Lifetime events and the wellbeing of older people

Arnstein Aassve
Bocconi University, Dondena

Francesca Luppi
University of Padua, University of Turin

Chiara Pronzato
University of Turin, Collegio Carlo Alberto

Steve Pudney
The University of Sheffield, ISER University of Essex

Abstract

In this paper, using data from the six waves of SHARE, we look at the determinants of mental wellbeing of people in their old age, and how determinants differ in different contexts. We take into account several dimensions of the individual: their marital history, their health and work conditions, their family of origin, the presence and behaviors of adult children, and caring activities towards other members of the extended family. Our contribution is threefold: first, we use a multi-dimensional life-events approach to understand the determinants of mental wellbeing; second, we have availability of data for a large number of countries whose different characteristics can reveal important heterogeneities; third, we do not only look at past life conditions (ever experienced widowhood, ever experienced the death of a child, …), but also at current statuses (being employed, being widowed, having married children, …) and at events (going from employment to pension, new widowhood, a child gets married, …) by exploiting the longitudinal nature of our data. We find strong beneficial effects of being retired and detrimental effects of bad health conditions. A problematic family of origin, as well as the grief over the death of spouses and children, persist over the entire life. Regarding non-coresident adult children, we observe that having better educated children beneficially affects parental mental wellbeing while having unemployed children detrimentally impacts on it, having married children decreases depression while having divorced one increases it more intensely. Finally, having grandchildren does not seem to matter: what it matters is to spend some regular time with them, which increases mental wellbeing.

1. Introduction

There is a substantial multi-disciplinary research literature on the relationship between well-being and the ageing process. The general conclusion that emerges from this body of empirical work is of a rising age-profile of general wellbeing or happiness after the age of 50, once specific factors like health status and bereavement are allowed for. Most of the available long-term data are repeated cross-sections rather than longitudinal surveys, so there has been some debate about the interpretation of this age profile as a true age effect rather than period or cohort effects (Yang, 2008) but there is general acceptance of the hypothesis that any true influence of age is positive rather than negative (Arezzo and Giudici, 2017). How is this rising age profile to be reconciled with the decreasing profile of income, the reduced size of social network, and the increasing health problems? What is the role of the relationships to the multi-generation and geographically dispersed family that is so common in developed countries?

The multi-generation family is potentially an important source of influence on wellbeing in later life. In fact, while income and social networks decrease, the life satisfaction and subjective wellbeing can be maintained or even improved (Baltes and Baltes, 1990). This has been studied extensively in development economics, but research in developed countries is heavily committed to the household group as the basic unit of analysis, and thus largely fails to capture extra-household contributions to welfare, particularly if those contributions are external and in non-monetary form.

This differs from what one typically finds in research on the family, where most analyses are concerned with the impact of parents' behavior on the children's outcomes (including parental investment of time and money and demographic events like divorce) on a range of child outcomes. This imbalance in the literature is understandable given the ample evidence to suggest that net transfers between parents and children follow a downward path (McGarry, 1999; Kohli 1999). There is a huge literature on health and mental wellbeing of older individuals, but it largely neglects the role of non co-resident offspring as influences on wellbeing of the older population.

Our aim is to study the impact of life-course events in different domains on the mental wellbeing of people over 50 in Europe, with a focus on the role of adult children residing out of the parental house. We investigate the relationships between physical health, work, family history and mental wellbeing of people 50+ and test whether their children's education, family formation, and work circumstances also affect their level of depression. We use data for 10 European countries from six waves of the Survey of Health Aging Retirement in Europe, where we can observe current circumstances, past events and changes of conditions over time for older parents and their adult-children. Geographical variability allows testing whether the effects varies across different cultural contexts and institutions.

