Aging in America: An Examination of Financial and Health Decision Making among Older Adults

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Abstract

The U.S. population is aging, and aging is associated with cognitive, contextual, psychosocial, and other changes that can impact one's ability to make effective decisions. Ineffective decision making, particularly related to finances and healthcare, can have significant and irreversible effects on an individual's wellbeing. Better understanding the relationships among aging and decision making is needed to identify ways to maintain or even enhance decision making ability as we grow older. This chapter reviews research that examines how aging impacts decision making and susceptibility to financial fraud, including the role that financial literacy plays, and discusses how findings from this research inform policies aimed at protecting older adults from the problems that can arise from suboptimal decisions.

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The world is getting older. An aging population, whether due to declining fertility rates, rising life expectancy, or a combination of both, is a global phenomenon with far reaching economic and social consequences. By 2040, it is estimated that over 20 percent of Americans will be above the age of 64. In absolute terms, there will be 80 million Americans 65 and older by 2040, over double the number in 2000 (Administration for Community Living, 2022).

Aging is associated with cognitive, contextual, and psychosocial changes that can impact many aspects of life. Importantly, aging-related changes place older adults at risk of a host of adverse financial and health outcomes, including poor financial and health decision making, financial fraud victimization, loss of independence, dementia, and even early mortality. The impact of aging on decision making has garnered significant attention in recent years, as older adults face many significant financial and health decisions, and opportunities to recover from mistakes are limited. For example, in the financial domain, older individuals face critical decisions related to retirement income, including when to claim social security payments and whether to take a lump sum or annuity payments from a pension plan. Further, suboptimal decision making can render older adults more vulnerable to fraud, which can lead to significant and usually unrecoverable financial losses. This is especially troubling in view of the wide array of fraudulent offers targeting older adults (Senate Special Committee on Aging 2021).

In the health domain, older adults must navigate a complex healthcare system and make important and difficult decisions about healthcare insurance, prescription drug plans, medical treatments, and end of life care. These decisions are also often irreversible and can significantly impact older adults' physical, mental, and financial wellbeing. So, ineffective decision making in the health care realm is equally problematic.

In the last decade or so, considerable advances have been made in understanding how aging is related to decision making. This research strongly suggests that older adults are at risk for suboptimal decision making, an issue that has drawn the attention of researchers, regulators, policy makers, and the public alike (National Academies 2021; North American Securities Administrators Association 2022). With this backdrop, researchers at the FINRA Foundation and Rush University Medical Center began a collaboration aimed to systematically examine the relationship between aging and financial decision making, with a focus on scam susceptibility and financial fraud. This collaboration connected a diverse group of researchers and policy makers and brings together expertise on aging, cognition, decision making, financial fraud, and investor protection.

In our conceptual framework, decision making reflects a complex and dynamic interplay among diverse skills and resources, and aging-related changes can impair decision making in a variety of ways. For example, while the strong association between cognitive abilities and decision making is well established, the collaborative work between Rush and the FINRA Foundation has demonstrated that a number of non-cognitive resources also play important roles. These include psychosocial factors such as loneliness and wellbeing, as well as contextual factors such as financial and health literacy and financial fragility. Interestingly, the nature of the associations of non-cognitive factors with decision making can differ in important and interesting ways that provide valuable clues for effective intervention and policy setting. That is, whereas some non-cognitive resources impact decision making directly (meaning relatively independent of cognition), others interact with cognition to impact decision making, and these interactions can vary depending on the specific resource and specific decisional outcome. Figure 1 depicts the complex relationships and inter-relationships in our conceptual framework.

Figure 1 here

To date, Rush and FINRA Foundation researchers have published over 20 papers, issue briefs, and infographics that examined a variety of issues related to aging and decision making. Collectively, these studies provide a foundation for understanding how aging affects decision making, and the findings from several particularly relevant studies are discussed in this chapter.

Data

The Rush/FINRA Foundation collaboration leverages data from the Rush Memory and Aging Project (MAP). MAP is a cohort study of common chronic conditions of aging and Alzheimer's disease that focuses on cognitive and functional decline and risk factors for Alzheimer's disease and related dementias. The study recruits older adults throughout the Chicago metropolitan area. Most of the participants are residents of continuous care retirement communities; the remaining are recruited from subsidized housing as well as through local churches and social service agencies that serve minorities and low-income older adults. Participants agree to annual home visits that include detailed clinical and cognitive evaluations and documentation of medical history, medication use, physical function, and experiential and psychosocial factors. MAP started in September 1997 and is an ongoing study. A sub-study of financial and healthcare decision making that conducts annual assessments of financial and health literacy, financial and health decision making, scam susceptibility, and related behaviors was initiated in 2010 and is ongoing. More information on MAP can be found at the Rush Alzheimer's Disease Center's research and data sharing hub (https://www.radc.rush.edu/).

