



Do All Savings Matter Equally? Saving Types and Emotional Well-Being Among Older Adults: Evidence from Panel Data

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Abstract

Ill-being and mental ill-health have been on the rise in both Europe and the United States, especially among middle-aged and older adults. Although financial security has been shown to play a protective role in emotional well-being, little is known about the protective role of different types of family assets on mental health and well-being. Using longitudinal survey data from the Survey of Health, Aging and Retirement in Europe (SHARE) collected between 2004 and 2017, we examined the role of different types of family assets in emotional well-being and depression. A multivariate proportional hazard model with time-varying covariates was used. We found that family assets may play a significant protective role against depression, loneliness, and a decreased quality of life. Different forms of family assets may play diverse roles in protecting against the risks of ill-being and mental ill-health; however, their roles in increasing the chances of overcoming ill-being are less pronounced. Promotion of saving behaviours and proper financial management can help protect against adverse well-being and health outcomes in middle-aged and older adults.

Keywords Emotional well-being · Quality of life · CASP-12 · Financial security · Types of savings · SHARE · Middle-aged and older adults

Introduction

Well-being and mental health are important societal issues with significant consequences for human flourishing. Subjective well-being comprises two dimensions: emotional

well-being and life evaluation (Diener, 1984; Kahneman & Deaton, 2010). The former, also referred to as hedonic well-being, is linked to the emotional components of everyday experiences, such as happiness, joy, loneliness, sadness, and anxiety (Diener et al., 2012). The latter relates to one's thoughts and assessments of life and is also referred to as eudaimonic well-being (Ryff & Singer, 2008). However, a consensus has recently been developed that an umbrella term of emotional well-being should be used for previously defined psychological concepts such as psychological and subjective well-being; life satisfaction; purpose and meaning in life; positive emotions; as well as health-related quality of life, thriving, and flourishing (Feller et al., 2018; Park et al., 2022). Despite differences in terminologies, disorders in these realms are known to often translate into unhealthy behaviours that impact mental and physical health and, in the long run, can lead to the development of chronic health conditions (Santini et al., 2020). It has also been noted that there is an unsettling upward trend in the state of ill-being, showing that each consecutive generation suffers more from issues in this realm (Mojtabai et al., 2016), and the group particularly affected are older adults (Engels et al., 2003).

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Family asset accumulation and savings in particular have been shown to play a protective role against the deterioration of well-being (Beverly & Sherraden, 1999; Białowolski et al., 2019a; Ettman et al., 2020a, 2020b; Feldman, 2018). Their presence creates a financial cushion that has already been demonstrated to play a protective role in well-being (Arber et al., 2014; Gupta et al., 2018). However, reservations have also been expressed regarding whether everyone can have access to these resources or be effectively incentivised to save (Feldman, 2018). It has been posited that low-income households are in a more disadvantageous position than more affluent households (Beverly & Sherraden, 1999; Feldman, 2018).

Family assets appear to play a positive role in health and well-being. This applies to both liquid and less-liquid family assets. Regarding the former, high incomes have been shown to improve evaluations of life and lower the risk of depression and other mental disorders (Kahneman & Deaton, 2010; Kourouklis et al., 2020), and savings have been indicated to positively contribute to emotional well-being (Białowolski et al., 2019, 2021b; Gubler & Pierce, 2014), to be associated with lower risks of depressive symptoms (Ettman et al., 2020a), and to lower the burden of depression among low-income adults (Ettman et al., 2020b). Regarding the latter, less liquid family assets such as family wealth are known to play a favourable role in mental health (Ettman et al., 2020a, 2020b; Kourouklis et al., 2020). Conversely, material stressors, including financial problems, low family assets, and difficulties in paying rent, among others, are predictive of anxiety, depression, and posttraumatic stress (Ettman et al., 2021; Rudenstine et al., 2022); low income—of low life evaluation and low emotional well-being (Kahneman & Deaton, 2010); low savings—of major depressive disorder (Ettman et al., 2020a, 2020b); and debts—of mental health problems, including depressive symptoms (Hiilamo & Grundy, 2020; Turunen & Hiilamo, 2014) and suicidal ideation (Sweet et al., 2013).

Family assets must reach a certain value to play a protective role. However, there is no agreement on how much assets would be sufficient and adequate (Burnett et al., 2018). The only indication—although still imprecise—that has been developed refers to the level of savings. Financial counsellors often encourage their clients to hold savings amounting to at least six months of household income to maintain sufficient protection against adverse shocks (Scott et al., 2013). Additionally, savings of over six months of income are sufficiently large to be deemed important from the perspective of financial security and mental health, as also indicated by prior studies (Białowolski et al., 2021; Chieffe & Rakes, 1999). This six-month threshold has also been used in instruments designed to measure financial well-being (Weziak-Białowolska et al., 2021). Another rule of thumb is the so-called ‘10 per cent rule’, which indicates

that the ratio of savings to after-tax income should equal 10% (Benartzi, 2012; Thaler & Benartzi, 2004). It is worth noting that recent research indicates that savings amounting to above \$5,000 are considered as high (Ettman et al., 2020b; Ettman et al., 2021; Rudenstine et al., 2022). However, inconsistencies in the assessment of saving levels can also be noted as in a different study from the same period of time, the threshold between high and low family savings was set at \$20,000 (Ettman et al., 2020a).

Despite differences in defining sufficient savings, a substantial group of households fails to accumulate any savings. It stems from low household saving rates which in the European Union oscillated around 12% and in the United States – around 7% in the period 2014–2019.¹ Insufficient or even non-existent savings are hypothesised to result from excessive peer comparisons (often referred to as keeping up with the Joneses attitude (Christen & Morgan, 2005)), impatience (Laibson, 1997; Reuben et al., 2015), lack of self-control (Bertaut et al., 2009; Blake, 2022; Strömbäck et al., 2017; Thaler & Shefrin, 1981; Xiao & O’Neill, 2018; Xiao & Porto, 2019), procrastination (Blake, 2022; Thaler & Benartzi, 2004), or lack of income, hindering opportunities to save (Beverly & Sherraden, 1999; Feldman, 2018; Heckman & Hanna, 2015). Life cycle theory assumes that savings are fungible; that is, in whatever form they are accumulated, they equally translate into final utility (Ando & Modigliani, 1963). However, the empirical evidence indicates otherwise. Households do not always follow life-cycle patterns and sometimes do not produce sufficient income to save (Heckman & Hanna, 2015), often mix expensive short-term debt (i.e., consumer credit, credit cards) with savings (Białowolski et al., 2022a, 2022b; Telyukova, 2013) or adopt strategies that reveal inconsistencies in life-cycle consumption optimisation, where short-term goals contradict long-term objectives (Kahneman, 2011). The behavioural life-cycle model (Shefrin & Thaler, 1988) provides a more realistic extension of the baseline life-cycle hypothesis and assumes that diverse mental accounts are used to categorise varying wealth components—for example, different forms of savings—and that there is a disparate temptation to use resources from specific accounts over others.

