutes a “distinct period” of poor health may differ from individual to individual as well as from country to country.

Partnership history for each interviewee between the ages of 30 and 64 (or alternatively until the age at time of the interview) was re-constructed from retrospective questions that recorded the occurrence of unions, separations, and widowhood. Technically, this information was stored in a time-varying variable that was categorized as follows:

- Single (no previous union)
- First union (living with a partner in a first union)
- Interruption of the relationship (not living with a partner after having experienced separation or divorce, independent of the rank of the union)
- Widowhood
- Second or higher rank union (living with a partner in a second or higher rank union).

The time-varying approach to partnership status as practiced in this study prevents the artifact of the attenuated effects of marital status on morbidity and mortality, as Rendall et al. proposed in 2011. The first unions at the time of the interview were clearly prevalent in all the countries under analysis (overall, 75 % of cases among men and 60 % among women), but significant differences between countries were observed for the other partnership situations. Southern European countries (Spain, Italy, and Greece) together with Poland showed the lowest percentage of breakdowns (below 10 % for both sexes), whereas Nordic countries (Denmark and Sweden) showed the highest percentages for these situations (above 20 % in both sexes). As expected, a lower percentage of widowers (6.3 %) with respect to widows (21.9 %) was also found. With regard to this, the main difference between countries was found among widows ranging from 15.6 % (the Netherlands) to 29.7 % (Austria).

Age at the time of the interview was collapsed into four groups: 50–59, 60–69, 70–79, and 80 and over. This variable controlled for two possible sources of bias in the time of the occurrence of the event of interest, namely (1) a choice set bias in that longer life increases the number of potential episodes of poor health and consequently forced the individual to prioritize health to a greater extent than younger individuals; and (2) a recall bias in that longer life may worsen the ability to remember and report past events precisely. For instance, it might be the case that older individuals prioritized more recent episodes, thus resulting in an artifact of postponement of poor health episodes.

Childhood health was included to control for individual infirmity in our analyses through the question, “Would you say that your health during your childhood was in general excellent, very good, good, fair or poor and/or not

¹ Among other problems, a more specific set of items in this survey (HS054) likely underestimates the periods or episodes of poor health with respect to the indicator that was chosen for this work. For example, the prevalence of a period of poor health is 21 % using HS054, whereas the value is 40.4 % when GL009 is used. This necessarily has to do with the different wording and different conceptual nature of both items. Moreover, any period of poor health in HS054 can be embodied by several illnesses, which provokes a problem of ambiguity in the use of specific illnesses as health indicators. Therefore, we believe that GL009 is a better technical choice for our purposes, and its figures are more trustworthy taking into account that SHARELIFE focuses on the population aged 50 and over. Nevertheless, specific comments in the discussion section are devoted to deal with the implications of this choice in our results.

constant?” These answers were grouped into two categories: good health (excellent, very good, and good) and poor health (fair, poor, or ever poor).

Working status asked retrospectively about the changes in a person’s labor situation throughout adulthood, which was also treated as a time-varying variable in our analyses (working/not working).

Education (the highest educational level attained by the interviewee) has two purposes in the analyses: (1) to approach the socioeconomic status of individuals together with their working status, and (2) to approach differences in health risk behaviors (higher education is associated with healthier behaviors) (Marmot 2005). Educational levels across countries were harmonized using the International Standard Classification of Education (ISCED 1997) by UNESCO, and the resulting variable grouped some categories to obtain more robust cross-tabulations for all countries: (1) First level of education includes no studies completed and primary studies or first stage of basic education (Levels 0 and 1 of ISCED); (2) Second level of education: Second stage of basic education and secondary education (Levels 2 and 3 of ISCED); and (3) Third level of education: Post-secondary (non-tertiary) and all possible levels of tertiary education (Levels 4–6 of ISCED).

Sex: men/women

Age (and age squared) in our models was a time-varying variable that ranged from the age of 30 (first observation for each individual) to the age of 64 (maximum) or, alternatively, the age at time of the interview. Each individual was observed as many times as the years passed until the event (a distinct period of poor health) occurred or until the age of 64 in the absence of an event. Age squared was included in the models to better fit with age effects beyond a linear function of age.