Importantly, because MAP started in 1997, Rush has longitudinal clinical and behavioral data on the participants in the study dating back over two decades. This detailed data combined

with data from the financial and healthcare decision making sub-study provide a rich platform from which to examine the relationship between aging and decision making.

The studies covered in this chapter focus on two dependent variables—financial and health decision making ability and scam susceptibility. Several independent variables are examined, including cognitive ability, loneliness, psychological wellbeing, financial and health literacy, memory misperception, and financial fragility. These measures are briefly described in the body of the chapter, though detailed information on how these variables were measured can be found in the Appendix. In the remainder of the chapter, we present findings from several studies that emerged from the Rush/FINRA Foundation collaboration. These selected studies highlight important findings around the relationship between aging and decision making.

Cognitive Factors

Cognitive ability. Several studies in the Rush/FINRA Foundation project provide evidence of the association between cognitive ability and decision making ability. For example, a study that focused on the relationship between declining financial literacy and decision making ability (described in more detail below) found that lower levels of cognition were tied to lower levels of decision making ability. In general, we have found that when looking at the associations of various non-cognitive factors with decision making and related outcomes such as scam susceptibility, it is often important to account for the association between cognition and decision making in order to understand how non-cognitive factors work to affect decision making. Further, the Rush team has shown that declining cognitive abilities—even just the subtle changes that often occur with "healthy" aging—are associated with lower decision making and increased scam susceptibility,

supporting an important role for cognition in our understanding of how aging impacts decision making.

Memory misperception. While it is clear that cognitive ability is tied to decision making ability, older adults are often unaware of their cognitive skills and it is less clear whether self-perceptions of cognitive ability play a role in decision making (Agarwal and Mazumder 2013; Samanez-Larkin 2013). One study showed that older adults who misperceive their memory skills are more likely to experience greater financial losses than those who are more attuned to the state of their memory (Mazzonna and Peracchi 2020). One possibility is that older adults who are unaware of their memory performance make poorer financial decisions, which leads to the aforementioned financial losses and other adverse outcomes. Rush and FINRA Foundation researchers explored this possibility in a 2022 paper (Yu et al. 2022).

We estimated memory skill misperception using by comparing participants' subjective memory ratings with changes in their objectively assessed memory. To assess financial decision making, we asked participants six questions that mimic real-world tasks of choosing mutual funds (Boyle et al. 2012). More specifically, we showed participants tables with information about different mutual funds and asked three simple and three difficult questions. For example, one question asked participants to identify the account management fee of a mutual fund. More information on how we assessed memory misperception and financial decision making as well as all measures discussed in this chapter can be found in the Appendix.

We found that a greater misperception of memory skills was associated with poorer financial decision making among older adults. This effect remained even after controlling for age, sex, education, and financial literacy. To illustrate, we estimated how likely participants were to correctly answer financial decision making questions with varying levels of memory skill

misperception. As shown in Figure 2, the likelihood of answering merely one mutual fund question correctly (meaning performing poorly) increased for participants with a greater misperception of memory skills. By contrast, the likelihood of correctly answering all the mutual fund questions correctly (meaning performing well) decreased when participants experienced a greater misperception of memory skills. These findings suggest that less accurate perceptions of memory performance were tied to poorer financial decision-making performance.

Figure 2 here

Interestingly, although we found that misperceiving one's memory skills was related to poor financial decision making, the direction of this misperception did not seem to matter. That is, those who overestimated or underestimated their memory skills performed more poorly on decision making compared to those whose judgements were more accurate. This suggests that any misperception of thinking skills is problematic and accurate awareness of one's cognitive abilities is important for good decision making in old age. Also, it is noteworthy that, in addition to memory perception, in this study financial literacy was strongly tied to financial decision making—even more so than memory misperception. In fact, high levels of financial literacy somewhat buffered against the adverse effect of misperceived memory skills on financial decision making.

