Cognitive Abilities and Seeking Financial Advice: Differences in Advice Sources

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This study used the 2017 National Financial Well-Being Survey to investigate the relationship between cognitive ability and seeking financial advice. Three aspects of cognitive ability were examined: memory, objective numeracy, and subjective numeracy. The results showed that in general, the three were not associated with seeking financial advice. However, after decomposing the sources of the advice, we found that among financial advice-seekers, memory and objective numeracy were positively associated with seeking financial advice from family. When adding the interactions between cognitive ability factors and age, older individuals with good memories were less likely to seek advice from family, while older individuals with higher objective numeracy were less likely to use social networks to seek financial advice. The study's findings suggest future development in policies and practices to benefit those with low cognitive abilities to seek better financial advice using multiple advice sources.

Keywords: cognitive ability, financial advice-seeking, memory, numeracy

In recent decades, individuals and households have experienced growing challenges related to financial decisions and managing investments. Navigating financial paths requires sufficient resources such as cognitive ability, financial knowledge and skills, and social support. There is also a growing concern about financial illiteracy (Lusardi & Mitchell, 2011), for which seeking external help and advice, especially for those with inadequate financial literacy or cognitive ability, plays a significant role. Although people seek advice from various sources to resolve personal and financial concerns (Grable & Joo, 2003), the literature suggests that professional financial advice can substitute for a lack of financial knowledge, confidence, or capacity (Collins, 2012). Furthermore, personal and social networks, including friends, family members, and coworkers are also recognized as significant financial advice sources (e.g., Chang, 2005; Kwon, 2004).

Previous research has found that although cognitive ability is crucial for financial management capability, a decline in cognitive ability can prevent people from seeking help, especially the elderly (Gamble et al., 2015). Since information processing and transforming speeds begin to decline at age 20 (Murman, 2015), measurable cognitive decline may happen earlier than expected. Thus, combined with the increasing complexity and difficulty of accomplishing financial management tasks, there is a growing need for prudent financial advice for all ages. Although several studies have linked cognitive ability and help-seeking behaviors, often looking at older adults, the evidence of their association is thus far mixed (e.g., Gamble et al., 2015; Kim et al., 2019).

The purpose of this study is to investigate the relationship between cognitive ability and financial advice-seeking behavior and extend the population of interest beyond older generations. Specifically, the study examines (1) the relationship between cognitive ability (memory, subjective numeracy, and objective numeracy) and financial advice-seeking behavior, and (2) the likelihood of advice-seekers using professionals, family members, or social networks as information sources.

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Literature Review and Hypotheses

Financial Advice and Seeking Help

Financial help-seeking behavior refers to a set of problem-solving behaviors aimed at resolving financial concerns (Grable & Joo, 2003). Empirical research has categorized financial advice sources and identified several determinants of financial advice-seeking from specific sources. For example, Kwon (2004) separated financial help and advice-seeking sources into personal (e.g., financial professionals, friends, and family) and non-personal (e.g., news and advertising). Friends and family were the most significant sources for saving and investment-related help and advice. Other studies have confirmed the significant roles of personal contacts such as friends and family for financial advice and help-seeking when making investments (e.g., Abreu & Mendes, 2012; Shin et al., 2020). Chang (2005) showed that lower net worth households generally prefer personal networks for financial advice, while higher net worth households often seek savings and investment advice from professionals. Yeo and Lee (2019) asserted that social connections, including friends, co-workers, and community-based organizations, can be categorized as social networks under the social capital perspective.

Using different datasets, previous studies have identified general patterns of financial advice-seeking behavior among U.S. individuals and households. For example, using the 2009 National Financial Capability Study (NFCS), Lachance and Tang (2012) investigated the relationship between trust and the financial advice-seeking of lower-income consumers. Robb et al. (2012) used the same wave of NFCS to study the roles of financial knowledge, satisfaction, confidence, and seeking professional financial advice. Fan (2021), also using the 2012 NFCS, suggested that using professional financial advice for savings and investment, insurance planning, and tax planning can be influenced significantly by educational attainment, financial knowledge, financial confidence, and risk tolerance. Still, other studies have used the same set of questions for financial advice-seeking (e.g., Collins, 2012; Kramer, 2016; Moreland, 2018; Xiao & Porto, 2019), even though the NFCS discontinued its survey questions on financial advice-seeking after the 2012 wave.