There are good reasons to examine the role of adult offspring. First, from an economic point of view, the utility or enjoyment that parents derive from their children is an important motivation for childbearing. However, the research literature on fertility in developed countries has mainly focused on the experience of `young' parents in child rearing and has largely neglected the long-run returns to investment in children. In developing societies, the argument is that children provide cheap labor and are therefore an important resource for the household, as well as providing insurance against old age disadvantage to offset the lack of public welfare provision. There is a well-established trade-off between quantity and quality of children so that, as societies develop, parents prefer a smaller number of children but invest more in them. Although the investment motive for fertility is not less often put forward for developed societies, it is evident that older people often find considerable comfort in having children round, and it is plausible to suggest that these benefits are anticipated as an aspect of fertility planning. Despite the existence of public welfare services, there is a range of qualitatively different benefits that cannot be supplied publicly, including pride in children's achievements, access to further generations of children and various forms of personal care and emotional support. Seen in this light, one can think of the multi-generation family as part of a portfolio of investments that provide long-term returns in a range of different forms.

A relatively large number of studies looks at the effect of having children rather than being remained childless. Counterintuitively to what theorized so far, most of the empirical studies find null or small detrimental effect of having children on parents' level of depression (Umberson and Gove, 1989; Koropeckyj-Cox, 1998; Bures et al., 2009; Hank and Wagner, 2013; Guiney et al., 2017). Results appear more coherent once the marital status is taken into account: high level of depression are observed when considering never married parents and formerly married women who had outlived their children (Bures et al., 2009). However, there are obvious difficulties of reverse causality, since partnership formation and childbearing may also be influenced by persistent psychological traits. Kruk (2014), exploiting exogenous variation of the number of children due to multiple birth and sex composition of the first two children, finds no effect of additional children on men's mental health, while a detrimental one of a third child on women's mental health.

There is a limited literature, instead, on the impact of children's life events on parents' mental wellbeing rather than the existence of children. Concerning the relationship between parents and their adult-children, Buber and Engelhardt (2008) find that few contacts with adult-children increase the presence of depressive symptoms of the parents. With respect to adult-children's family decisions, there is evidence of a detrimental effect of adult-children's divorce on parents' mental wellbeing (Kalmijn and de Graaf, 2012; Tosi and Albertini, 2018) and a beneficial effect of adult-children's marriage (Kalmijn and de Graaf, 2012).

The effect of having grandchildren seems to depend on the possibility of looking after them: Arpino et al. (2018) find a negative association between grandparenthood without grandparental care and mental wellbeing in countries where intensive grandparental care is expected, while a positive association of grandparenthood and mental wellbeing in countries where intensive grandparental care is not expected. Some studies look at the effects of problematic conditions in which adult-children can find themselves: the presence/number of children's problems (depression, poor health, use of alcohol…) decreases parents' mental wellbeing (Pillemer and Suitor; 1991; Greenfield and Marks, 2006) as well as adult-children going back to the parental house consequently to unemployment or separation (Tosi and Grundy, 2018).

Another potential determinant of health is the activity status. Given the increased life expectancy and better physical conditions at later stages in life, some policy suggestions have been made to encourage workers to postpone retirement, including the increase of the statutory pension age. These policies are being discussed for their potential consequences on mental and physical wellbeing of older people. Going to pension may be a stressful event, leaving the person without a structured day and a close network of colleagues and friends, making him/her feeling lone, useless, and obsolete. On the other hand, the retirement should remove the stress and the fatigue related to work, and therefore bring relief to the retired person. The answer is of empirical nature. However, going to pension is a choice, and may be more likely to be taken by workers in bad physical and mental conditions, leading to observe biased estimates. When considering the endogeneity risk, Johnston and Lee (2009) – among others[1] - find a beneficial effect of retirement on individuals' sense of wellbeing.

An expected relationship is observed between physical and mental health. Among many papers[2], we refer to the detailed analysis on the effects of different physical health conditions on mental health carried out by Lindeboom et al. (2002): what is interesting to observe is that, apart the significant effect of experiencing serious diseases and surgeries, becoming aware of decreasing physical abilities affects importantly the mental wellbeing dimension.[3]

We contribute to the topic by studying the impact of life-course events in many domains and by exploiting time and geographical variability. We have panel information, which goes from 2004 to 2015, for both people 50+ and their adult-children living outside the parental household. Moreover, we have information on important past events, happened before 2004, about the respondent's family of origin, and his/her family formation. Having the availability of a large number of observations for ten European countries allows investigating whether culture and institutions influence the relationship between what happens in life and how people feel. By considering a heterogeneous bunch of determinants, we can understand what matters