To ease the interpretation of our results, the analyzed countries were grouped according to their infant mortality rates during a decade of the inter-war period (1927–1938) for which data are available for all countries (Chesnais 1986):

- 1 High mortality (thus high levels of potential survival selection effect) includes countries with infant mortality rates above 100 per thousand at the beginning of the period and mostly remained so over the period. These countries are Poland, the Czech Republic,² Spain, Italy, and Greece.³

- 2 Intermediate mortality (rates between 75 and 100 per thousand): Austria, Belgium, France, Germany, and Denmark
- 3 Low mortality (rates systematically below 75 per thousand): Sweden, Switzerland, and the Netherlands. Accordingly, this group represents the lowest level of potential survival selection at a contextual level

Analysis

First, a descriptive analysis displays the percentage of interviewees that experienced the event of poor health across the range of ages studied (30–64). In this analysis, the countries are sorted according to the mortality levels defined above.

Second, survival analysis was utilized to measure the risk of suffering from a distinct episode of poor health (poor health hereafter) as a function of the partnership status and controlling for the above-mentioned variables. This analysis was performed through discrete-time hazard models because the variables involved in the analysis were interval censored (i.e., the exact time at which every event occurred within 1 year was unknown). Control variables were entered into the models as (1) time-varying covariates (partnership status, working status, and age) and (2) time-constant covariates (sex, childhood health, age at the time of the interview, and education).

Two different model specifications are presented and discussed. First, a pooled model was run to capture the net differences in the hazard of poor health among countries as well as to test the hypothesis of the attenuation or reversion of a first-union advantage at mature and older ages. Second, country-specific models explored the existence of patterns of partnership-related determinants of poor health hazard across countries (for instance, whether the direction and the significance of first-union effects on the hazard of poor health differ between countries).

The coefficients displayed report the relative difference with respect to the reference group, whereby positive values indicate a higher hazard than the reference category and vice versa. Only statistically significant coefficients (significance < 0.05) are commented and discussed in detail.

Results

Table 1 displays that women exhibit a higher prevalence of experiencing the event of poor health during the 30–64 age range, particularly in Switzerland, Sweden, and Spain (11.6, 9.6, and 6.9 % points of difference, respectively; the

² The series depicted here are based on mortality data from the former Czechoslovakia.

³ We included this country in the high-mortality group based on its values from 1931 and onwards because Greek civil registration started relatively late in 1925, and it was not fully enforced until 1931.

Table 1 Prevalence of a poor health event within the range of ages 30–64 by sex, age at the time of the interview, childhood health, education, and country

	Sex		Age at the interview				Childhood health		Education			Total
	Men (%)	Women (%)	50–59 (%)	60–69 (%)	70–79 (%)	80 and over (%)	Good (%)	Poor or variable (%)	First level (%)	Second level (%)	Third level (%)	
Czech Republic	29.8	31.5	32.3	33.7	26.1	19.1	29.9	44.1	30.9	30.8	30.7	30.8
Greece	17.0	20.2	14.5	22.4	22.2	14.7	18.7	42.9	22.6	14.4	17.4	18.8
Italy	29.5	31.3	30.6	32.7	28.9	21.8	29.6	45.0	30.4	30.4	31.3	30.5
Poland	38.3	44.2	39.0	50.7	35.2	26.8	40.6	55.0	41.5	42.2	40.5	41.7
Spain	32.3	39.2	34.9	43.3	33.2	23.1	34.3	53.0	38.0	34.7	27.4	36.1
Austria	43.9	40.7	43.7	45.7	37.3	33.3	41.5	46.0	44.4	40.0	44.8	42.0
Belgium	34.2	38.2	38.7	41.1	33.3	21.5	35.1	52.5	33.5	36.8	38.1	36.4
Denmark	35.4	40.1	40.3	42.3	34.0	19.5	36.9	52.4	36.4	37.8	38.7	37.9
France	41.2	43.9	46.6	43.7	40.7	31.5	41.6	53.7	41.6	44.8	40.8	42.7
Germany	47.2	46.8	47.8	49.9	42.7	39.6	45.1	61.2	36.4	47.6	45.9	47.0
Netherlands	32.9	32.0	38.6	34.6	23.3	17.4	31.7	38.9	34.7	31.0	35.0	32.4
Sweden	35.6	45.2	45.6	44.4	36.0	27.8	39.4	61.4	40.0	42.7	39.9	40.9
Switzerland	31.8	43.4	39.9	41.6	33.2	33.0	36.4	57.0	37.1	38.5	38.5	38.3
Total	33.5	37.1	36.3	39.3	32.2	24.3	34.2	51.7	34.2	35.7	36.6	35.5

total difference in the whole sample is 3.6). There are three exceptions to this pattern: Austria, Germany, and the Netherlands.