Elmerick et al. (2002) used the 1998 Survey of Consumer Finances (SCF) to show that roughly 21% of U.S. households used financial planners, although the number varied according to financial planning needs and the sociodemographic characteristics of households. The respondents were asked about their sources of information when making decisions about (a) credit or borrowing and (b) savings and investments, and the options were calling around, reading newspapers, reading mailed materials, using information from TV, radio, online service or advertising, or getting advice from friends, relatives, lawyers, accountants, bankers, brokers, or financial planners. Hanna (2011) used the 1998–2007 waves of the SCF and reported that consulting a financial planner increased from 21% in 1998 to 25% in 2007 and that risk tolerance is significantly associated with using a financial planner, which also varied by race/ethnicity and net worth. Lei and Yao (2016) used the 2013 SCF to study the relationship between using financial planners and household portfolio performance. Their study showed that roughly 26% of U.S. households reported having used financial planners and that their portfolios showed better performance. Recently, Shin et al. (2020), using pooled SCF data from 1998 to 2016, found that approximately 29% of those with financial assets hired financial planners. Those who did so reported having more diversified investment portfolios.

The studies using NFCS and SCF were either unable to reflect recent trends (due to the removal of variables in NFCS after 2012) or focused narrowly on the use of financial planners (e.g., Hanna, 2011; Lei & Yao, 2016). Therefore, the studies do not fully reflect advice-seeking from other professionals such as financial advisors and counselors. The present study used a relatively new dataset with unique variables, which provide a wider range of financial professionals as advice providers, together with other financial advice sources such as personal and social networks.

For possible determinants of financial advice-seeking, recent studies show a strong association between financial knowledge and financial advice-seeking behaviors (e.g., Collins, 2012; Fan, 2017; Finke et al., 2011; Kramer, 2016; Perry & Morris, 2005; Robb et al., 2012). Moreover, among college students, financial mental stress is also significantly associated with financial help-seeking (Lim et al., 2014). Indeed, education, risk tolerance, and financial confidence associate negatively with financial advice-seeking behavior, whereas net worth, age, and trust in financial experts associate positively with seeking professional financial help (Kramer, 2016).

The literature also provides evidence for socio-demographic variables relating to financial advice-seeking behavior. Specifically, men are more likely than women to work with financial planners (McClune, 2010), and women are more comfortable than men seeking advice and help from friends and family (Loibl & Hira, 2007). However, the relationship between age and financial advice-seeking behavior is mixed. Some studies report that older people are more likely than younger people to work with financial professionals (Bluethgen et al., 2008; Burke & Hung, 2015; Finke et al., 2011; Grable & Joo, 1999), although other researchers have concluded that younger people are more likely to seek professional advice (McClune, 2010). Education and income are associated positively with the likelihood of seeking financial advice from professionals (Burke & Hung, 2015; Cheng et al., 2019; Collins, 2012; Hanna, 2011).

Cognitive Abilities

Cognitive ability is the "ability to perform the mental processes required in a variety of tasks" (Mazzonna & Peracchi, 2018, p. 3). However, the literature suggests different and sometimes inconsistent categorizations of cognitive ability. For example, there are subdomains of cognitive ability such as orientation, memory, executive function, and language (Christelis et al., 2010), verbal versus non-verbal abilities related to reasoning, memory, and concentration (Richards et al., 2004), and crystallized intelligence and fluid intelligence (Li et al., 2015). Additionally, several studies measure cognitive ability with widely used scales that include self-reported memory, word recall tests (including immediate and delayed recalls), mental status tests (the Serial Sevens test, backward counting, data and object naming, president/vice president naming, etc.), and vocabulary questions. Such scales have been used in national datasets (e.g., Health and Retirement Study) and empirical research (e.g., Fisher et al., 2017; Ofstedal et al., 2005).

The literature, however, consistently shows (a) that cognitive ability is a multi-faceted concept encompassing different mental skills such as memory and numeracy, (b) that the skills are intercorrelated and some age-related, such as memory and information processing speed (e.g., Li et al., 2015), and (c) that lower cognitive abilities may negatively affect quality of life. In this study, we focus on memory and numerical ability (measured by objective and subjective numeracy) because they are known to have significant relationships with financial decisions and behaviors.

For responsible financial decision-making, numeracy is certainly a significant cognitive ability (Banks & Oldfield, 2007; Lusardi, 2008; Lusardi & Mitchell, 2007). The literature suggests that numerical ability associates significantly with borrowing, saving, and tax decisions (Huhmann & McQuitty, 2009), as well as wealth accumulation, risk perception, and time preference (Estrada-Mejia et al., 2016). Numeracy and other dimensions of cognitive function can predict retirement savings and investment portfolios (Banks & Oldfield, 2007) and correlates strongly with declines in other cognitive abilities such as episodic memory loss and visuospatial ability (Gamble et al., 2015). Lusardi (2012) reported that women, the elderly, and the less educated were more likely to have low financial numeracy.