Psychosocial Factors

Loneliness. As noted above, although it is well-established that lower cognition is associated with poorer healthcare and financial decision making among older adults (Stewart et al. 2018), the relation of social vulnerabilities such as loneliness with decision making had received very little scientific attention until recently. This was despite awareness of the potent associations between loneliness and cognitive function and poorer brain health. In particular, loneliness is associated

with a reliance on intuition over analytic reasoning (Baumeister et al. 2005) and diminished attentional abilities. Thus, we hypothesized that loneliness would negatively influence decision making, especially in the context of low cognition. Therefore, in one study, the Rush and FINRA Foundation team examined the association of loneliness with financial and health decision making and whether the detrimental effect of loneliness was stronger among older adults with low cognition (Stewart et al. 2020).

We measured loneliness via a widely used five-item scale (De Jong-Gierveld and Kamphuls 1985) and cognition was assessed via 19 cognitive tests. The financial and health decision making measure is an extended version of the financial decision making measure described above. That is, it includes similarly structured questions as those in the financial domain but related to health decision making. Health care choices in this measure mimic those on mutual funds but focus on HMO plan selection and again include questions with varying levels of difficulty.

As expected, we found that lower cognition was associated with poorer financial and healthcare decision making, but loneliness was not. Interestingly, however, we found that loneliness was detrimental to decision making among older adults with low cognition but not those with average or high cognition.

To ensure that the finding that loneliness is detrimental to decision making particularly among individuals with low cognition was not due to other potentially relevant factors, we conducted subsequent analyses that accounted for a variety of potentially confounding factors, including depressive symptoms, social network size, medical conditions, and income. The main result persisted even after accounting for these other factors, which increases confidence that our

findings are not driven by factors that are conceptually similar to loneliness or might otherwise shape decision making.

Psychological wellbeing. Another psychosocial factor of interest to us is psychological wellbeing, as this positive aspect of mental health has been shown to be highly protective against cognitive decline and a variety of health outcomes. Based on those findings, we hypothesized that psychological wellbeing may impact decision making in a positive manner; thus, we examined the association of wellbeing with late life decline in literacy (Stewart et al. 2023).

Psychological wellbeing was measured using an 18-item assessment (Ryff 2014). Financial literacy was assessed via a 23-item instrument, which included Lusardi and Mitchell's 'Big 3' financial literacy questions. Health literacy was assessed via nine items that measure knowledge of health information and concepts (e.g., Medicare and Medicare Part D coverage, following prescription instructions). The financial literacy score is the percentage of total financial literacy items answered correctly, and the health literacy score follows a similar calculation. A composite score for total literacy is the average of the domain-specific scores, with higher scores indicating higher financial and health literacy.

As predicted, we found that found that higher wellbeing at baseline was associated with a higher level of financial and health literacy, as well as a slower decline in financial and health literacy over time. This is an important finding because, as discussed in the next section, the rate at which financial and health literacy declines in old age is strongly tied to decreases in decision making ability. The finding that wellbeing is related to a slower decline in literacy provides initial evidence that psychological wellbeing may protect against declines in decision making ability and may be a target for future interventions to help maintain decision making in old age. Further, in this study, the association between psychological wellbeing and financial and health literacy was

relatively independent of other important factors, including depressive symptoms and cognition. This suggests that wellbeing helps stave off a decline in financial and health literacy and, by extension, promotes independence late in life.

Contextual Factors

Financial and health literacy. Financial and health literacy are important determinants of decision making, as good financial and health decision making require a basic knowledge of key concepts in these domains. Financial and health literacy involves the acquisition, processing, and utilization of pertinent information and concepts relevant to making sound financial and health decisions across the lifespan. Adequate financial and health literacy is especially critical in aging, as older adults are inundated with various financial and healthcare challenges. Unfortunately, however, as with decision making, older adults are vulnerable to poor financial and health literacy. For example, a large proportion of older adults struggle with basic financial concepts such as compound interest, inflation, or mutual funds (Lusardi and Mitchell 2011), and many lack sophistication in areas such as risk diversification, asset valuation, portfolio choice and investment fees (Lusardi et al. 2014). In addition, the inadequate health literacy is common and its prevalence increases with age (Paasche-Orlow et al. 2005).