Family assets differ in terms of liquidity and, thus, in terms of accessibility. The easiest access to family assets is ensured by using current accounts (checking and saving accounts); more difficult access is observed for stocks, bonds, and other financial instruments (e.g., mutual funds), while the most difficult access is noted for

¹ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Households_-_statistics_on_disposable_income,_saving_and_investment, <https://fred.stlouisfed.org/series/PSAVERT>, visited on 28 October 2022.

future income account balances such as retirement savings or life insurance (Scholz & Seshadri, 2009; Shefrin & Thaler, 1988). A separate category of family assets relates to business ownership. Asset accumulation in the form of business investments has the potential to create added value if household members can generate returns on those investments above the market rate. Business owners, who have some cash at hand, are also likely to inject it into their business, thus increasing the value of the business; simultaneously, they are more disciplined in the assessment of the future value provided by their investments (Bellon et al., 2021).

In this study, we examine how different forms of family assets are associated with emotional well-being and mental health and whether different forms of these assets play dissimilar roles in this link. We distinguish between very liquid and short-term family assets, such as savings at current account balances; longer-term and less liquid family assets, such as bonds or stocks; long-term and not so liquid family assets, such as pension accounts, and business assets.

We specifically focus on middle-aged and older adults. This approach is taken as it has been demonstrated that this group is especially vulnerable in terms of health conditions. After reaching a certain age, people experience a decline in their health—not only physically but also mentally—and additionally suffer from deterioration in their social relations (Barg et al., 2006; Domènech-Abella et al., 2017). Specifically, depression and anxiety in older adults frequently affect emotional well-being. Their prevalence increases with age and affects the health-related quality of life (Kok & Reynolds, 2017). Additionally, psychiatric disorders in later life are usually associated with cognitive and functional impairment, increased mortality, and poorer physical health observed more often among older adults (Rodda et al., 2011).

This study is innovative in several ways. To the best of our knowledge, this is the first study to distinguish between the different forms of family assets and their roles in emotional well-being and mental health. Second, this evaluation covers an extended period of time (i.e., 13 years), controlling for time-varying covariates (at baseline and at each following wave), while applying an event history analysis, which provides additional accuracy to the results. Consequently, the protective role of family assets against ill-being and ill-health as well as their promoting role in well-being and good health are examined. This study also offers some policy implications. It can guide policies on how to maintain the balance between short- and long-term family assets, as they have different impacts on the emotional well-being and mental health of the population. Given Europe's aging population and our focus on middle-aged and older adults, this research provides evidence on the importance of policies

promoting savings and wealth, and thus, has the potential to inform initiatives focused on healthy and active aging.

Methods

Data

Empirical analyses were conducted using survey data retrieved from the Survey of Health, Aging and Retirement in Europe (SHARE) database (Börsch-Supan et al., 2013). This cross-national biennial survey collects micro-level panel information on the health, socioeconomic characteristics, and financial situation of people aged 50 years and over as well as their partners. Documentation of the study and the data are available on the SHARE website (<http://www.share-project.org/data-documentation.html>).

In this study, we used data collected between 2004 and 2017 in Israel and 19 European countries participating in the SHARE project. We studied 57,658 individuals aged ≥ 50 years who reported having family assets and, additionally, provided information on their emotional well-being and mental health in the baseline wave as well as in the subsequent measurements. The descriptive statistics at baseline are presented in Table 1. Because this study used de-identified, publicly available data, it was not subject to an institutional review board review.

Measures

Exposure—Family Assets

This study used five measures of family assets: four distinct measures and the total value of net financial assets. The four measures of family assets were assessed through the evaluation of the following financial accounts available at the household level:

1. Bank account balance: 'About how much did you [or] [your] [husband/wife/partner] have in bank accounts, transaction accounts, or saving accounts?';
2. Bond, stock and mutual funds (an aggregation of three questions): (1) 'About how much did you [or] [your] [husband/wife/partner] have in government or corporate bonds?', (2) 'About how much did you [or] [your] [husband/wife/partner] have in stocks or shares (listed or unlisted on stock market)?', and (3) 'About how much did you [or] [your] [husband/wife/partner] have in mutual funds or managed investment accounts?';
3. Longer term family assets (an aggregation of three questions): (1) 'How much did you have in individual retirement accounts?', (2) 'about how much did you [or]

Table 1 Distribution of participant characteristics at study baseline (n = 57,658). Survey of Health, Ageing and Retirement in Europe (SHARE)

Participant characteristic	%	Mean (SD)
Sociodemographic factors		
Gender (Male)	44.3	
Age group		
50–59	39.2	
60–69	32.7	
70–79	20.7	
80+	7.3	
Marital status		
Married and living together with spouse or being in a registered partnership	69.6	
Married but living separated from spouse	1.4	
Never married	6.1	
Divorced	9.3	
Widowed	13.7	
Employment status		
Retired	49.2	
Employed or self-employed	33.8	
Unemployed	3.5	
Permanently sick or disabled	3.0	
Homemaker	9.2	
Other	1.2	
Education attainment (ISCED-97)		
None	3.7	
Primary education or first stage of basic education	18.9	
Lower secondary or second stage of basic education	17.5	
(Upper) secondary education / high school graduates	32.9	
Post-secondary non-tertiary education	4.6	
First stage of tertiary education / Undergraduate degree	21.7	
Second stage of tertiary education / Graduate degree	0.8	
Annual personal income (Euro)		35,289 (70,458)
Health behaviours		
Alcohol consumption		
Almost every day	18.2	
5–6 days a week	3.0	
3–4 days a week	7.4	
Once or twice a week	18.9	
Once or twice a month	12.8	
Less than once a month	10.6	
Not at all in the last 6 months	29.3	
Sport activity requiring a moderate level of energy		
More than once a week	72.6	
Once a week	13.4	
One to three times a month	5.4	
Hardly ever or never	8.7	
Lifestyle		
Volunteering (yes)	16.1	
Health factors		
Mobility index (ADL); 0–10		1.2 (1.9)
Limitations with instrumental activities of daily living scale (IADL); 0–11		0.2 (0.6)
General health		
Poor	10.2	
Fair	20.3	

Table 1 (continued)

Participant characteristic	%	Mean (SD)
Good	38.3	
Very good	24.7	
Excellent	6.6	
BMI		
Underweight < 18.5	1.0	
Normal weight 18.5–24.9	36.5	
Overweight 25–29.9	42.0	
Obese > 30	20.6	
Cognitive competences		
Self-assessed reading skills		
Poor	2.8	
Fair	8.2	
Good	29.1	
Very good	27.3	
Excellent	32.7	
Self-assessed writing skills		
Poor	3.9	
Fair	10.5	
Good	30.3	
Very good	26.1	
Excellent	29.2	
Date recollection (0–4)		3.9 (0.4)
Verbal fluency (number of animals named)		20.5 (7.5)

SD standard deviation, *BMI* body mass index

[your] [husband/wife/partner] have in contractual saving for housing,’ and (3) ‘What is the face value of the whole life policies owned by you [or] [your] [husband/wife/partner]?’; and

4. Value of own business: ‘If you sold this firm, company, or business and then paid off any debts on it, about how much money would be left?’.