[1] Kim and Moen (2002), Coe and Zamarro (2011), Oliffe et al. (2013), Choi et al. (2013).
[2] Add some
[3] Physical abilities are measured in seconds the time needed to get up from a kitchen chair five times with arms folded.

more for people's mental wellbeing. Understanding the socio-economic determinants of mental health is particularly important from a public health perspective, since depression is becoming one important determinant of expenditures of countries in health care.[4]

The paper is organized as follows. Section 2 presents the data, the sample selection, and the variables used throughout the analyses while Section 3 explains the empirical methods employed. Sections 4 and 5 comprise the results, for the whole sample and for subsamples of countries. Conclusions follow (Section 6).

[4] http://www.oecd.org/health/mental-health-problems-costing-europe-heavily.htm

2. The data

Research on inter-generational issues makes great demands on data resources. To investigate the relationship between the wellbeing of older people and the existence, characteristics and activity of their offspring requires the ability to make observations on sons and daughters who are no longer resident in the parental home. Few surveys can provide this sort of information.

In addition, we require good indicators of a range of aspects of wellbeing, including measures of psychological distress. A longitudinal dimension is also needed, to allow observation of the impact of life-course events and changes in circumstances. Orthodox household panel surveys like PSID, SOEP and BHPS confine observation largely to individuals resident in the original sampled households or in new `offshoot' households, and miss large numbers of adult offspring who are never observed as panel members. Restricting the sample to parents whose offspring were originally observed early enough to have remained in the panel restricts the age range and sample size excessively.

The harmonized Survey of Health, Ageing and Retirement in Europe (SHARE) is an exceptional data source in several respects: it is cross-national, allowing national-level cultural differences to be explored; it contains unusually extensive questions relating to a maximum of four non-coresident offspring at each wave; and it provides evidence on wellbeing through a set of thirteen subjective assessments. SHARE was launched in 2004 in eleven countries, and over time, was extended to 28 countries. It collects the same information, in a panel format, almost every two years: in 2006, 2008, 2011, 2013, and 2015. The only exception is represented by the 2008 survey (third wave - SHARELIFE) where a small selection of variables is the same as in the other data collections and most of the questions concern the entire past life (childhood, family work and mobility history).

Concerning our dependent variable mental health, in SHARE it is measured by the 13 questions that compose the so-called EURO-D instrument (Prince et al 1999). The EURO-D instrument has good test-retest reliability and internal consistency and, in terms of validity, correlates well with other well-known health measures (Prince et al 1999). The scale covers the following thirteen items: depression, pessimism, suicidal ideation (wishing death), guilt, sleep, interest, irritability, appetite, fatigue, concentration (in two sub-categories), enjoyment and tearfulness.

We select our sample according to the following directions. We start with a sample of 377,106 individual-year observations. We only include individuals aged 50+ years old observed at least twice (over the five panel surveys) in order to observe, during the time of the survey, some changes in their life and in their adult-children's life. We then exclude individuals from countries where SHARELIFE was not carried out.

After dropping individuals with missing information for the variables used through the paper, we end up with a first sample of 46,450 observations (observed at least twice and in SHARELIFE) and a second sample of 81,289 observations (observed at least in two waves, not in SHARELIFE, but in the same countries of the first sample). We will use these two samples for our analyses whose distribution of individuals interviewed over the years and in different countries is described in Tables 1 & 2.

Table 3 summarizes the answers to the thirteen questions that compose the EURO-D depression scale for individuals in the two samples. 35% of the samples state they have been sad or depressed in the last 12 months. 12% does not have hopes for the future, 6% feels would be rather dead, and 7% feels guilty for something s/he has done. 22% has felt irritable, 8% has loosen interest in things, 12% has not enjoyed anything recently, and 32% has felt a sense of fatigue recently. 8% of the samples notice they have had less appetite, 13% they have had more difficulties in concentrating when reading, 11% more difficulties in concentrating in general, 30% have had troubles in sleeping.