According to the literature, memory is yet another dimension of cognitive function (e.g., Christelis et al., 2010; Li et al., 2015; Richards et al., 2004). Along with processing speed, memory is often affected by age (e.g., Mazzonna & Peracchi, 2018; Salthouse, 1996). Indeed, Spaniol and Bayen (2005) found that the age effect of memory encoding substantially influences the ability to make sound judgments. Memory loss and a general decline in cognition strongly associate with lower financial literacy and self-confidence and impaired financial decision-making (Gamble et al., 2015).

Cognitive Ability and Financial Advice-Seeking

Regarding the relationship between cognitive ability and financial advice-seeking, the evidence is mixed. In a study of the elderly in the United States, Kim et al. (2019) found positive relationships between cognitive ability, financial literacy, and help-seeking behavior from financial professionals, although other researchers found no significant relationship (e.g., Kramer, 2016). Still, there is little doubt that cognitive ability plays a crucial role in complex financial planning decisions such as investment and portfolio choices, and that there should be a significant demand for professional financial advice as a result. However, according to Murman (2015) and others, cognitive impairment may begin at much younger ages. For this reason, further research is needed to understand whether cognitive ability and the need for financial advice are related across age groups.

Interestingly, Gamble et al. (2015) found that although those who experienced cognitive decline showed a higher

inclination to seek financial help either from family or outside sources such as financial professionals, advice-seeking behavior itself might not be observed among these individuals. One possible explanation provided by Gamble et al. (2015) is that cognitive decline, while predicting a decline in financial literacy and numeracy, did not significantly affect financial confidence. This, in turn, did not motivate such people to seek external help.

Conceptual Framework and Hypotheses

Despite the significance of cognitive ability to the relationship between financial decision-making and financial behavior, little is known about whether it can significantly predict financial advice-seeking behavior. This study's conceptual model is based on the financial help-seeking framework of Grable and Joo (1999, 2001) and the literature on financial advice-seeking and cognitive ability. Moreover, it uses findings for help-seeking behavior investigated by Suchman (1966) and provides a decision-making process for how people seek financial help. Financial help-seeking behavior, in any case, is preceded by certain financial behaviors whose evaluation, outcomes, and causes need to be understood. Following the decision to seek assistance, people decide whether to seek professional or non-professional help. For Grable and Joo (1999), the former includes financial planners, counselors, insurance agents, and stockbrokers, and the latter are usually family, friends, and colleagues.

Grounded in this help-seeking decision process framework, we examine the roles of cognitive ability factors in determining financial advice-seeking behavior. The three cognitive ability factors examined in this study are memory, subjective numeracy, and objective numeracy. We examine three sources of financial advice providers: professional, family, and social networks. While previous studies categorized sources of financial advice into dichotomous categories such as professional and non-professional (e.g., Grable & Joo, 1999) or personal and non-personal (e.g., Kwon, 2004), the current study further examines more detailed sources of financial advice. The professional source category includes professional advisors, planners, or counselors/coaches, the family source category includes parents, spouses/partners, or extended family, and the social network source category includes employers, friends/co-workers, community or faith-based organizations, or the government. The hypotheses are as follows:

H1: Cognitive ability is positively associated with financial advice-seeking behavior.
H1a: Memory is positively associated with financial advice-seeking behavior.
H1b: Objective numeracy is positively associated with financial advice-seeking behavior.
H1c: Subjective numeracy is positively associated with financial advice-seeking behavior.

Methods

Data

The present study used the 2017 National Financial Well-Being Survey (NFWBS) developed and organized by the Consumer Financial Protection Bureau, whose purpose is to educate and empower financial consumers. NFWBS collected information about financial behavior, skills, and attitudes, status, and experience of U.S. adults and their households. While the main sample of the NFWBS is representative of the U.S. population as a whole, it is also oversampled for those aged 62 and older, yielding a sample size of 6,394 (CFPB, 2017). The analytical sample was reduced to 6,095 after dropping observations with missing values in the variables used in this study.