All responses were expressed in euros. To examine the effect of the total value of family assets, the variable ‘net financial assets’ was constructed by aggregating all types of family assets and subtracting debts.

To measure the importance of a particular type of family assets in the household portfolio, we calculated the relative value of each type of family assets by dividing its absolute value by the current level of income. Additionally, based on prior research (Benartzi, 2012; Chieffe & Rakes, 1999; Thaler & Benartzi, 2004), each measure (expressed in relative terms) was categorised as follows: (1) low family assets, when the value of assets was below one monthly income; (2) moderate family assets (notable for the household’s budget but still insufficient to provide long-term financial security), when the value of assets was in the range of one to six months of income; and (3) adequate family assets (as sufficiently large to be deemed important from the perspective

of financial security), when the value of assets was above six months of income.

Outcomes

Four outcomes were assessed. First, depression was assessed using the Geriatric Depression Scale (EURO-D) available in SHARE (Guerra et al., 2015; Mehrbrodt et al., 2019; Prince et al., 1999). The scale consists of 12 questions on various depressive symptoms. Examples of questions included in this scale are ‘In the last month, have you been sad or depressed?’, ‘In the last month, have you felt that you would rather be dead?’, and ‘Have you had trouble sleeping recently?’. The internal consistency measured by Cronbach’s alpha was examined in numerous studies and ranged from 0.64 to 0.87, exceeding 0.70 in almost all of them (Guerra et al., 2015). The EURO-D scale ranges from 0 (not depressed) to 12 (very depressed). A score of 4 or higher indicates depression (Guerra et al., 2015).

Second, loneliness was examined using a three-item loneliness scale (Hughes et al., 2004). This scale is a short version of the UCLA Loneliness Scale (Russell et al., 1978) and comprises three questions related to social isolation: ‘How much of the time do you feel you lack companionship?’, ‘How much of the time do you feel left out?’, and ‘How

much of the time do you feel isolated from others?'. Internal consistency of the scale as measured by Cronbach's alpha amounted to 0.72 (Hughes et al., 2004). Respondents provided answers using a three-point scale (1 = hardly ever or never, 2 = some of the time, and 3 = often). The scale ranges from 3 to 9, with higher scores indicating higher levels of loneliness. In our sample, loneliness averaged 3.8 points, which was a consequence of a large group of individuals (62.6%) who responded *hardly ever or never* to all three questions. The standard deviation was 1.3. Individuals experiencing negative conditions scored at least one standard deviation above the average (threshold of 5.1 points). Consequently, those who scored 3–5 points were treated as not lonely, and those with scores of 6 or more as lonely.

Third, the CASP-12—an instrument designed to measure the quality of life in early old age—was used (Mehrbrodt et al., 2019). The CASP-12 is the revised 12-item version of the CASP-19 (Martin Hyde et al., 2003) and comprises four subscales: control, autonomy, self-realisation, and pleasure. The CASP instrument has been thoroughly validated and used extensively as a single index of quality of life (Hyde et al., 2015; Kerry, 2018). Its reliability was assessed to be 0.77 (Kerry, 2018). Statements such as 'I feel that my life has meaning', 'I feel full of energy these days', and 'I feel that what happens to me is out of my control' are presented to respondents who assess them using a four-point Likert scale ('often', 'sometimes', 'rarely', and 'never'). The resulting score is the sum of these 12 items and ranges from a minimum of 12 to a maximum of 48, with a higher score indicating a higher quality of life. The average quality of life score in the sample was 37.1 points, with a standard deviation of 6.2. Two outcomes of quality of life were created. A high quality of life in old age (as measured with the CASP-12) was defined as a CASP-12 score of at least one standard deviation above the average. Poor quality of life in old age was defined as a CASP-12 score of one standard deviation below the average. Consequently, individuals scoring 30 points or less were identified as suffering from a poor quality of life, while individuals scoring at least 43 were identified as experiencing a high quality of life.

Covariates

Self-reports at the baseline wave comprising socioeconomic information were used. Specifically, we controlled for age, gender, marital status, and educational attainment. Additionally, we controlled for the income situation, as measured by the logarithm of annual personal income, and country of origin. To eliminate potential confounding factors, the analyses also accounted for health behaviours (alcohol consumption, moderate-intensity sports activities, and BMI) as well as lifestyle factors, such as volunteering. Bearing in mind the very strong connection between physical health

and emotional well-being, in all analyses, we accounted for health factors. Specifically, we employed the mobility index (measuring the number of mobility limitations, such as arm or fine motor skills), the instrumental activities of daily living scale (IADL; Chan et al., 2012), and a measure of general health. Finally, we controlled for cognitive abilities. These included self-rated assessments of reading and writing skills and more objective measures such as temporal orientation and memory (Dewey & Prince, 2015). All these variables, but gender, were entered into the analysis as time-varying covariates since their levels could change over the period of analysis.

Statistical Analyses

Six waves of data from SHARE were used in the analysis (waves 1–7, excluding wave 3 because it is particular and focuses on people's life histories; it also does not contain variables relevant to our study). Respondents were tracked for up to 13 years (from 2004 to 2017).

The multivariate proportional hazards model (Cox, 1972), also referred to as survival analysis or time-to-event analysis, was used to examine the link between the state of family assets and the time to change observed in the examined outcomes. This analysis allowed us to compare the risk of an event (in our case, a change in the examined outcome) between the two groups at multiple time points. This approach extends beyond the typically applied approach to examine a dichotomous dependent variable (i.e. an event), which is a logistic regression. While logistic regression assumes a constant follow-up time for all individuals, the proportional hazards model allows for different lengths of follow-up for each individual. This implies that the latter utilises more information than the former and consequently provides a more robust assessment of the relationship between independent variables and the event of interest (Ingram & Kleinman, 1989). This approach has already been found useful in prior studies on relationships between financial decisions and the risk of dementia (Hsu & Willis, 2013), financial literacy and savings behaviours (Bialowolski, Cwynar, & Weziak-Bialowolska, 2022), financial risk aversion and decision to relocate (Rashidi & Ghasri, 2019), and determinants of customer loyalty (Brockett et al., 2008), among others.

The proportional hazards assumption was tested using Schoenfeld residuals (Schoenfeld, 1982). Neither covariate-specific nor global tests provided any evidence for the violation of the proportional-hazards assumption. Hazard ratios (HRs; with robust standard errors) and their respective significance levels as well as confidence intervals, were reported. HR has been a measure of association in prospective studies. Similar to the odds ratio and risk ratio, it compares the hazard rate corresponding to the conditions

Table 2 Prevalence of emotional well-being issues among middle-aged and older adults in Europe (SHARE)

	Wave1	Wave2	Wave4	Wave5	Wave6
Depression (% of participants scoring 4 or higher)	25.5	25.0	29.4	26.2	27.4
Low quality of life (% of those with score below 31)	15.1	16.2	16.5	13.0	15.9
High quality of life (% of those with score above 42)	20.8	20.8	22.5	26.6	22.2
Loneliness (% of lonely – 5 or more points on the loneliness scale)	-	-	-	11.4	14.6

Note: Loneliness scale was available in SHARE since wave 5

characterised by two distinct levels of a variable of interest. However, while the odds ratio and risk ratio assess probability (specifically, odds and risks, respectively) at one point in time—usually at the end of the observation period—HR refers to the relative instantaneous risk at any given point during the study (De Neve & Gerds, 2020).