3. Empirical methods

The EURO-D instrument consists of 13 binary indicators, which we observe in five waves. We assume the 13 binary indicators to be the expression of the individual's latent mental health. In order to capture the phenomenon, we implement a principal component analysis, aimed at developing better insight into the common latent dimension that the different symptmos may share. Given the binary nature of the variables, we use polychoric correlations to construct the covariance matrix from which the eigenvalues and eigenvectors are calculated. The polychoric correlation of two ordinal variables is derived as follows. Suppose we have two categorial variables (e.g. difficulties in sleeping and little appetite), which have been obtained by categorizing a normally distributed underlying variable, and these two unobserved variables follow a bivariate normal distribution. Then the (maximum likelihood) estimate of their correlation is the polychoric correlation. Following, Kolenikov and Angeles (2004) let x1 and x2 be the two ordinal variables of interest and $\alpha_{1,1}$ and $\alpha_{2,1}$ be the thresholds, then the proportions in cell (i, j) is defined as:

$$\begin{aligned}\pi_{i,j} = \pi(i,j;\rho,\alpha) = \text{Prob}[x_1 = i, x_2 = j] = \\ = \Phi_2(\alpha_{1,i}, \alpha_{2,j}; \rho) - \Phi_2(\alpha_{1,i-1}, \alpha_{2,j}; \rho) - \\ - \Phi_2(\alpha_{1,i}, \alpha_{2,j-1}; \rho) + \Phi_2(\alpha_{1,i-1}, \alpha_{2,j-1}; \rho)\end{aligned}$$

Assuming that observations are i.i.d., the likelihood can be written down as:

$$L(\rho) = \prod_{i=1}^{N} \prod_{m=1}^{K_1} \prod_{l=1}^{K_2} \pi_(m,l;\rho,\alpha)^{I(x_{i,1}=m, x_{2,i}=l)} = \prod_{i=1}^{N} \pi(x_{i,1}, x_{i,2}; \rho, \alpha)$$

$$\ln L = \sum_{i=1}^{N} \ln \pi(x_{i,1}, x_{i,2}; \rho, \alpha)$$

which can be maximized over ρ and α's. The resulting ρ is what is referred to as the polychoric correlation (Kolenikov & Angeles, 2004; p.16-17). Finally, to facilitate the interpretation of the extracted components, we rely on orthogonal rotation using the varimax approach. By using the Kaiser criterion, we retain a component if the corresponding *e*igenvalue is higher than 1 (Yeomans & Golder, 1982).

We then specify the relationship between it and the life-course events to be linear, with additive country-specific effects.

To understand the influence of cultural and contextual influences on expressed wellbeing, we need to relate the international differences in parameters to country-specific contextual variables. For example, if a country has a high divorce rate and being together all life is less a norm than in other countries, the failure of a son or daughter's marriage may c affect parents' mental health less. This would imply a specific pattern of between-country variation in the coefficient of the covariate used to capture the effect of a son or daughter's divorce. Rather than entering macro-contextual variables directly into the model, our strategy is to allow for

international parameter heterogeneity in the model and then attempt to detect specific patterns in the resulting estimates.

4. Results

Before commenting the effect of life-time events on people's mental health, we describe better the meaning of our dependent and independent variables. The first factor extracted is highly positively correlated with feelings of guilty and suicide; with loosing appetite, interest in things, and the ability of concentrating (Table A2, Appendix). The second factor extracted is highly positively correlated with difficulties in concentrating, with no feelings of enjoyment and no hopes for the future (Table A2, Appendix). We will refer to the first as "Depression symptoms", to the second as "Difficulties in concentrating and enjoying". The life-time events, we include in the regression models, are related to the demographic characteristics of the individual, her/his current family circumstances and family history, her/his family of origin; her/his work and health status; her/his adult-children and their life circumstances. Apart variables concerning the current situation (age, education, work, being in a couple, number of children, adult-children's life circumstances), we consider variables describing life changes from one wave to a following one (a recent retirement, the arise of a new illness, the experience of a new widowhood, a new marriage / divorce / episode of unemployment of one adult-child). Finally, we study the effects of past life experiences (death of a child, experience of a divorce / widowhood, problematic family of origin) on mental health for the part of the sample interview in wave three (SHARELIFE). Summary statistics of our independent variables are shown in Table 4.