Lack of financial and health literacy in old age presents a formidable economic and public health problem. Older adults can suffer from unrecoverable financial loss and severe health consequences because of poor literacy and decision making (Braun et al. 2018; Lusardi and Mitchell 2007). We and others have shown that older adults with lower financial and health literacy make poorer financial and health decisions, are more susceptible to financial fraud and scams (Yu et al. 2021), are less likely to engage in health promoting activities (Bennett et al. 2012) and have

poorer cognitive and mental health (Wolf et al. 2005). Notably, however, most of the literature on the impacts of financial and health literacy has relied on cross-sectional data (i.e., data collected at one time point). These data have an inherent limitation. Financial and health literacy is strongly influenced by experiential factors, such as socioeconomic status, education, and occupation, as well as contextual factors like racism and sexism. These factors greatly influence the level of performance at a single point in time. Furthermore, along the aging process, older adults are vulnerable to a variety of diseases—such as Alzheimer's disease and stroke—that degrade many functional abilities, including financial and health literacy. Taken together, these findings raise an important question: are the adverse impacts of inadequate financial and health literacy in old age driven primarily by the level of literacy (e.g., that attained via earlier life experiences), are they due to age-related declines, or both?

We explored this question in a recent study (Yu et al. 2021). Financial literacy and health literacy was assessed as noted above, as were financial and health decision making. Scam susceptibility was assessed based on participants' responses to five statements that indicate vulnerability to scams according to findings from AARP and the FINRA Foundation (Boyle et al. 2019).

In this study, on average, 70 percent of financial and health literacy questions were answered correctly by participants at baseline. Notably, this suggests there is considerable room for improvement in financial literacy among older adults. In addition, as in prior studies, there was an overall decline in financial and health literacy over time. We also observed a substantial person-to-person variation in the rate of decline. Most participants declined (83.5 percent), but some (16.5 percent) maintained their literacy performance over time. Older age, being female, lower income, fewer years of education, and impaired cognition are correlated with faster decline in financial and

health literacy. In a series of regression analyses, we examined the relationship between change in financial and health literacy and subsequent financial and health decision making and scam susceptibility. Thus, with this study we sought to establish the temporal association between declining literacy and decision making and scam susceptibility. This allowed us to better understand the consequences of declining literacy.

As expected, we first found that having a lower starting level of financial and health literacy was associated with poorer decision making years later. Importantly, a faster decline in financial and health literacy was also associated with poorer subsequent decision making, and indeed the rate of decline in literacy was more strongly related to subsequent decision making than the starting level. We also examined the association of decline in financial and health literacy with susceptibility to scams. Again, older adults with a lower baseline level of financial and health literacy and, separately, a faster decline in literacy, were more susceptible to scams. These findings strongly suggest that the adverse consequences of inadequate literacy among older adults are not merely the result of level differences, but rather age-related declines in literacy over time.

In a separate study, we examined if there was heterogeneity in the likelihood and rate of decline in literacy and the potential basis of such heterogeneity, in particular sex differences (Boyle et al. 2024). Our interest in sex differences stemmed from a wide range of studies showing that women have significantly lower levels of financial literacy compared to men. This may impede their ability to accumulate, manage, and draw down retirement assets and hence their economic wellbeing. Moreover, since women typically live longer than men, low financial literacy coupled with age-related declines in financial literacy can be particularly problematic for women. In terms of gender-based differences in health literacy, the findings are less clear, though some studies have found that women have higher health literacy levels than men (Clouston et al. 2017; Kutner 2006).

Nevertheless if, over the course of aging, women's financial and health literacy levels decline at rates that are different than men's, gender-based gaps in literacy could change, with implications for the financial and health outcomes men and women experience. However, in longitudinal analyses, we did not find any differences in the likelihood or rate of decline between men and women.

Financial fragility. Another contextual factor that could affect financial decision making is financial fragility. Financial fragility refers to the state of being unable to come up with an amount of money (often $2,000) quickly if needed for an unexpected expense. Indeed, several studies have suggested that financial fragility is an important risk factor for poor financial decisions as well as financial fraud and scams among the general adult population. A Federal Trade Commission survey found that individuals who reported more debt than they can comfortably handle are twice as likely to be victimized by fraud than those reporting no debt (Anderson 2013). A more recent survey showed that financially fragile individuals also are more susceptible to scams (DeLiema et al. 2019). However, it is unclear whether these findings extend to older adults. The proportion of financially fragile individuals is relatively low among baby boomers (Society of Actuaries 2019; Mitchell and Lusardi 2021), and the relationship between financial fragility and scam susceptibility in older adults is not well understood.