The analysis was conducted in two steps. First, the link between the level of family assets and subsequent deterioration in the examined outcomes (i.e. onset of depression, reports on poor quality of life, reports on falling out of high quality of life, and development of loneliness) was examined. Second, a reverse analysis was conducted in which the link between the level of family assets and subsequent improvement in examined outcomes (i.e. obtaining a high quality of life; escaping a poor quality of life, depression, and loneliness) was the focus. Additionally, the temporal associations were examined separately for the aggregate of net financial assets and for all types of specific family assets included in one model. This resulted in estimating eight distinct models (four outcomes by two specifications of family assets) for the examination of the impact of deterioration in family assets and another set of eight models for the reverse analyses of the impact of improvement in family assets on the examined outcomes.

The state of family assets was assessed in the baseline wave (to limit the risk of reverse causation) and in all consecutive waves to account for the varying financial conditions experienced by the participants in the 15-year time span covered by the analysis. Multiple time-varying covariates were also applied in the multivariate proportional hazards model to account for the evolution over time of the exposures (i.e. the value of family assets) as well as of the covariates such as employment status and health conditions (among others), which could have changed over the period of 15 years. Stratification by country was set to account for the nested structure of the data (i.e. respondents from different European countries).

Sensitivity and robustness tests were conducted as follows: To minimise the influence of a particular specification of thresholds for the value of family assets, a different set of thresholds was tested (i.e. at least three months of income and twelve months of income; see Supplementary Material). Next, the E-values needed to conduct sensitivity

analyses were calculated to examine the minimum strength of association, measured in terms of the risk ratios, between an unmeasured confounder and both the outcome and the independent variable, above and beyond the measured covariates that would be necessary to explain away the observed association (Ding & VanderWeele, 2016). In other words, E-values provided a numerical measure of robustness to potential uncontrolled confounders.

All statistical analyses were performed using Stata Statistical Software Release 17.

Results

Descriptive Analyses

The proportion of middle-aged and older adults in Europe suffering from depressive symptoms, as identified by the EURO-D scale, was rather stable over the period of analysis (Table 2). In each wave, there were between 25% (wave 2) and 29.4% (wave 4) of individuals with identifiable depressive symptoms. Regarding the quality of life assessed using the CASP-12 instrument, a relatively stable share of individuals with deficiencies in the area was also observed. The lowest number of individuals with reduced quality of life was noted in wave 5 (13%), while the highest was recorded in wave 4 (16.5%). The loneliness scale was available only since wave 5. A total of 11.4% of individuals were classified as lonely in wave 5 and 14.6% in wave 6.

Family Assets

For each form of family assets, three categories were created to express their value in relation to income (Table 3). Only for bank account balances did more than half of the participants demonstrate savings above their monthly incomes. Specifically, 28.7% declared savings of between one and six months of their monthly incomes, and 25.9% declared savings exceeding six months of their incomes. More than four out of five individuals had very little or no family assets in the form of bonds, stocks, or mutual funds (i.e. of value not exceeding the monthly income). About 8.5% of all surveyed middle-aged and older adults declared this type of family

Table 3 Distribution of net financial assets and specific components of financial assets among the individuals subject to analysis (SHARE)

	Below monthly incomes	1–6 monthly incomes	Above 6 monthly incomes
Cumulative net financial assets (%)	34.4	20.7	44.9
Bank account balance (%)	45.3	28.7	25.9
Bonds, stocks, and mutual funds (%)	78.1	8.5	13.4
Long-term financial assets (incl. savings for retirement, %)	66.2	12.5	21.3
Value of own business (%)	92.0	1.6	6.4

asset exceeding their monthly incomes, but below their six-monthly incomes, while 13.4% accumulated more than their semi-annual incomes in this form. Long-term family assets were also limited, with 66.2% of all surveyed declaring the value of such assets below their monthly income. Only 12.5% of the surveyed accumulated long-term family assets, ranging between one and six months of their income, and 21.3% declared that they had more than half of their yearly incomes in this form. As expected, ownership of business assets was relatively rare. Accordingly, 92.0% of all individuals declared either a lack of business assets or that their value was below the monthly income. A total of 1.6% of the total declared business assets between monthly and six months of their incomes, but it was more common to have larger businesses, and 6.4% of the respondents claimed that their business assets exceeded their semi-annual incomes.

Prospective Associations Between Family Net Financial Assets and Loneliness, Depression, and Quality of Life

Net financial assets (aggregated financial assets minus debts) of moderate (one–six months of income) and high value (above six months of income) played a protective role against falling into negative states: depression, low quality of life, and loneliness (Table 4, net financial assets expressed in monthly incomes). However, this protective role was different for different outcomes. Individuals with net financial assets exceeding their monthly incomes had a 16% lower risk (HR = 0.839) of falling into loneliness over a two-year period than their counterparts with lower net financial assets. This implies that even relatively low levels of savings were sufficient to significantly reduce the risk of loneliness. The protective role of net financial assets against loneliness increased, however, only moderately for individuals with higher financial assets (above their six-monthly incomes). They had a 19% lower risk (HR = 0.810) of experiencing loneliness in the subsequent two-year period. A stronger discriminatory power of net financial assets was noted for the poor quality of life outcome. Individuals with moderate financial assets (i.e., one–six monthly incomes) experienced an almost 12% reduction in the risk (HR = 0.884)

of declining to a lower quality of life state than individuals with very low or no net financial assets (below one month of income). However, individuals with adequate net financial assets (i.e. above six months of income) were found to have a lower quality of life in the two-year follow-up period with a 29% lower probability (HR = 0.713). The protective role of net financial assets was the weakest for depression. The risk of falling into depression was reduced by approximately 10% (HR = 0.901) for those with moderate savings, and a slightly more than 15% reduction was observed (HR = 0.845) for those with higher savings—compared to individuals with savings amounting to less than monthly incomes.

For the positive outcome—high quality of life—only net financial assets amounting to at least six months of income significantly reduced the risk of falling out of a high quality of life state. Individuals with high net financial assets had a 13% reduced risk (HR = 0.872) of losing a high quality of life compared with individuals with family net financial assets below monthly incomes over a two-year period.