We report the main results for the first extracted factor in Table 5. Results, in terms of estimated coefficients and statistical significance, are very similar between the two samples. We find, as already found in the literature, a beneficial but decreasing effect of age on mental health. Women are generally more depressed while more educated people feel less depressed.

Compared to unemployment (excluded category), any work situation (work, retirement, and house-caring) leads to more mental wellbeing while we do not find significant effects of income. A new retirement, from one wave to a following one, has an additional beneficial effect.

Health, as expected at this age, impacts importantly on depression. Suffering from illnesses increases depression while not having experienced a hospital recovery in the last year decreases it. A long period of illness influences mental wellbeing more strongly: in fact, a new illness (from one wave to a following one) increases depression but less than a "persistent" one (0.215-0.062). We not turn to the influence of the family history.

A problematic family of origin still affects mental wellbeing after 40 years or more: living with parents addicted to alcohol as a child impacts on mental wellbeing with almost the same intensity as a current illness. Concerning their own family, we observe a beneficial impact of the family: being in a couple is good as well as having children. However, the interaction between the two circumstances reveal important heterogeneities, already found in the literature: adults in a current partnership show fewer depression symptoms if childless, while currently un-partnered adults display more symptoms. A new widowhood is, in relative terms, the most important factor in determining mental wellbeing of people after 50 years old. Having experienced a

divorce increases depression as well as a problematic work situation of the current partner. The number of children does influence significantly the mental health while having experienced the death of an own child worsens it.

We now comment the effects of life circumstances of adult children on their parents' wellbeing. Having better educated children beneficially affects parental mental wellbeing while having unemployed children detrimentally impacts on it. An additional increase in depression is due to a transition from employment to unemployment of, at least, one adult-child. Also adult-children's family formation influences significantly parental mental health: having married children decreases depression while having divorced one increases it more intensely. Finally, having grandchildren does not seem to matter: what it matters is to spend some regular time with them which increases mental wellbeing.

Summarizing, how much is important the adult-children component for old people's depression? Suppose a person who has an adult-child with tertiary education, employed, married, whose children s/he meets every week. The overall impact of the adult-child situation is double the size of the beneficial impact of going to pension or similar to the impact of having a partner rather being alone.

Lets' now turn to the determinants of experiencing difficulties in concentrating or in enjoying things (Table 6). We still find similar estimated effects and significances across the two models (with and without retrospective information). However, with respect to the first factor (Depression symptoms), we observe fewer significances. We still find beneficial effects of age, schooling, adult-children's schooling, own family's circumstances, while the adult's and adult-children's work situations appear less important. What becomes more determinant is the grandchildren component: having more grandchildren, looking after them on a daily or weekly basis make grandparents mentally more active and more likely to enjoy things. Another interesting difference is captured by the "detrimental" effect found for the transition from employment to unemployment.

More counterintuitive are the results concerning the effect of critical health situations, death of children, and children's divorce.

References

Arezzo, M. F. and Giudici, C. (2017). Social Capital and Self Perceived Health Among European Older Adults, Soc Indic Res (2017) 130:665–685.

Bures R. M., Koropeckyj-Cox T. and Loree M. Childlessness, Parenthood, and Depressive Symptoms Among Middle-Aged and Older Adults.

Easterlin, R. A. (2003). Happiness of women and men in later life: nature, determinants and prospects. In Sirgy, M. J., Rahtz, D. R. and Samli, A. C., Advances in Quality-of-Life Theory and Research, Chicago: University of Chicago Press.

Filipp, S.-H. (1996). Motivation and emotion. In J.E. Birren and K.W. Schaie (eds.), Handbook of the Psychology of Aging (4th ed., pp. 218-235). San Diego: Academic Press.

Kalmijn, M. (2011). Life course changes of children and well-being of parents, Jornal of Marriage and Family, forthcoming.

Kohli, M. (1999). Private and public transfers between generations: linking the family and the state, European Societies 1, 81-104.

Kruk K. E. and Reinold S. (2014). The effect of children on depression in old age. Social Science & Medicine, 100: 1-11.

McGarry, K. (1999). Inter-vivos transfers and intended bequests, Journal of public Economics 73, 321-351.