In addition, younger groups at the time of the interview (ages 50–59 and 60–69) display a higher prevalence, which for the most part peaks at ages 60–69, whereas it bottoms out among individuals aged 80 and over. Likewise, the prevalence of poor health is invariably higher among individuals that reported poor or unstable health during their childhoods. Finally, by contrast, education does not make any significant difference in most of the countries analyzed, once other variables are controlled for.

Table 2 displays the hazard coefficients (of poor health) whereby country-specific differences are controlled for in a pooled model. In this specification, the Netherlands was taken as the reference country because it exhibited the lowest infant mortality rate during the 1927–1938 period.⁴

Eight of the twelve countries show a higher (and statistically significant) hazard of poor health compared to the Netherlands. All four countries with lower hazards (the Czech Republic, Greece, Italy, and Spain) belong to the high infant mortality group, whereas only one of the five countries so categorized (Poland) shows a relatively higher hazard of poor health with respect to the Netherlands.

Looking at partnership status categories, when country-specific differences were controlled for, none showed a lower hazard of poor health than singleness. Indeed, two of

them (second union and separation-divorce) displayed significantly higher hazards.

Poor or unstable health at pre-adult ages clearly increases the risk of suffering from poor health during adulthood. In addition, most of the socio-demographic covariates included in the analysis displayed significant effects. The hazard of poor health increases significantly with age, although the assumption of linearity is refuted by the significant coefficient of the age squared, whereas the age at the time of the interview displays the opposite (and expected) effect, in that being interviewed at older ages likely reduces the probability of prioritizing a single distinct event of poor health within the range of ages 30–64. Those who did not work between ages 30–64 show a higher risk of experiencing poor health. Education does not display any significant effect when country-specific differences were controlled for, and no significant differences between the hazards experienced by men and women are found.

The results from country-specific models (Table 3) support the most substantial part of those provided in the pooled model: there is no evidence of health advantages associated with partnership (first unions) throughout adulthood in these European countries among the individuals who reached the age of 50. In reality, Spain and France display significant differences (lower hazards) in favor of single individuals. Regarding other partnership situations, living in a second or higher rank union as well as a separation or divorce show a similar pattern across countries: positive coefficients that are significant in few cases

⁴ The interaction between country and partnership situations was tested without obtaining significant results.

Table 2 Coefficients of poor health hazards between ages 30 and 64

	Coefficient significance
Country (Ref: Netherlands)	
Czech Rep.	0.063
Greece	−0.547***
Italy	−0.092
Poland	0.329***
Spain	0.080
Austria	0.290***
Belgium	0.187**
Denmark	0.290***
France	0.324***
Germany	0.479***
Sweden	0.398***
Switzerland	0.252***
Partnership biography (Ref: Single)	
First Union	0.119 [†]
Second Union	0.318***
Separation or divorce	0.387***
Widowhood	0.169 [†]
Childhood health (Ref: Good)	
Poor or variable	0.405***
Working status (Ref: No working)	
Working	−0.479***
Age at the survey (Ref: 50–59)	
60–69	−0.358***
70–79	−0.868***
80 and over	−1.472***
Educational Level (Ref: First Level)	
Second Level	−0.049
Third Level	0.010
Age	0.194***
Age Squared	−0.001***
Sex (Ref: Men)	
Women	−0.015
Constant	−9.698***
Pseudo R-Square	0.045
N	23535
Pooled countries specification	
<0.001***; <0.01**; <0.05*; <0.1 [†]	

(France and the Netherlands for second unions and Spain, France, Germany, and Sweden in the case of separation or divorce). Widowhood displays the most heterogeneous effect across countries, with significant results only in Spain.

Age, age squared, age at the time of the interview, childhood health, and working history show homogenous effects within almost all of the countries analyzed, and these effects are in accordance with those described in the

pooled model. Finally, this model specification helps understand the tenuous and erratic effect of sex and educational level uncovered by the pooled model. Sex is significant in five countries (Greece, Germany, Netherlands, Sweden, and Switzerland), but while women exhibit a higher hazard of poor health in Greece, Sweden, and Switzerland, the opposite occurs in Germany and the Netherlands. Education only shows an effect (lower hazard for secondary education) in Greece and the Netherlands.

Discussion

This study analyzed the hazard of experiencing poor health (self-reported) over adulthood as a function of changes in partnership history and a number of individual socio-demographic characteristics in thirteen European countries. The countries represent different paces and pathways into the SDT, and they also embody different contexts of living conditions among the cohorts analyzed (population aged 50+ and born between 1907 and 1958). The latter might imply different levels of potential health- and mortality-driven selection effects.