A reverse analysis focused on whether financial assets help overcome negative states, that is, escaping depression, loneliness, or low quality of life, as well as obtaining a high quality of life (Table 5). The instantaneous risk of ceasing to feel depressed was about 5% higher for those with moderate (HR = 1.054) and high net financial assets (HR = 1.045) than for those with very low net financial assets. For escaping a low quality of life, the risk was higher by 8% for those with moderate (HR = 1.081) and adequate (HR = 1.075) net financial assets. While escaping loneliness was not affected by family net financial assets, interestingly, obtaining a high quality of life was very strongly dependent. Even individuals with moderate net financial assets were almost 19% more likely (HR = 1.187) over a two-year period to obtain a high quality of life than their counterparts with very low financial assets. For those with high family net financial assets, the respective risk was almost 28% higher (HR = 1.277).

Table 4 Multivariable adjusted hazard ratios for declining into a depression, loneliness, a lower quality of life status, and losing a high quality of life status for middle-aged and older adults—Survey of Health, Aging and Retirement in Europe (SHARE)

	Depression (EURO-D) Hazard Ratio (CI)	Low quality of life (CASP-12) Hazard Ratio (CI)	Loneliness Hazard Ratio (CI)	High quality of life (CASP-12) Hazard Ratio (CI)
Model for net financial assets				
Cumulative savings (net financial assets) expressed in monthly incomes (ref. below one month of income)				
1–6	.901*** (.863; .940)	.884*** (.842; .928)	.839*** (.773; .911)	.971 (.929; 1.014)
Above 6	.845*** (.814; .878)	.713*** (.681; .746)	.810*** (.754; .870)	.872*** (.839; .907)
Model for different types of savings (estimated together)				
Bank account balance expressed in monthly incomes (ref. below one month of income)				
1–6	.918*** (.880; .956)	.925** (.880; .972)	.865*** (.799; .936)	.961 (.921; 1.001)
Above 6	.884*** (.846; .924)	.817*** (.774; .862)	.908** (.837; .985)	.907*** (.868; .948)
Bonds, stocks, and mutual funds savings expressed in monthly incomes (ref. below one month of income)				
1–6	.888*** (.826; .955)	.902 (.811; 1.005)	.856 (.723; 1.014)	.901** (.846; .960)
Above 6	.881*** (.831; .936)	.754*** (.691; .822)	.964 (.861; 1.079)	.893*** (.848; .940)
Savings for long-term investments expressed in monthly incomes (ref. below one month of income)				
1–6	.955 (.900; 1.014)	.738*** (.678; .802)	.882 (.778; 1.001)	.940* (.890; .993)
Above 6	.993 (.945; 1.045)	.735*** (.685; .790)	.790*** (.715; .873)	.930** (.888; .973)
Value of own business expressed in monthly incomes (ref. below one month of income)				
1–6	.980 (.833; 1.153)	.843 (.670; 1.060)	.689 (.442; 1.073)	.924 (.806; 1.060)
Above 6	.850*** (.773; .934)	.784*** (.691; .890)	.789* (.643; .967)	.992 (.923; 1.066)

All models were controlled for participant socio-demographics: age, gender, marital status, educational attainment, employment status, and annual personal income; lifestyle factors, such as volunteering; and health behaviours (BMI, alcohol consumption, and sport activity); adjustment was also made for prior health factors (such as assessment of general health, IADL and mobility index), as well as for cognitive skills. Stratification by country was applied; longitudinal data and varying covariates were accounted for; robust standard errors were computed. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. CI = 95% confidence interval

Prospective Associations Between the Types of Family Assets and Loneliness, Depression, and Quality of Life

Different forms of family assets were found to play a differential role for the studied outcomes (Tables 4 and 5, rows ‘Bank account balance expressed in monthly incomes’ and below). The most influential role in shielding against depression was noted for individuals with business assets. However, this was only the case when the value of the business was higher than six months of income. In such a case, the risk of depression was 15% lower than that of individuals with no business assets or low-value business assets (HR = 0.850). Protection against depression could also be achieved through the accumulation of resources on a bank account (HR = 0.918 and HR = 0.884 for moderate and high levels of these assets, respectively) and in the form of bonds, stocks, or mutual funds (HR = 0.888 and HR = 0.881 for moderate and high levels of these assets, respectively). However, savings for long-term investments seemed not to play a role in protecting against depression.

Protective role of different forms of family assets against low quality of life (as measured by the CASP-12 scale) was strongly related to the value of the assets when they were

in the form of bank accounts or bonds, stocks, or mutual funds. Individuals with high bank account savings had an 18% lower risk of declining into a low quality of life situation (HR = 0.817) than their counterparts without any family assets of this kind. Those with high value of assets in the form of bonds, stocks, and mutual funds had a 25% lower risk of falling into a low quality of life (HR = 0.754). However, when the level of financial assets in either category was lower, the protective role was much weaker. The protective role of savings for long-term investments in mitigating the risk of low quality of life was substantial and significant for moderate (HR = 0.738) and high (HR = 0.735) values of such savings. High-value business assets were also important in protecting against a poor quality of life (HR = 0.784). A much weaker role of family assets was observed for falling out of a high quality of life. Bank account balances of a high value reduced the risk of descending from a high quality of life state by approximately 9% (HR = 0.907) over a two-year period (in comparison to very low bank account balances). Possession of savings in stocks, bonds, and mutual funds reduced this risk by about 10–11% irrespectively of the value of savings in this form (HR = 0.901 and HR = 0.893), and for savings for long-term investments, a decrease in probability accounted for 6–7% for those with moderate and

Table 5 Multivariable adjusted hazard ratios for overcoming depression, loneliness, lower quality of life status, and obtaining a high quality of life for middle-aged and older adults—Survey of Health, Aging and Retirement in Europe (SHARE)

	Depression (EURO-D) Hazard Ratio (CI)	Low quality of life (CASP-12) Hazard Ratio (CI)	Loneliness Hazard Ratio (CI)	High quality of life (CASP-12) Hazard Ratio (CI)
Models for net financial assets				
Cumulative savings (net financial assets) expressed in monthly incomes (ref. below 1 month of income)				
1–6	1.054* (1.012; 1.097)	1.081** (1.030; 1.135)	1.009 (.941; 1.082)	1.187*** (1.132;1.246)
Above 6	1.045* (1.008; 1.083)	1.075** (1.027; 1.124)	.988 (.930; 1.049)	1.277*** (1.225;1.331)
Models for different types of savings (estimated together)				
Bank account balance expressed in monthly incomes (ref. below 1 month of income)				
1–6	1.047* (1.006; 1.089)	1.065* (1.012; 1.121)	1.032 (.965; 1.102)	1.139*** (1.091;1.190)
Above 6	1.050* (1.005; 1.097)	1.039 (.980; 1.101)	1.012 (.944; 1.086)	1.173*** (1.120;1.229)
Bonds, stocks and mutual funds savings expressed in monthly incomes (ref. below 1 month of income)				
1–6	.965 (.903; 1.032)	.967 (.860; 1.087)	1.097 (.973; 1.237)	1.031 (.968;1.099)
Above 6	1.027 (.969; 1.089)	.949 (.863; 1.043)	.962 (.871; 1.062)	1.074** (1.019;1.131)
Savings for long-term investments expressed in monthly incomes (ref. below 1 month of income)				
1–6	1.031 (.979; 1.087)	.999 (.924; 1.079)	.963 (.870; 1.066)	1.018 (.963;1.076)
Above 6	.991 (.945; 1.040)	1.073* (1.002; 1.149)	1.001 (.926; 1.083)	1.046 (.998;1.097)
Value of own business expressed in monthly incomes (ref. below 1 month of income)				
1–6	1.183** (1.046; 1.339)	1.102 (.882; 1.378)	1.227 (.944; 1.596)	1.086 (.948;1.244)
Above 6	1.011 (.938; 1.089)	1.056 (.945; 1.180)	1.182* (1.019; 1.371)	1.143*** (1.064;1.228)