Milkie, M. A., Bierman, A. and Schieman, S. (2008). How adult children inuence older parents' mental health: integrating stress process and life course perspectives, Social Psychology Quarterly 71, 86-105.

Umberson D. and Gove W. R. Theory, Measurement, and Stage in the Family Life Course.

Yang, Y. (2008). Social inequalities in happiness in the United States, 1972 to 2004: an age-period-cohort analysis, American Sociological Review 73 204-226.

Veenhoven, R. (1996). Happy life expectancy: a comparative measure of quality of life in nations, Social Indicators Research 39, 1-58.

TABLES

Table 1: Total sample, by country and by year of the survey

	Year of the survey (wave)					
	2004 (1)	**2006 (2)**	**2010 (4)**	**2012 (5)**	**2014 (6)**	**Total**
Austria	818	745	2,411	2,222	2,345	8,541
Germany	894	1,071	787	2,201	3,120	8,073
Sweden	1,131	1,205	898	1,598	2,265	7,097
Netherlands	1,108	1,263	1,275	1,258	0	4,904
Spain	993	1,005	1,590	2,768	3,926	10,282
Italy	1,018	1,222	1,405	1,855	2,895	8,395
France	1,070	1,243	2,232	2,140	2,283	8,968
Denmark	722	1,261	1,179	2,122	2,746	8,030
Switzerland	385	689	1,594	1,522	1,825	6,015
Belgium	1,467	1,553	2,240	2,543	3,181	10,984
Total	9,606	11,257	15,611	20,229	24,586	81,289

Notes: number of individuals observed at least for two waves.

Table 2: Total sample, by country and by year of the survey (with SHARELIFE interview)

	Year of the survey (wave)					
	2004 (1)	**2006 (2)**	**2010 (4)**	**2012 (5)**	**2014 (6)**	**Total**
Austria	818	745	420	391	480	2,854
Germany	894	1,071	787	582	745	4,079
Sweden	1,131	1,205	898	809	1,077	5,120
Netherlands	1,108	1,263	980	957	0	4,308
Spain	993	1,005	848	889	1,215	4,950
Italy	1,018	1,222	975	929	1,437	5,581
France	1,070	1,243	976	890	911	5,090
Denmark	722	1,261	980	1,044	1,266	5,273
Switzerland	385	689	541	496	585	2,696
Belgium	1,467	1,553	1,138	1,063	1,368	6,589
Total	9,606	11,257	8,543	8,050	9,084	46,540

Notes: number of individuals observed at least for two waves, with retrospective histories from wave 3 (SHARELIFE).

Table 3: EURO-D instrument (mental health)

	Sample WITHOUT retrospective information	Sample WITH retrospective information
Sad or depressed last month	34.5	34.6
No hopes for the future	12.7	12.7
Felt would rather be dead	6.4	6.3
Feels guilty	6.6	6.5
Irritability	21.7	22.6
Less or same interest in things	7.9	7.6
No mention any enjoyment	12.1	11.8
Tearfulness	23.2	22.6
Trouble with sleep	30.4	30.3
Diminution in appetite	7.9	7.8
Fatigue	32.1	31.5
Difficulty in concentrating	11.5	10.9
Difficulty in concentrating on reading	13.3	12.5
Observations	81,289	46,540

Table 4: Life time events

	Sample WITHOUT retrospective information	Sample WITH retrospective information
Age	67.1	68.1
Woman (%)	54.1	53.9
Years of schooling	11.2	11.5
Employed (%)	26.9	22.6
Retired (%)	57.0	60.5
New retirement (%)	3.8	4.7
Home carer (%)	8.7	9.5
Unemployed (%)	7.4	7.2
Real income	11,612	9,072
Illness	60.7	61.9
New illness (%)	7.8	9.1
Hospitalized	14.9	14.9
Parents addicted to alcohol (%)	-	7.0
In a couple (%)	70.3	66.5
No offspring (%)	10.2	11.2
Ever widowed (%)	-	15.5
New widowhood (%)	2.4	2.6
Ever divorced (%)	-	15.5
Spouse's unemployment (%)	2.9	2.6
Number of children	2.1	2.0
Number of dead children	-	0.06
Children: max years of schooling	9.4	10.7
Son's unemployment (%)	2.0	2.0
Daughter's unemployment (%)	1.8	1.9
Children: new unemployment (%)	0.6	0.6
At least one married child (%)	30.3	29.2
Children: new marriage (%)	12.3	9.4
At least one divorced child (%)	5.7	5.6
Children: new divorce (%)	0.6	0.8
Number of grandchildren	2.5	2.4
Grandchildren: daily care (%)	4.3	4.7
Grandchildren: weekly care (%)	10.3	10.9
Observations	81,289	46,540