We assessed financial fragility by measuring older adults' confidence in their ability to come up with $2,000 within one month to cover an unexpected expense. Participants rated their confidence on a four-level scale, from extremely confident to not at all confident. Those who reported being little or not at all confident were classified as financially fragile. Scam susceptibility was measured as noted above.

Nearly 10 percent of participants were classified as financially fragile, reporting little or no confidence in their ability to access $2,000 in a month. This figure is smaller than what is typically reported for younger age cohorts; by comparision, one study reported that around half of 18- to 65-year-olds were unable to come up with $2,000 in a month (Lusardi et al. 2011), and younger adults ranked as the most financially fragile.

In our study, financially fragile older adults were more than twice as likely to display high or very high levels of scam susceptibility (12 percent versus 28 percent) than non-fragile counterparts. Even after adjusting for key demographic factors (i.e., age, gender, income, and educational attainment), the average scam susceptibility score for financially fragile older adults was higher than that of their non-financially fragile counterparts. Notably, the difference in susceptibility to scams between older adults with and without financial fragility was equivalent to the difference of nearly a decade in age. Thus, financial fragility is strongly related to fraud susceptibility.

In separate analyses, we explored how, in addition to financial fragility and demographic factors, cognition, financial decision making, and financial literacy were tied to scam susceptibility. We found that lower cognition and financial literacy were each strongly associated with greater scam susceptibility. However, financial fragility persisted as a significant factor, and the magnitude of the association remained essentially the same. This suggests that even in the presence of adequate cognition and financial literacy, financial fragility may still predispose older adults to fraud and scams and is a major contributor to susceptibility.

Scam Susceptibility among Older Adults—A Behavioral Experiment

A key step toward protecting older adults from financial fraud and scams is to gain a better grasp of the scope of the problem, which remains elusive. To date, data on fraud victimization come almost exclusively from complaints filed with government agencies or surveys (Deevy and Beals 2013). Survey data are widely used by the research community and provide valuable information on the prevalence, determinants, and consequences of financial fraud and scams (DeLiema et al. 2020; Lichtenberg et al. 2016; Shao et al. 2019). However, because surveys rely on older adults' ability to recognize, acknowledge, and report fraud, survey data have significant intrinsic limitations. These include recall bias, underreporting due to fear, shame, or lack of awareness that one has been victimized, and fear of loss of independence, to name just some.

To address some of these challenges, we conducted a behavioral experiment designed to mimic a government impersonation scam (Yu et al. 2023). The experiment involved a fictitious government agency reaching out to community-living older adults about a potential compromise of personal information relevant to individuals' social security and Medicare benefits. The study focused on data collected via phone conversations with a live agent posing as a representative from a government agency. Our primary aim was to assess the vulnerability of older adults to government impersonation scams.

Our results revealed that a sizable number of older adults (16.4 percent) engaged without skepticism (meaning readily answered the call and responded to questions), and of those, nearly three-quarters provided personal information. Some (15.1 percent) engaged but were potentially alert to the fraudulent nature of the outreach and did not confirm or share personal information. A majority (68.5 percent) did not engage in any capacity.

Examinations of the cognitive, functional, and psychosocial characteristics associated with engagement with the potential fraudster revealed that cognitive ability, financial literacy, and scam susceptibility are important factors associated with vulnerability. (Cognitive ability, financial literacy, and scam susceptibility were assessed as noted above.) Notably, subjects who engaged without skepticism had significantly lower levels of financial literacy. They also had significantly higher levels of scam susceptibility.

Conclusion

Here, we summarized selected research from a collaboration between Rush University Medical Center researchers and FINRA Foundation researchers. The research, based on cross-sectional and longitudinal data, suggests that cognitive, contextual, and psychosocial variables are key determinants of decision making ability among older adults. We also reported findings from a novel behavioral experiment that found that cognition, financial literacy, and scam awareness are related to the likelihood to respond to a fraudulent pitch.