All models were controlled for participant socio-demographics: age, gender, marital status, educational attainment, employment status, and annual personal income; lifestyle factors, such as volunteering; and health behaviours (BMI, alcohol consumption, and sport activity); adjustment was also made for prior health factors (such as assessment of general health, IADL and mobility index), as well as for cognitive skills. Stratification by country was applied; longitudinal data and varying covariates were accounted for; robust standard errors were computed. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. CI = 95% confidence interval

high savings in comparison to those with very low savings (HR = 0.940 and HR = 0.930, respectively). No protective role of business assets was observed. Finally, protection against loneliness was moderate for bank account assets, regardless of their value (HR = 0.865 and HR = 0.908). Significant protection against loneliness (21% lower risk) was achieved for individuals who either accumulated high long-term savings (HR = 0.790) or managed to accumulate significant value in their businesses (HR = 0.789). However, smaller savings accumulated in these forms did not play a protective role against loneliness.

Reverse analysis demonstrated much fewer significant effects for specific types of family assets. People with at least a moderate bank account balance had a 5% higher chance² of ceasing to feel depressed (HR = 1.047 and HR = 1.050 for moderate and high levels of these assets, respectively) than those with low bank account balances. Those with a moderate value of business assets were much more likely (by 18%) to escape depression over a span of two years (HR = 1.183) than their counterparts without any business assets. Bonds, stocks, mutual funds, and savings for long-term investments played no role in escaping depression. Escaping loneliness was facilitated only by a high value of savings for long-term investments. Such savings increased

the probability of escaping loneliness by 18% over a two-year period (HR = 1.182), while all other forms of savings were not relevant for this outcome.

Escaping a low quality of life was facilitated only by bank account balances and savings for long-term investments. In the former case, people with moderate bank account balances had a 6% higher probability of escaping a low quality of life (HR = 1.063) than their counterparts with low bank account balances. In the latter case, those with high savings for long-term investments had an approximately 7% higher probability of escaping a low quality of life (HR = 1.073) than those with very low balances of long-term savings. Different types of savings were shown to be essential for obtaining a high quality of life. Moderate and high bank account balances increased the probability of obtaining a high quality of life by 14% (HR = 1.139) and 17% (HR = 1.173), respectively. A high value of assets in stocks, bonds, and mutual funds increased the probability at hand by 7% (HR = 1.074),

² We recognize that 'risk' or 'hazard' are more accurate terms to be used. However, since we describe a positive outcome, the term 'chance' was used to maintain the logic of the sentence.

Table 6 Robustness to unmeasured confounding (E-Values) for assessing the associations between savings and subsequent depression, lower quality of life status, and loneliness in middle-age and older adulthood

	Depression (EURO-D)		Low quality of life (CASP-12)		Loneliness		High quality of life (CASP-12)	
	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b
Cumulative savings (net financial assets) expressed in monthly incomes (ref. below one month of income)								
1–6	1.36	1.26	1.40	1.29	1.67	1.43	1.17	1.00
Above 6	1.50	1.42	1.84	1.75	1.77	1.56	1.43	1.34
Bank account balance expressed in monthly incomes (ref. below one month of income)								
1–6	1.32	1.21	1.30	1.16	1.58	1.34	1.20	1.00
Above 6	1.40	1.30	1.57	1.46	1.43	1.14	1.34	1.24
Bonds, stocks, and mutual funds savings expressed in monthly incomes (ref. below one month of income)								
1–6	1.39	1.21	1.36	1.00	1.61	1.00	1.36	1.20
Above 6	1.41	1.27	1.73	1.55	1.23	1.00	1.38	1.26
Savings for long-term investments expressed in monthly incomes (ref. below one month of income)								
1–6	1.21	1.00	1.77	1.60	1.51	1.00	1.26	1.07
Above 6	1.07	1.00	1.78	1.64	1.85	1.55	1.28	1.16
Value of own business expressed in monthly incomes (ref. below one month of income)								
1–6	1.13	1.00	1.50	1.00	2.26	1.00	1.30	1.00
Above 6	1.49	1.28	1.65	1.39	1.85	1.22	1.08	1.00

CI confidence interval

^aThe E-values for effect estimates are the minimum strength of association on the risk ratio scale that an unmeasured confounder would need to have with both the exposure and the outcome to fully explain away the observed associations of having a certain value of savings with studied emotional well-being outcomes, conditional on the measured covariates

^bThe E-values for the limit of the 95% CI closest to the null denote the minimum strength of association on the risk ratio scale that an unmeasured confounder would need to have with both the exposure and the outcome to shift the confidence interval to include the null value, conditional on the measured covariates

while a high value of business assets increased the probability by over 14% (HR = 1.143).

Robustness

Two sets of analyses were conducted to assess the robustness of the results. First, we checked whether a different specification of thresholds for family assets yielded qualitatively different results. Herein, the initial thresholds of one-monthly incomes, and six-monthly incomes were modified to reflect the assets of at least three-monthly incomes and twelve-monthly incomes. The results (see Supplementary Material) confirmed the results of the primary analyses. For individuals demonstrating moderate and high net financial assets, the protective role of the assets was established for all four outcomes. The differential role of different types of family assets for all outcomes was also corroborated. The only difference emerging from the robustness analysis was that the protective role of high value of savings on the current bank was not certain.

The sensitivity analysis conducted using the E-values provided additional evidence of the robustness of the results to unmeasured confounding (Tables 6 and 7).

There was evidence that the associations between types of family assets and examined outcomes were moderately robust to unmeasured confounding. The most robust were associations with loneliness. For example, in the studied population, an unmeasured confounder would need to be associated with both feeling lonely and cumulative assets above one month of income and less than six months of income by risk ratios of 1.67 each, above and beyond the measured covariates, to fully explain away the observed association between the two variables.