Table 5: The determinants of Depression symptoms

Mental health factor	Sample WITH retrospective information			Sample WITHOUT retrospective information		
	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Age	-0,096	0,007	***	-0,110	0,006	***
Age squared	0,001	0,000	***	0,001	0,000	***
Woman	0,351	0,014	***	0,351	0,010	***
Years of schooling	-0,020	0,002	***	-0,019	0,001	***
Employed	-0,285	0,021	***	-0,367	0,016	***
Retired	-0,279	0,020	***	-0,317	0,015	***
New retirement	-0,059	0,022	***	-0,066	0,018	***
Home carer	-0,176	0,024	***	-0,231	0,019	***
Real income	-0,006	0,004		-0,003	0,002	***
Illness	0,215	0,011	***	0,230	0,009	***
New illness	-0,062	0,016	***	-0,080	0,013	***
Not hospitalized	-0,071	0,003	***	-0,078	0,002	***
Parents addicted to alcohol	0,175	0,026	***			
In a couple	-0,128	0,017	***	-0,159	0,012	***
No offspring	0,070	0,033	**	0,052	0,023	***
No offspring*couple	-0,100	0,040	***	-0,059	0,027	**
Ever widowed	-0,033	0,022				
New widowhood	0,562	0,030	***	0,514	0,021	***
Ever divorced	0,077	0,020	***			
Spouse's unemployment	0,134	0,030	***	0,135	0,022	***
Number of children	-0,003	0,008		0,005	0,006	
Dead children	0,128	0,024	***			
Children: max years of schooling	-0,004	0,001	***	-0,002	0,001	**
Son's unemployment	0,076	0,032	***	0,107	0,024	***
Daughter's unemployment	0,086	0,031	***	0,092	0,024	***
Children: new unemployment	0,085	0,058	***	0,043	0,043	
At least one married child	-0,013	0,009		-0,017	0,007	***
Children: new marriage	0,004	0,017		-0,004	0,011	
At least one divorced child	0,038	0,020	***	0,054	0,016	***
Children: new divorce	0,020	0,049		0,050	0,042	
Number of grandchildren	0,002	0,003		0,004	0,002	*
Grandchildren: daily care	-0,006	0,023		0,002	0,018	
Grandchildren: weekly care	-0,031	0,015	***	-0,038	0,012	***
Austria	0,032	0,034		-0,072	0,022	***
Germany	0,116	0,030	***	0,106	0,021	***
Netherlands	0,045	0,029		0,039	0,025	
Spain	0,369	0,029	***	0,248	0,021	***
Italy	0,417	0,028	***	0,371	0,022	***
France	0,420	0,028	***	0,399	0,021	***
Denmark	-0,038	0,028		-0,013	0,022	
Switzerland	-0,054	0,034		-0,049	0,024	***
Belgium	0,189	0,027	***	0,256	0,021	***
Wave	0,007	0,003	***	0,002	0,002	
Constant	3.397	0,259	***	4.008	0,194	***

Notes: Coefficients, standard errors, significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: The determinants of Difficulties in concentrating and enjoying