Variables

Dependent Variables. First, the dependent variable was *financial advice-seeking behavior*, which was measured by asking respondents whether they sought advice about money matters from any of nine sources: (1) parent, (2) spouse/partner, (3) extended family, (4) employer, (5) friend/co-worker, (6) community or faith-based organization, (7) financial institution, (8) professional advisor, planner, or counselor/coach, and/or (9) the government. Respondents were permitted to select multiple sources. The variable was coded as a binary variable of "1" if the respondent had sought advice from at least one source and "0" if they had sought no financial advice.

Among those who answered "yes" to at least one of the above sources, three binary variables were created to study further the financial advice source selections: (a) seeking financial advice from professionals was coded as "1" if the respondents selected a financial institution or a professional advisor, planner, or counselor/coach for financial advice and "0" otherwise; (b) seeking financial advice from family was coded as "1" if respondents reported seeking advice from a parent, spouse/partner, or extended family and "0"

otherwise; (c) seeking advice from a social network was coded as "1" if the respondent chose an employer, friend/co-worker, community or faith-based organization, or the government for financial advice and "0" otherwise, following the categorization of social networks/connections by Yeo and Lee (2019).

Independent Variables. The present study's key independent variables were the three dimensions of cognitive ability: memory, objective numeracy, and subjective numeracy. Respondents reported whether they had experienced memory loss or confusion in the past 12 months. Memory was coded as "1" if the respondents reported having no memory loss or confusion and "0" otherwise. This is a single self-assessed item measuring memory. Objective numeracy was measured by totaling the correct responses to two questions. Each question was coded as "1" if answered correctly and "0" otherwise. The measures of objective numeracy ranged from 0 to 2. For subjective numeracy, respondents self-evaluated how good they were at working with percentages, with response options ranging from 1 = not good at all to 6 = extremely good.

The study also included a series of control variables related to the needs/behaviors of financial advice-seeking such as financial knowledge, mental distress, self-control, ownership of different types of financial assets, and knowing where and when to find money advice if needed. Financial knowledge was measured both objectively and subjectively. Objective financial knowledge was measured using the three-item financial knowledge scale of Lusardi and Mitchell (2007). Respondents assessed their overall financial knowledge with response options ranging from 1 = *very low* to 7 = *very high*. Mental distress was measured by the degree to which the respondent agreed with the following statement: "I have a lot of stress in my life," where 1 = *strongly disagree* and 5 = *strongly agree*. Self-control was measured using three items—impulsiveness, the ability to resist temptation, and the ability to work toward long-term goals—in a way consistent with previous research (Abt Associates, 2018). Each item ranged from 1 to 4 (impulsiveness was reverse-coded) and was averaged, with a higher value indicating higher self-control. Three binary variables were created based on whether the respondents had a retirement account (such as 401k or IRA), pension, or non-retirement investments such as stocks, bonds, or mutual funds. Two continuous variables were created for knowing

where and when to seek financial advice. Specifically, respondents were asked whether they agreed with the statement "I know when I need advice about my money," with response options ranging from 1 = never to 5 = always, and "I know where to find the advice I need to make decisions involving money," with response options ranging from 1 = not at all to 5 = completely.

Finally, the study included sociodemographic variables. Age had four categories: under 35 (reference category), equal to or greater than 35 but less than 55, equal to or greater than 55 but less than 70, and 70 or above. Female and not having a bachelor's degree were used as reference categories for gender and education levels, respectively. Race/ethnicity had four categories: White (reference category), Black (or African American), Hispanic, and Other. Those who were married or cohabiting were considered couples (non-couples were used as the reference category) for marital/relationship status. Working status was categorized as self-employed, working for others, not working, and retired, and working for others was used as the reference category. Household annual income levels included less than $50,000 (reference category), equal to or greater than $50,000 but less than $100,000, equal to or greater than $100,000 but less than $150,000, and $150,000 or above. Homeowner and urban residency were measured by whether the respondents owned a house and whether they lived in a Metropolitan Statistical Area (MSA). Health status had five categories: poor, fair, good, very good, and excellent, with poor health as a reference category.