Discussion

This study demonstrates that family assets may play a significant protective role against depression, loneliness, and decreased quality of life. The study's results, however, go beyond a simple acknowledgement that family assets are important for these outcomes. Instead, they indicate that different forms of family assets, and not only savings and wealth, may play different roles in protecting against the risks related to deterioration in the areas related to

Table 7 Robustness to unmeasured confounding (E-Values) for assessing the associations between savings and subsequent overcoming depression, loneliness, lower quality of life status, and obtaining a high quality of life for middle-aged and older adults

	Depression (EURO-D)		Low quality of life (CASP-12)		Loneliness		High quality of life (CASP-12)	
	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b	E-Value for Effect Estimate ^a	E-Value for CI Limit ^b
Cumulative savings (net financial assets) expressed in monthly incomes (ref. below one month of income)								
1–6	1.23	1.10	1.30	1.17	1.10	1.00	1.50	1.40
Above 6	1.21	1.08	1.28	1.16	1.12	1.00	1.65	1.57
Bank account balance expressed in monthly incomes (ref. below one month of income)								
1–6	1.22	1.07	1.26	1.10	1.21	1.00	1.42	1.32
Above 6	1.22	1.06	1.19	1.00	1.12	1.00	1.48	1.38
Bonds, stocks and mutual funds savings expressed in monthly incomes (ref. below one month of income)								
1–6	1.19	1.00	1.18	1.00	1.42	1.00	1.17	1.00
Above 6	1.16	1.00	1.23	1.00	1.24	1.00	1.28	1.13
Savings for long-term investments expressed in monthly incomes (ref. below one month of income)								
1–6	1.17	1.00	1.03	1.00	1.24	1.00	1.12	1.00
Above 6	1.09	1.00	1.28	1.04	1.03	1.00	1.21	1.00
Value of own business expressed in monthly incomes (ref. below one month of income)								
1–6	1.50	1.21	1.34	1.00	1.75	1.00	1.31	1.00
Above 6	1.10	1.00	1.24	1.00	1.64	1.16	1.42	1.26

CI confidence interval, *na* nonapplicable because the effect estimate was not significant

^aThe E-values for effect estimates are the minimum strength of association on the risk ratio scale that an unmeasured confounder would need to have with both the exposure and the outcome to fully explain away the observed associations of having a certain value of savings with studied emotional well-being outcomes, conditional on the measured covariates

^bThe E-values for the limit of the 95% CI closest to the null denote the minimum strength of association on the risk ratio scale that an unmeasured confounder would need to have with both the exposure and the outcome to shift the confidence interval to include the null value, conditional on the measured covariates

well-being and mental health outcomes. Additionally, they also show that the role of family assets might not be symmetric. In this vein, our results indicate that family assets play an important role in protecting against falling into ill-being or ill-health. However, their less important role in increasing the chances of overcoming ill-being must also be acknowledged.

Our findings on the prospective associations between savings and depressive disorders reinforce the findings of other studies. For example, Bialowolski et al. (2021), using data from medical records and a survey conducted among employees of an American company, showed that savings equal to six months of typical monthly expenses reduce the subsequent odds of falling into depression by over 36%. Similarly, cross-sectional research conducted in the United States demonstrated that adults with low family savings had 1.5–2.4 times higher odds of having depressive symptoms than adults with high family savings (Ettman et al., 2020a, 2020b), and a cross-sectional study based on SHARE data showed that there is a stronger correlation between income and lower risk of depression than between wealth and lower risk of depression (Kourouklis et al., 2020). Stronger supportive evidence for prospective

associations between savings and improved emotional health was found in a longitudinal study conducted in Poland (Białowolski et al., 2019). Conversely, no effects of material deprivation reflected in decreased net financial assets on measures of health and well-being have been found in Ireland (Barrett & O'Sullivan, 2014), which is at odds with our findings.

Earlier studies linked social factors, such as social engagement and social cohesion, with emotional well-being (Cruwys et al., 2013; Kim et al., 2020; Min et al., 2016), but the influence of family assets on social life has been scarcely studied. The findings of Niedzwiedz et al. (2016), based also on the SHARE data, as well as research by Kahneman and Deaton (2010), suggest that the risk of loneliness is the highest among the least affluent, and the lowest among the most affluent. However, in our study, we complement these findings by going beyond measures of wealth and income. We show that with increasing values of net financial assets and bank account balances, the risk of feeling lonely decreases. However, for less liquid family assets, this risk is lower only for people with a high value of these assets (above six-month incomes). Conversely, we also found that an increasing value of family assets does not guarantee an improvement

in loneliness-related ill being for people who already feel lonely. This asymmetry in the effects of saving-related family assets has never been examined.

Our findings on temporal associations between family assets and subsequent increased quality of life corroborate the cross-sectional associations between material deprivation and worse quality of life reported by Terraneo (2021). They also complement prior findings on the positive correlations between the self-realisation, control, and autonomy domains of the quality of life scale (CASP-12) and stock market participation (Dominko & Verbič, 2020). While our results on a positive role of family assets in emotional well-being are mostly in line with those of prior studies, earlier studies have not provided empirical evidence on the health and well-being impacts of different types of family assets. Even though Ruberton et al. (2016) demonstrated an important role of current account balances for life satisfaction, associations between other types of family assets were not subject to their investigation. Nevertheless, our findings indicate that current account balance can play a favourable role in preventing ill-being, as well as contributing to recovery from poor quality of life and mental ill-health (for assets being moderate), which seems to be in line with the results by Ruberton et al. (2016). However, we also showed that the most liquid family assets (i.e. savings on bank accounts) could play a more protective role against loneliness than stocks, bonds, and other investment funds, as well as small value pension assets. Still, for quality of life, long-term savings and family assets in the form of financial instruments (bonds and stocks) reduce the negative consequences more than current account balances. Our work agrees with Ruberton et al. (2016), who, using a different study design and different specification, found that bank account balances and savings in the form of financial instruments play a comparable role in life satisfaction.

Strengths and Limitations

The main strength of the present study is the longitudinal design of the analyses covering a period of 13 years, with an adjustment for a large set of covariates. Not only sociodemographic information but also health behaviours, lifestyle, and prior health status, as well as cognitive competences, were used to control the link between family assets and the set of outcomes throughout the entire 13-year period of analysis. Additionally, this control was not implemented incidentally at baseline, but was enforced continually at each wave (i.e., every two years) to adjust for time-varying levels of control variables. This approach was critical in establishing a temporal order between independent variables related to the state of family assets and the examined outcomes. Thus, it could be argued that the approach is at least partially immune to the issues of reverse causation and unmeasured

confounding. Next, our two-fold approach in examining both the preventive roles and ‘healing’ effects of family assets for emotional well-being and mental health showed an asymmetry of impacts. While moderate and high values of family assets seem to mitigate the risk of falling into ill-being and mental ill-health, they are not clearly associated with subsequent chances of overcoming these conditions. Finally, the robustness analysis, which tested different thresholds for family assets relative to income, provided further support for the reliability of the results, and the sensitivity analysis using the E-values indicated that the results are robust to the unmeasured confounding factors.