Mental health factor	Sample WITH retrospective information			Sample WITHOUT retrospective information		
	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Age	-0,018	0,004	***	-0,015	0,004	***
Age squared	0,001	0,000	***	0,001	0,000	***
Woman	-0,234	0,006	***	-0,262	0,006	***
Years of schooling	-0,014	0,001	***	-0,012	0,001	***
Employed	-0,006	0,011		-0,001	0,110	
Retired	-0,055	0,011	***	-0,049	0,011	***
New retirement	0,049	0,013	***	0,052	0,013	***
Home carer	-0,012	0,013		-0,012	0,013	
Real income	-0,001	0,001		-0,001	0,001	
Illness	-0,046	0,006	***	-0,065	0,006	***
New illness	0,023	0,009	***	0,022	0,009	***
Not hospitalized	0,009	0,002	***	0,015	0,001	***
Parents addicted to alcohol	-0,023	0,016				
In a couple	0,009	0,008		0,001	0,008	
No offspring	0,049	0,015	***	0,069	0,015	***
No offspring*couple	-0,07	0,018	***	-0,077	0,018	***
Ever widowed	-0,017	0,013				
New widowhood	-0,199	0,016	***	-0,202	0,016	***
Ever divorced	-0,011	0,012				
Spouse's unemployment	0,015	0,015		0,005	0,015	
Number of children	0,001	0,003		-0,004	0,004	
Dead children	-0,039	0,015	***			
Children: max years of schooling	-0,001	0	***	-0,001	0,001	***
Son's unemployment	-0,019	0,017		-0,012	0,017	
Daughter's unemployment	-0,001	0,017		0,004	0,005	
Children: new unemployment	0,052	0,032		0,027	0,032	
At least one married child	0,002	0,004		0,005	0,005	
Children: new marriage	0,004	0,008		0,004	0,008	
At least one divorced child	-0,027	0,011	***	-0,026	0,011	***
Children: new divorce	-0,073	0,031	***	-0,086	0,031	***
Number of grandchildren	-0,002	0,001	*	-0,003	0,001	***
Grandchildren: daily care	-0,058	0,013	***	-0,076	0,013	***
Grandchildren: weekly care	-0,023	0,008	***	-0,03	0,008	***
Austria	0,038	0,014	***	0,06	0,014	***
Germany	-0,073	0,014	***	-0,077	0,014	***
Netherlands	0,034	0,016	***	0,025	0,016	
Spain	0,105	0,013	***	0,172	0,014	***
Italy	0,119	0,014	***	0,135	0,014	***
France	-0,121	0,013	***	-0,069	0,014	***
Denmark	-0,03	0,014	**	-0,041	0,014	***
Switzerland	-0,136	0,015	***	-0,134	0,015	***
Belgium	-0,062	0,013	***	-0,045	0,013	***
Wave	-0,012	0,001	***	0,013	0,001	***
Constant	0,575	0,134	***	0,4383	0,136	***

Notes: Coefficients, standard errors, significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

APPENDIX

Table A1: Polychoric Principal Component Analysis on mental health items

k	Eigenvalues	Proportion explained	Cumulative explained
1	5.303	0.407	0.407
2	1.480	0.113	0.521
3	0.949	0.073	0.594
4	0.801	0.061	0.656
5	0.737	0.056	0.713
6	0.653	0.050	0.763
7	0.641	0.049	0.812
8	0.601	0.046	0.859
9	0.495	0.038	0.897
10	0.445	0.034	0.931
11	0.376	0.028	0.960
12	0.308	0.023	0.984
13	0.205	0.015	1.000

Table A2: Eigenvectors of each item over the first two components

Variables	Category	Component 1	Component 2
Sad or depressed last month	0	-0.189	0.185
	1	0.357	-0.349
Felt would rather be dead	0	-0.043	0.018
	1	0.648	-0.277
Feels guilty	0	-0.036	0.038
	1	0.524	-0.557
Trouble with sleep	0	-0.132	0.082
	1	0.305	-0.19
Less or same interest in things	0	-0.05	-0.022
	1	0.624	0.275
Irritability	0	-0.096	0.087
	1	0.329	-0.3
Diminution in appetite	0	-0.045	-0.009
	1	0.534	0.114
Fatigue	0	-0.159	-0.003
	1	0.348	0.007
Difficulty in concentrating	0	-0.06	-0.101
	1	0.493	0.688
Difficulty in concentrating on reading	0	-0.067	-0.088
	1	0.475	0.619
No mention any enjoyment	0	-0.045	-0.083
	1	0.341	0.646
Tearfulness	0	-0.108	0.120755
	1	0.37	-0.414
No hopes for the future	0	-0.055	-0.078
	1	0.38	0.537