From an educational perspective, our studies speak to the importance of making policy makers and the public more broadly aware of the links between aging and impaired decision making. From a policy standpoint, the research can be used to inform approaches to effectively protect older adults from suboptimal decision making, whether that be using the research to identify vulnerable populations (e.g., those with lower cognition but still in the normal range, lonely individuals) to whom interventions can be targeted or by using the research to inform the development of novel interventions that might prove effective (e.g., literacy interventions). In terms of the public more broadly, older adults (and their family members) who are aware of the potential for declining cognitive abilities and the consequences of decline can endeavor to make

financial and health-related plans and decisions while their cognitive ability is unimpaired, for example, by creating a will or working with a trusted advisor or family member when making financial and health decisions. In addition, having adequate financial literacy is an important component of good decision making among older adults and older adults may benefit from educational programs addressing key knowledge gaps. Further, the research speaks to the need for additional funding to support efforts to improve decision making given how many older adults may be vulnerable to suboptimal decision making as well as the financial repercussions that can flow from suboptimal decisions, including losing money to a financial fraud.

It should be noted that regulators have already made policy changes to address some of the challenges related to degraded decision making among older adults. For example, FINRA made changes to Rule 4512 that require investment firms to make reasonable efforts to identify a trusted contact for a client's account(s). The trusted contact can serve as a resource for an advisor working with an older adult, with the goal of helping to prevent financial exploitation (Boyle et al. 2022). Further, "FINRA and many states have enacted laws or rules that encourage broker-dealers or investment advisers to temporarily pause suspicious transactions or disbursements so that investigators can investigate and, if needed, take action before a customer is harmed. Similarly, California has enacted a research-backed law that reformed the disclosures accompanying certain mortgage products. Similar protections could be applied within the health-care domain" (Boyle et al. 2022).

This research also speaks to the importance of balancing consumer protection and consumer autonomy. While there is clearly a link between aging and impaired financial decision making, our research also shows that many adults maintain their cognitive abilities well into their later years, a finding that needs to be considered when developing educational initiatives related

to aging and financial decision making as well as policy interventions. A heavy-handed approach to either could, potentially, do more harm than good if such an approach prevents older adults from seeking information and/or help for fear of losing autonomy over their financial lives. That is, many older adults are capable of making informed and effective financial decisions, but some are not. Therefore, it is critically important to consider how policy efforts can best protect those who need protection while not impinging upon the choices of older adults whose decision making ability is still intact.