Our results demonstrate that in this segment of the European population, living in a first union throughout adulthood (i.e., over ages 30–64) is not associated with a meaningful advantage compared to those who remained single, at least when health is measured by a comprehensive indicator, such as the one utilized here. This result supplements and enhances previous partial evidence from case studies based on either cross-sectional or longitudinal analyses, which made use of different health indicators. For instance, in the urban Spanish region of Madrid, Regidor et al. (2001) found higher survivorship rates among singles (not cohabitating) aged 65+ with respect to those living with a partner. Goldman et al. (1995) reached similar conclusions about mortality and disability from a short-term longitudinal study (1984–1990) conducted with a sample of Americans aged 70 and over. Bardage et al. (2005) also found no difference in terms of self-rated health among married and not married individuals aged 65–89 in study comparing Sweden, the Netherlands, and Spain. A number of these studies hypothesized that the absence of the (expected) protective effect of partnership on health does not necessarily reflect the net effect of partnership biography on health but rather some degree of selection among individuals that have reached older adult ages. This selection may work on two levels: individually and contextually.

On the one hand, single individuals suffer from a higher mortality risk (Waite 1995; Martikainen et al. 2005; Valkonen et al. 2004; Joutsenniemi 2007), and as a consequence, those who survive until mature and older ages may

Table 3 Coefficients of country-specific poor health hazards between ages 30 and 64

	Czech Rep.	Greece	Italy	Poland	Spain	Austria	Belgium	Denmark	France	Germany	Netherlands	Sweden	Switzerland
	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.	Coef. Sign.
Partnership biography (Ref: Single)													
First Union	-0.089	0.205	0.189	0.051	0.597**	0.221	-0.242	-0.206	0.413*	0.192	0.023	0.176	0.034
Second or higher Union	0.292	0.433	0.465	0.159	0.740†	0.654†	-0.086	-0.047	0.592**	0.443†	0.590**	0.263	0.033
Separation or divorce	0.094	0.315	0.696†	-0.158	0.806*	0.559	-0.029	0.058	0.690**	0.617*	0.160	0.588*	0.234
Widowhood	-0.074	0.056	0.394	0.172	0.931**	0.377	-0.419	0.121	0.404	0.316	0.435	-0.335	-0.305
Childhood health (Ref: Good)													
Poor or variable	0.483**	0.815	0.319*	0.357*	0.445**	-0.074	0.499***	0.533**	0.322**	0.396**	0.230†	0.532**	0.622***
Working status (Ref: No working)													
Working	-1.242***	0.004	-0.303**	-0.987***	-0.681***	-0.271	-0.553***	-0.824***	-0.350***	-0.481***	-0.399**	-0.648***	-0.048
Age at the survey (Ref: 50–59)													
60–69	-0.423***	-0.062	-0.339**	0.017	-0.409**	-0.284	-0.417***	-0.415***	-0.538***	-0.431***	-0.505***	-0.393***	-0.271†
70–79	-0.928***	-0.377**	-0.718***	-0.673***	-1.169***	-0.839***	-0.845***	-0.992***	-1.038***	-0.881***	-1.117***	-0.833***	-0.864***
80 and over	-1.429***	-0.991***	-1.224***	-1.148***	-1.728***	-1.547***	-1.589***	-1.777***	-1.635***	-1.317***	-1.835***	-1.672***	-0.926***
Educational Level (Ref: First Level)													
Second Level	0.052	-0.422**	0.041	0.131	-0.133	-0.147	0.064	0.083	0.039	0.238	-0.296*	0.005	0.030
Third Level	0.096	-0.106	0.176	0.126	-0.340†	0.051	0.190†	0.134	-0.104	0.268	0.184	-0.047	0.143
Age	0.553***	0.269***	0.087*	0.419***	0.161**	0.156*	0.140***	0.243***	0.144**	0.097*	0.199**	0.248***	0.018
Age Squared	-0.005***	-0.002**	-0.001	-0.004***	-0.001†	-0.001	-0.001*	-0.002***	-0.001*	-0.001	-0.001*	-0.002***	0.000
Sex (Ref: Men)													
Women	-0.121	0.253*	-0.093	-0.025	-0.223	-0.155	-0.038	0.049	0.072	-0.196*	-0.219*	0.270**	0.469***
Constant	-16.828***	-13.546***	-7.657***	-14.125***	-9.430***	-8.148***	-7.582***	-10.044***	-8.471***	-7.152***	-8.797***	-10.882***	-5.681***
Pseudo R-Square	0.061	0.050	0.028	0.065	0.065	0.032	0.036	0.052	0.043	0.040	0.039	0.054	0.026
N	1678	2645	2319	1601	1777	708	2532	1913	2037	1652	1911	1684	1078