There are certain limitations to the study design. Our analyses relied on self-reports of family assets and outcomes (responses to the depression scale, quality of life assessment, and loneliness questions). Social desirability bias might have played a role in some of the responses, and consequently, the results might suffer from imperfect accuracy and reliability. However, biases—if indeed present in respondents’ reports—should have been neutralised by the fact that longitudinal data were used. Additionally, especially in relation to outcomes, their measurement relied on well-established and previously validated scales, which supports findings based on these indicators. It can also be argued that individuals transitioning to retirement may be affected in terms of their mental, emotional, and social outcomes. Although our analysis did not focus on these transitions, we controlled for labour market status and cognitive impairment throughout the whole 13-year observation period. Next, another limitation is the lack of homeownership in the portfolio of family assets examined. While it is the most important financial asset in an asset portfolio, it is also the least liquid one. Additionally, it is well known that the health effects of losing it, or even the prospects of losing it, are devastating (Burgard et al., 2012; Gerardi et al., 2010; McLaughlin et al., 2012). Furthermore, an a priori assumption that each household can set aside money was not tested in our study. Since prior research indicates that poverty, adverse family situations, low socio-economic status, and unfavourable health conditions, among others, may considerably limit people’s financial perspectives and incomes, thus hampering opportunities to build financial reserves (Beverly & Sherraden, 1999; Feldman, 2018; Heckman & Hanna, 2015; Mullainathan & Shafir, 2009; Scholz & Seshadri, 2009), this limits the generalisability of our findings to persons whose economic standing is sufficient to make saving decisions. Finally, we focused on the impact of family assets on emotional well-being and mental health, but not vice versa. We recognize, however, that prior evidence suggests that health situations can also impact financial conditions. In particular, the onset of a disease, as well as suffering from a chronic health condition, often leads to increased expenditures, which further contributes to a deterioration of one’s financial situation

or even indebtedness (Babiarz et al., 2013; Grafova, 2015; Mohanan, 2013). Although we did not examine these associations, in our analyses, we not only controlled for health conditions (i.e. general health, health behaviours, mobility, instrumental activities of daily living scale, and cognitive impairment) at baseline but also for changes in these conditions at each observation moment throughout the whole observation period of 13 years. This gives us considerable reassurance that these reverse relationships were accounted for in our analyses and results.

Implications and policy recommendations

The findings of the study yield important policy implications, especially for aging populations.

Promote Awareness of the Important Role of Family Assets Including Savings in Particular for Emotional Well-Being and Mental Health in Middle-Age and Older Adulthood

Although savings should not be promoted at any cost and over-saving is a sub-optimal financial behaviour (see, e.g. Wan, 2011 for overview), our findings clearly show that savings are an important contributor to the general well-being of middle-aged and older adults. Indeed, Sherraden (1991) and Curley et al. (2009) have already argued that financial assets may foster economic, psychological, and social well-being. Their conclusions referred particularly to those who were poor, as they were being struck the most by negative shocks to their incomes. Promoting savings can alleviate the situation of numerous households, especially as their members age, and naturally, following the assumptions of the life-cycle model, start to decumulate assets.

Build Institutional Framework to Increase Savings

The increasing complexity of financial products and services creates numerous risks for financial product users (Banks, 2010; Celerier & Vallee, 2013). In particular, older adults might feel confused and reluctant to purchase products (including savings products) they have little knowledge of. However, in line with Becker and Mulligan's (1997) theory of endogenous time preferences, choices can be influenced by creating a proper choice architecture. It is particularly important to encourage and support individuals who are willing to take the first step in terms of their savings. This first step in asset accumulation has been shown to strongly translate into future decisions and increase the probability of continued accumulation. Making an initial decision to save further discourages impulsive decisions and helps individuals make informed choices regarding their financial needs and wants (Scanlon & Adams, 2008).

Promote Long-Term and Less Liquid Assets for Improved Quality of Life and Better Social Life

Improving long-term financial security not only positively contributes to resilience and better quality of life but also mitigates the risk of loneliness. One of the paths for higher financial security runs through improved behavioural incentives to save more money. This is particularly important in light of Europe's aging population, which, according to estimates, will translate into the ratio of employed to retirees equal to 2:1 by 2050 (Muszyńska & Rau, 2012) – a decline from the current 4:1 ratio. Consequently, the constantly diminishing potential of pension systems to accommodate the needs of the elderly is another indication of the importance of savings, and thus of creating a cushion for the incoming change. This promotion of long-term savings can be supported by behaviourally driven programmes such as Save More Tomorrow™ (Thaler & Benartzi, 2004), which stimulate savings by increasing participants' contribution only when they obtain a raise; hence, they do not experience income decline when saving more. Such long-term savings might, therefore, create a virtuous cycle with health, as demonstrated by (Gubler & Pierce, 2014).

Fostering Financial Literacy and Financial Confidence for Higher Savings

Accumulating sufficient family assets (savings in general, and retirement savings in particular) is not an easy task. This requires substantial knowledge and ability to apply it in practice. As people are frequently requested to undertake activities related to saving, investing, or ensuring, they are likely to perform better when equipped with more knowledge underlying the principles of these activities. Consequently, policymakers and health practitioners might consider programmes promoting financial literacy as an important factor for improving financial security, thus translating into an enhanced quality of life. It is recognised that financially illiterate individuals are more than 40% more likely to fall into a state of financial insecurity over a 10-year period than their financially literate counterparts (Bialowolski et al., 2022b). This fact presents clear evidence of fostering financial literacy as a potential mediator of well-being and positive emotional well-being outcomes.

Encouraging Asset Building to Improve Family Functioning

The results of this study have implications for the improvement of family functioning. To maintain family functioning, family members should maintain their mental health and positive psychological states. Previous research has shown that negative life outcomes, such as depression, loneliness,

and poor quality of life, are correlated with family functioning (Keitner & Miller, 1990; Lu et al., 2017; Zhou et al., 2018). The findings of this study imply that higher levels of family assets may help reduce the risk of depression, loneliness, and a perceived low quality of life. To improve family members' mental health and hope for life, through which family functioning can be improved, policies to help improve family net worth should be considered. The findings also show that different forms of family assets have different potential effects on various negative life outcomes. For example, contractual assets, such as retirement savings and housing savings, are more effective in reducing the risk of perceiving a low quality of life. If policymakers aim to improve people's hope for life, they should change social policies and increase the accumulation of contractual assets to increase people's confidence in evaluating their quality of life. The findings also show that asset level is important. For example, with business assets, only a high level of assets is associated with reduced risks in all indicators of negative life outcomes. If policymakers would like to help their people improve these indicators, they should encourage the development of family-owned businesses and provide subsidies and support to help business owners not only survive but also thrive. Stronger financial positions of family business owners may help reduce the risk of negative life outcomes and achieve the goal of better family functioning.

Family assets may play a protective role against falling into ill-being and mental ill-health; however, their role in recovery from these adverse health well-being conditions is not so evident. Types of family assets defined by liquidity play a different role in health and well-being, with more liquid assets being, in general, more impactful than less liquid assets. Policies can support programmes oriented towards understanding the consequences of financial decisions and their role in well-being and health outcomes.

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Declarations

Conflict of interest The authors declare none.

Ethical standards The SHARE study is subject to continuous ethics review. During Waves 1 to 4, SHARE was reviewed and approved by the Ethics Committee of the University of Mannheim. Wave 4 of SHARE and the continuation of the project were reviewed and approved by the Ethics Council of the Max Planck Society. More details are presented here: http://www.share-project.org/fileadmin/pdf_documentation/SHARE_ethics_approvals.pdf.

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