Analyses

To examine the relationship between cognitive ability and financial advice-seeking behavior, the study's first logistic regression model tested whether the respondents (full sample) had sought advice from any of the nine sources listed in the survey. For those who sought financial advice, we conducted a second set of logistic regression models to see how cognitive ability and other vital factors are associated with three sources of financial advice: professionals, family members, and social networks. Additionally, based on the literature on the relationship between age and cognitive decline (e.g., Li et al., 2015; Mazzonna & Peracchi, 2018; Salthouse, 1996; Spaniol & Bayen; 2005), we created interaction terms between the three cognitive ability variables and age categories to examine if the association between cognitive ability and financial advice-seeking

TABLE 1. Descriptive Results (Total Sample: *N* = 6,095)

	Total sample	Those who seek advice	Those who do not seek advice
	Percentage/Mean	**Percentage/Mean**	**Percentage/Mean**
Seeking financial advice			
Yes	81.06%	–	–
Yes, from professionals	33.02%	40.74%	–
Yes, from family members	62.79%	77.45%	–
Yes, from social networks	30.30%	37.38%	–
Cognitive ability			
Memory	89.40%	89.39%	89.46%
Objective numeracy (0–2)	1.43	1.44	1.37
Subjective numeracy (1–6)	4.22	4.24	4.14
Financial knowledge			
Objective financial knowledge (0–3)	2.45	2.47	2.38
Subjective financial knowledge (1–7)	4.61	4.63	4.52
Mental distress (1–5)	3.23	3.23	3.19
Self-control (1–4)	2.97	2.98	2.93
Have retirement account	53.30%	55.19%	45.23%
Have pension	27.07%	27.09%	27.00%
Have investment	26.67%	28.86%	17.30%
Know where to find money advice (1–5)	3.61	3.67	3.36
Know when money advice needed (1–5)	3.47	3.53	3.20
Age			
Age < 35	30.76%	32.56%	23.05%
35 ≤ age < 55	33.06%	32.38%	35.95%
55 ≤ age < 70	22.92%	21.98%	26.96%
70 ≤ age	13.26%	13.08%	14.05%
Male	48.50%	47.28%	53.73%
Bachelor's degree or above	31.20%	33.06%	23.24%
Race			
White	65.11%	64.60%	67.28%
Black	11.44%	11.64%	10.58%
Hispanic	15.33%	15.99%	12.48%
Other	8.13%	7.77%	9.66%
Marital status: Couple	62.17%	64.14%	53.76%
Working status			
Self-employed	6.76%	6.55%	7.63%
Work for others	50.77%	51.52%	47.55%
Not working	21.74%	21.77%	21.63%
Retired	20.73%	20.16%	23.19%
Household income			
Income < $50k	38.16%	35.97%	47.55%
$50k ≤ Income < $100k	30.42%	30.68%	29.33%
$100k ≤ Income < $150k	16.11%	16.90%	12.73%
$150k ≤ Income	15.30%	16.45%	10.40%

TABLE 1. Descriptive Results (Total Sample: *N* = 6,095) *(Continued)*

	Total sample	Those who seek advice	Those who do not seek advice
Homeowner	58.97%	59.80%	55.45%
Urban residency	86.55%	87.37%	83.02%
Health			
Poor	2.62%	2.23%	4.30%
Fair	12.72%	11.84%	16.49%
Good	33.95%	33.59%	35.50%
Very good	39.66%	40.65%	35.42%
Excellent	11.05%	11.69%	8.29%

Note. Weighted.

differed by age. Following the recommendation of the NFWBS User's Guide (CFPB, 2017), all analyses were weighted.

Results
Descriptive Results
From the total sample, approximately four out of five respondents (81%) had sought financial advice from at least one of the sources examined in this study. More than 60% sought financial advice from family, about 33% from professionals, and about 30% from social networks. Most respondents (89%) reported having good memory, and their objective and subjective numeracy scores were 1.43 (range: 0–2) and 4.22 (range: 1–6), respectively. All three measurements of cognitive ability positively correlated. The correlation coefficients were weak between memory and objective numeracy (0.05) and between memory and subjective numeracy (0.07), but were moderate between objective numeracy and subjective numeracy (0.30). A majority of the sample was White (65%) and coupled (62%). The detailed descriptive results are presented in Table 1.

The sources for financial advice had different patterns across age groups. The proportions of those who sought financial advice from professionals were higher among older age groups, but the proportions of those who sought financial advice from family members or social networks were higher among younger age groups. Moreover, all three aspects of cognitive ability showed patterns of decrease with age. The proportion of those who had good memory decreased, as did objective and subjective numeracy as age increased. These results are available from the authors upon request.

Multivariate Analyses Results
Who Sought Financial Advice? As shown in Table 2, in the base model without interaction terms between age and cognitive ability, memory, and objective numeracy were not statistically significant for explaining general advice-seeking behavior. Subjective numeracy was negatively associated with advice-seeking, but only at the marginally significant level (p<.10). While objective financial knowledge was associated positively with financial advice-seeking behavior (p<.10), subjective financial knowledge was associated negatively with financial advice-seeking behavior. Those who had non-retirement investments were more likely to seek financial advice. Additionally, knowing where and when to seek financial advice was positively related to seeking it.