<0.001***; <0.01**; <0.05*; <0.1†

represent a more select segment of the population. This point was supported through independent hazard models for each age group (not shown; available upon request) in which the higher the age group (at the time of the interview), the lower the risk of poor health of single individuals in comparison with those who were in a first union. Explanations other than the survival selection effect could be proposed, but they are not very plausible in our opinion (e.g., if there are mechanisms whereby married individuals report the distinct period of poor health early more often than singles). In addition, some authors have shown that health influences the probability of individuals to enter into a union (Joung et al. 1998; Brockmann and Klein 2004). The retrospective data from SHARELIFE are insufficient to fully consider reverse causality between partnership status and health even though the interaction between childhood health and partnership status was tested in this analysis without having obtained significant results.

On the other hand, our results also point to some degree of mortality-related selection at the country level because four of the five countries categorized as high-mortality countries during the first half of the twentieth century (Greece, Italy, the Czech Republic, and Spain) show no significant effect or even lower hazards of poor health with respect to the low-mortality reference (the Netherlands), once individual-level variables are controlled for. However, we acknowledge that this is an intuitive interpretation. This hypothesis is not supported by the hazard coefficients based on specific illnesses reported in SHARELIFE (item HS054; not shown and available from authors upon request).

All types of data, whether cross-sectional, longitudinal, or retrospective, the latter being the case of this study, have proven to be influenced by survival selection when mature and older ages are analyzed. As a consequence, the true effect of partnership status on health among this specific subpopulation cannot be precisely measured and the likely survival selection should be of concern in all cases when the relationship between any socio-demographic factor and health is addressed. Only longitudinal data associated with long-term follow-up can adequately measure the actual magnitude of that selection effect. Although we applied a survival analysis throughout adulthood (ages 30–64), in this study, the selection of individuals with a better health profile cannot be avoided, creating a potential effect on the results. This effect is likely to be larger among those segments of the population that are, in principle, more exposed to health-related disadvantages and for longer periods, which seems to be the case of single individuals. By contrast, other partnership situations such as divorce or widowhood are less likely to be affected by the survival selection, or its effect is less intense due to a later start or the temporary nature associated with those situations.

However, the influence of these situations on health found in results must be taken with some caution due to the few individuals included in these categories (i.e., separation or divorce and second and subsequent unions).

Separation or divorce displays a negative effect on health over adulthood, and the same is observed among second or higher ranks of unions, thus confirming findings from previous research (Joung et al. 1998; Hughes and Waite 2009). The end of a relationship is stressful enough in itself to have negative consequences on an individual's health. In fact, poor health status has been shown to be one of the contributing factors for separation (Joung et al. 1998). In addition, it may imply a worsening of economic status (separation or divorce usually reduces the purchasing power of both partners; Andress et al. 2006), which together with the expected consequences of aging may derive a disadvantaged position within the marriage market before an occasional new union. That is, these individuals become less attractive and less competitive as a function of the factors previously described.

Widowhood is usually associated with increasing socioeconomic-related vulnerability, but in the current study, only Spain shows a significant health disadvantage associated with widowhood. In our opinion, several factors might contribute to buffering the potential effect of widowhood on the hazard of poor health: (1) the range of ages is retrospectively analyzed (30–64 years) that reduces the probabilities of widowhood, and (2) the set of provisions from the welfare state that mitigates the negative effect of this episode. Using SHARELIFE data, Biró (2013) pointed out the complexity of the relationship between widowhood, economic restrictions, and health with regard to different welfare policies across European countries (i.e., the characteristics of pension systems, the degree of female participation in the labor market, and the development of private annuity).

Although individuals' working status shows a significant effect on the hazard of poor health, it is not possible to hypothesize about the underlying mechanisms because poor health itself is a determinant of working status (De Lange et al. 2005). The control exerted in our models through the information on childhood health status does not solve this problem because no direct causal association between health at childhood and working status during adulthood can be ascertained through our data. A similar reasoning applies to the educational level (Ross and Wu 1996), although in this case, no significant effect is observed in our results.

Finally, it is important to note that no significant differences in the risk of poor health are observed between men and women in eight of the thirteen countries analyzed once the remaining socio-demographic variables are controlled for. In the five countries, where sex differences are

statistically significant, they do not point univocally: in Greece, Sweden, and Switzerland, there is a lower hazard of poor health among men, whereas in Germany and the Netherlands, the opposite is observed. This finding is interesting to us because it would invite a supplement and revision to the so-called “sex health-survival paradox” (Oksuzyan et al. 2010) on the basis of retrospective data.

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