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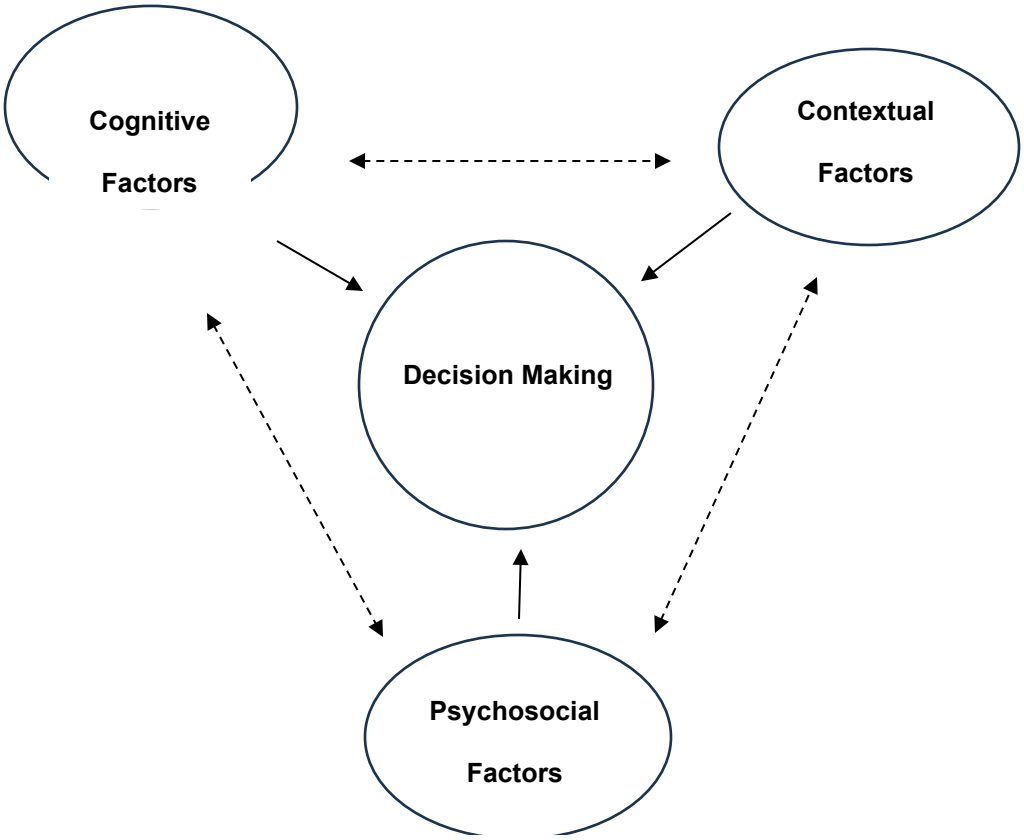
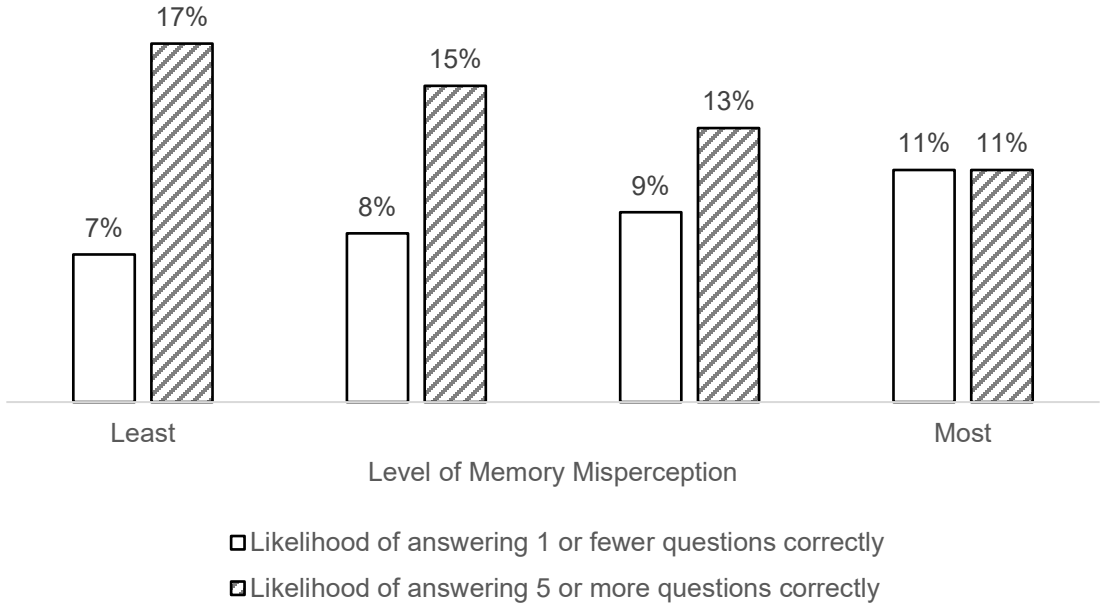
Figures

Figure 1. Factors Affecting Decision Making



Source: Adapted with permission from Boyle et al. 2022.

Figure 2. Relationship between Memory Misperception and Financial Decision Making



Source: Adapted from Yu et al. 2022.

Appendix

Financial and health decision making. Financial and health decision making was assessed with a 12-item quiz. The questions mimicked the types of financial and healthcare decisions older adults typically make. Participants viewed tables displaying information about health maintenance organization (HMO) plans or mutual funds and then answered questions requiring comprehension and integration of the tabulated information. For example, one item consisted of a table displaying five characteristics of three HMO plans (member satisfaction, preventative care strategies, access to specialists, customer service, and premium) and gave participants the following preferences: "You don't want any HMO that is below average on member satisfaction OR below average on access to specialists. Based on the information in the table, which HMO should you choose?" One of the complex healthcare items displayed the same five characteristics for six additional HMO plans (i.e., nine plans in total) and gave participants the following preferences: "You don't want any HMO that is below average on member satisfaction, customer service, or access to specialists, and you want an HMO that is above average on preventive care strategies. Based on the information in the table below, which HMO should you choose?" The financial module was structured similarly except the items pertained to tabulated information about the characteristics of mutual funds. The total number of healthcare and financial items answered correctly were tallied for each participant (range: 0–12, with higher scores indicating better decision making).