Most demographic characteristics were associated significantly with financial advice-seeking behavior except for working status, household income, and homeownership. Compared to those younger than 35, the older demographic reported lower odds of seeking financial advice in general. Men were less likely than women to seek advice, but men and women with college degrees were more likely than those without college degrees to seek advice (p<.10). Furthermore, Black and Hispanic respondents were more likely than White respondents to seek financial advice, and couples and metropolitan residents were more likely than singles and urban dwellers to seek advice. Health status was also a reliable indicator of advice-seeking behavior. Compared to those who reported poor health, those in good, very good, or excellent health were more likely to seek financial advice. In the interaction model, the age categories failed to show any significant moderating role between cognitive ability and financial advice-seeking.

TABLE 2. Logistic Regression Results on Financial Advice-Seeking Behavior (Total Sample: *N* = 6,095)

	Base model			Interaction model		
	Coef.	SE	Odds ratio	Coef.	SE	Odds ratio
Cognitive ability						
Memory	−0.212	0.133	0.809	−0.291	0.338	0.748
Objective numeracy	0.042	0.065	1.043	−0.012	0.146	0.988
Subjective numeracy	−0.059[+]	0.035	0.942	−0.016	0.070	0.984
Financial knowledge						
Objective financial knowledge	0.107[+]	0.060	1.113	0.118[+]	0.061	1.125
Subjective financial knowledge	−0.092[*]	0.044	0.912	−0.093[*]	0.044	0.911
Mental distress	0.054	0.043	1.056	0.052	0.043	1.053
Self-control	−0.098	0.091	0.906	−0.101	0.091	0.904
Having retirement account	0.159	0.098	1.172	0.161	0.098	1.174
Having pension	−0.104	0.096	0.901	−0.103	0.095	0.902
Having investment	0.488[***]	0.103	1.629	0.487[***]	0.104	1.627
Know where to seek advice	0.222[***]	0.048	1.248	0.224[***]	0.048	1.251
Know when advice is needed	0.215[***]	0.048	1.239	0.213[***]	0.047	1.238
Socio-demographic variables						
Age (ref: <35)						
35 ≤ age < 55	−0.588[***]	0.124	0.555	−0.168	0.417	0.846
55 ≤ age < 70	−0.642[***]	0.144	0.526	−0.768[+]	0.420	0.464
70 ≤ age	−0.409[*]	0.194	0.664	−0.267	0.474	0.766
Gender (ref: female)						
Male	−0.228[**]	0.083	0.796	−0.229[**]	0.083	0.795
Education (ref: <college degree)						
Bachelor's degree or above	0.182[+]	0.096	1.200	0.183[+]	0.096	1.201
Race/ethnicity (ref: White)						
Black	0.461[**]	0.137	1.586	0.455[**]	0.138	1.576
Hispanic	0.591[***]	0.136	1.806	0.583[***]	0.137	1.791
Other	−0.146	0.161	0.864	−0.147	0.161	0.863
Marital status (ref: non-couple)						
Couple	0.420[***]	0.090	1.522	0.421[***]	0.090	1.524
Working status (ref: work for others)						
Self employed	−0.142	0.175	0.868	−0.145	0.175	0.865
Not working	0.170	0.118	1.185	0.155	0.118	1.168
Retired	0.006	0.139	1.006	−0.002	0.140	0.998
Household income (ref: <$50k)						
$50k ≤ income < $100k	0.074	0.103	1.077	0.073	0.103	1.075
$100k ≤ income < $150k	0.169	0.130	1.184	0.168	0.131	1.183
$150k ≤ income	0.176	0.155	1.193	0.190	0.156	1.210

	Base model			Interaction model		
Homeowner	0.092	0.104	1.096	0.090	0.105	1.094
Metropolitan	0.227*	0.113	1.255	0.226*	0.113	1.254
Health status (ref: poor)						
Fair	0.295	0.244	1.343	0.309	0.242	1.362
Good	0.463+	0.238	1.589	0.475*	0.236	1.607
Very good	0.537*	0.241	1.711	0.551*	0.240	1.734
Excellent	0.677*	0.268	1.968	0.688*	0.268	1.989
Interaction terms						
ME*35 ≤ age < 55				0.016	0.398	0.985
ME*55 ≤ age < 70				–0.023	0.405	1.023
ME*70 ≤ age				0.415	0.425	0.661
ON*35 ≤ age < 55				–0.001	0.178	0.999
ON*55 ≤ age < 70				0.162	0.179	1.176
ON*70 ≤ age				0.056	0.199	1.058
SN*35 ≤ age < 55				–0.101	0.085	0.904
SN*55 ≤ age < 70				–0.027	0.087	0.974
SN*70 ≤ age				–0.040	0.099	0.961
Constant	–0.268	0.451	0.765	-0.303	0.565	0.739
Pseudo R square		0.066			0.067	

Note. Weighted. ME = memory, ON = objective numeracy, SN = subjective numeracy.
+$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$.

From Whom Do Individuals Seek Financial Advice?

Tables 3 and 4 report the logistic regression results of financial advice sources among advice seekers, using the base models and models with interaction terms between the three aspects of cognitive ability and age categories. As shown in Table 3, the roles of cognitive ability variables varied across the categories of financial advice providers. First, memory showed a positive association with seeking financial advice from family members. Moreover, those with higher objective numeracy were more likely to seek financial advice from professionals ($p <.10$) and family.

Objective financial knowledge was associated significantly and positively with seeking financial advice from professionals and family, but not from social networks. Mental distress was associated positively with seeking financial advice from professionals and social networks, but there was a negative association with seeking advice from family. Interestingly, the associations between the ownership of the three types of financial products and financial advice-seeking differed across advice sources. Specifically, those with retirement accounts or non-retirement investments were more likely to seek advice from professionals, but less likely to seek it from family. For seeking advice from social networks, the results were mixed: owning a retirement account was positively associated with social networks, but owning non-retirement investments was negatively associated with them. Unsurprisingly, knowing when and where to seek financial advice was positively associated with seeking professional advice.

In Table 3, sociodemographic variables showed different relationships across the three financial advice providers. Older respondents were more likely to seek advice from professionals, but less likely to seek financial advice from family or social networks. Male respondents were less likely than female respondents to seek advice from family. Those with a bachelor's degree or higher were more likely to seek advice from professionals, but less likely to seek it from family compared to those without college degrees. Compared to White respondents, Black respondents were more likely to seek financial advice from professionals and

TABLE 3. Logistic Regression Results on the Sources of Financial Advice—Base Models (Among Advice-Seekers: $n = 4,969$)

	From professionals			From family members			From social networks		
	Coef.	SE	Odds ratio	Coef.	SE	Odds ratio	Coef.	SE	Odds ratio
Cognitive ability									
Memory	0.168	0.136	1.182	0.335*	0.140	1.397	0.022	0.126	1.023
Objective numeracy	0.110+	0.066	1.117	0.227**	0.065	1.254	0.091	0.061	1.095
Subjective numeracy	0.038	0.035	1.038	−0.005	0.036	0.995	0.046	0.032	1.047
Financial knowledge									
Objective financial knowledge	0.166*	0.065	1.181	0.253***	0.067	1.288	−0.003	0.057	0.997
Subjective financial knowledge	0.040	0.041	1.041	−0.048	0.045	0.953	0.016	0.039	1.016
Mental distress	0.174***	0.042	1.191	−0.096*	0.044	0.909	0.136***	0.038	1.145
Self-control	0.096	0.083	1.100	0.062	0.085	1.064	0.082	0.078	1.085
Having retirement account	0.797***	0.096	2.219	−0.415***	0.104	0.660	0.355***	0.094	1.427
Having pension	0.170+	0.087	1.186	−0.079	0.090	0.924	−0.036	0.087	0.965
Having investment	0.727***	0.086	2.070	−0.257**	0.096	0.774	−0.200*	0.088	0.819
Know where to seek advice	0.234***	0.048	1.263	−0.032	0.048	0.968	0.008	0.043	1.008
Know when advice is needed	0.314***	0.047	1.369	−0.072	0.049	0.930	−0.077*	0.044	0.926
Socio demographic variables									
Age (ref: <35)									
35 ≤ age < 55	0.459***	0.113	1.582	−0.818***	0.136	0.441	−0.057	0.098	0.945
55 ≤ age < 70	0.959***	0.133	2.610	−1.409***	0.147	0.244	−0.347**	0.120	0.707
70 ≤ age	1.043***	0.173	2.838	−1.406***	0.180	0.245	−0.794***	0.170	0.452
Gender (ref: female)									
Male	−0.033	0.081	0.968	−0.285**	0.084	0.752	0.079	0.075	1.082
Education (ref: <college degree)									
Bachelor's degree or above	0.368***	0.089	1.444	−0.237*	0.094	0.789	0.140	0.086	1.150
Race/ethnicity (ref: White)									
Black	0.364*	0.143	1.440	−0.142	0.131	0.868	0.298*	0.125	1.348
Hispanic	0.044	0.126	1.045	−0.204	0.133	0.816	−0.123	0.113	0.884
Other	0.089	0.183	1.093	0.154	0.204	1.166	0.233	0.163	1.262
Relationship status (ref: non-couple)									
Couple	−0.316*	0.094	0.729	1.188***	0.098	3.280	−0.489***	0.083	0.613