Scam susceptibility. Scam susceptibility was assessed by averaging participants' responses to five statements that indicate vulnerability to scams according to findings from the AARP and the Financial Industry Regulatory Authority Risk Meter. Specifically, participants rated, on a 7-point Likert scale, their likelihood of 1) answering and 2) ending a phone call from a stranger/telemarketer; 3) listening to sales pitches from a telemarketer; and whether they agree on

the statement that 4) if something sounds too good to be true, it usually is, and 5) older persons are often targeted by scammers. Higher average ratings across the five items indicate greater scam susceptibility.

Cognitive ability. Measures of global cognition and five specific cognitive domains were derived from participants' performance on a 19-test neuropsychological battery. The five specific cognitive domains were as follows: (1) episodic memory (seven tests: Word List Memory, Recall, and Recognition from the CERAD neuropsychological battery; immediate and delayed recall of Logical Memory Story A and the East Boston Story), (2) working memory (three tests: Digit Span subtests [forward and backward] of the Wechsler Memory Scale—Revised and Digit Ordering), (3) semantic memory (three tests: Category Fluency, Boston Naming, and the National Adult Reading Test), (4) visuospatial ability (two tests: Judgment of Line Orientation and Standard Progressive Matrices), and (5) perceptual speed (four tests: the oral version of the Symbol Digit Modalities Test, Number Comparison, Stroop Color Naming, and Stroop Word Reading). Participants' raw scores on individual tests were converted to z scores using the baseline mean and standard deviation of the full MAP cohort. Global cognition was calculated for each participant by averaging the z scores from all 19 tests.

Memory misperception. We measured subjective memory at the point of the decision-making assessment using participants' responses to two questions: (1) Do you have trouble remembering things? and (2) How do you perceive your memory compared to 10 years ago? We measured objective memory through a standard neuropsychological testing battery that participants completed on a yearly basis. To determine changes in objective memory, we used participants' annual memory testing scores up until the decision-making assessment. We calculated a

misperception score for each participant, with higher scores indicating a greater level of memory skill misperception.

Financial and health literacy. Financial and health literacy were assessed using a series of 32 questions designed to measure knowledge of health and financial information and concepts, as well as numeracy. There were 23 questions on financial literacy, many of which were adapted from the Health and Retirement Study. Briefly, eight questions assess numeracy (e.g., converting between numbers and percentages), while the remaining 15 questions assess knowledge of financial terms and concepts (e.g., mutual fund, stocks and bonds), financial institutions (e.g., the FDIC), and financial investments (e.g., single stock versus mutual fund, projected earnings from various financial products). Separately, there were nine questions on health literacy regarding Medicare, following doctors' prescription instructions, leading causes of death for older persons, and a question framing the same drug risk information in two separate ways (1 in 100 chance of death vs 99 in 100 chance of survival). All questions were either multiple choice or true/false with only one correct answer, and the number of correct answers was tallied separately for financial and health literacy. The financial literacy score was calculated as the percentage correct out of the 23 financial literacy questions (from 0-100), and the heath literacy score was calculated as the percentage correct out of the nine health literacy questions (from 0-100). The total literacy score was calculated by averaging the two sub-scores.

Financial fragility. Financial fragility was determined by assessing older adults' ability to cover unexpected expenses within a specified timeframe. Specifically, participants were asked to rate confidence, on a 4-level scale (i.e., extremely confident, fairly confident, a little confident, or not at all confident), of their ability to access $2,000 in a month to cover an unexpected expense if

necessary. Participants who responded a little or not at all confident were categorized as financially fragile.

Loneliness. Loneliness was measured via five items pertaining to perceived social isolation (e.g., "I miss having a really close friend."). Participants rated their agreement with each item on a five-point scale (1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree). Loneliness was quantified for each participant by averaging their responses to the five items (Range: 1 – 5, with higher scores indicating greater loneliness).

Psychological wellbeing. Participants completed an 18-item assessment of psychological wellbeing at the start of the study. For each item, participants rated their agreement with a statement on a seven-point scale (from 1 = Strongly Agree to 7 = Strongly Disagree). The statements asked participants about their purpose in life (finding meaning in current and future activities), autonomy (having independent opinions and values), personal growth (openness to new experiences), environmental mastery (having a sense of control over responsibilities), positive relationships (having close, trusting social connections), and self-acceptance (acknowledging and accepting personal strengths and shortcomings). For each participant, an overall wellbeing score was calculated by averaging their responses to the 18 items. Wellbeing scores ranged from 1 to 7, with higher scores indicating higher levels of wellbeing.