TABLE 3. Logistic Regression Results on the Sources of Financial Advice—Base Models (Among Advice-Seekers: n = 4,969) (Continued)

	From professionals			From family members			From social networks		
Working status (ref: working for others)									
Self-employed	0.223	0.162	1.250	0.168	0.174	1.183	−0.340*	0.149	0.712
Not working	−0.262*	0.121	0.770	0.797***	0.137	2.220	−0.601***	0.108	0.548
Retired	0.132	0.131	1.141	0.069	0.128	1.072	−0.410**	0.129	0.664
Income (ref: <$50k)									
$50k ≤ income < $100k	0.151	0.103	1.163	0.205+	0.105	1.228	−0.229*	0.097	0.795
$100k ≤ income < $150k	0.055	0.124	1.057	0.452**	0.136	1.571	−0.279*	0.123	0.756
$150k ≤ income	−0.081	0.136	0.922	0.375*	0.153	1.455	−0.104	0.135	0.901
Homeowner	0.355**	0.106	1.427	0.003	0.116	1.003	−0.094	0.097	0.910
Metropolitan	0.190+	0.114	1.210	−0.261+	0.134	0.770	0.114	0.111	1.121
Health status (ref: poor)									
Fair	0.111	0.330	1.117	0.047	0.268	1.048	−0.014	0.279	0.986
Good	0.308	0.321	1.361	−0.032	0.255	0.969	−0.262	0.269	0.769
Very good	0.274	0.323	1.315	0.079	0.259	1.082	−0.121	0.271	0.886
Excellent	0.069	0.342	1.071	0.052	0.282	1.053	−0.323	0.289	0.724
Constant	−6.181***	0.511	0.002	1.315**	0.499	3.726	−0.647	0.433	0.524
Pseudo R square	0.213			0.125			0.061		

Note. Weighted.
+$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$.

social networks. Couples were more likely to seek financial advice from family, but less likely to seek it from professionals or social networks. Compared to those who were employed, non-working individuals were less likely to seek financial advice from professionals or social networks, but more likely to do so from family. The employed were more likely to seek advice from social networks compared to other working people, such as the self-employed. Income was also positively associated with seeking financial advice from family, but negatively associated with seeking advice from social networks.

After including the interactions of age and cognitive ability factors in the models shown in Table 4, objective numeracy became positively associated with seeking advice from social networks, and subjective numeracy became positively associated with seeking advice from professionals. Memory and objective numeracy maintained positive associations with seeking financial advice from family. Compared to those younger than 35, other older age groups showed a higher likelihood of seeking financial advice from professionals and a lower likelihood of seeking advice from family. The associations between cognitive ability measures and financial advice-seeking behavior were moderated by age. The interaction results indicated that compared to those younger than 35, older age groups (35–55 and older than 70) with higher subjective numeracy were less likely to seek financial advice from financial professionals ($p < .10$). Furthermore, those older than 35 with good memory were less likely to seek financial advice from family. Finally, those older than 35 with higher objective numeracy were less likely to use social networks as financial advice sources.

Discussion, Limitations, and Implications
Discussion
This study supports previous studies that found cognitive ability to be a significant determinant of financial decision-making and behavior (e.g., Agarwal & Mazumder, 2013; Dohmen et al., 2010). More importantly, it provides an expanded understanding of the relationship between cognitive ability and financial advice-seeking behavior by examining three dimensions of cognitive ability and decomposing the sources of financial advice into professionals, family, and social networks. Inconsistent findings in the previous literature (e.g., Kim et al., 2019; Kramer, 2016) concerning the relationship between cognitive ability and financial advice-seeking called for a better understanding of

financial decision-making and behavior. Even among those studies that found a significant relationship between cognitive ability and financial advice-seeking, the direction of the association was mixed (see Gamble et al., 2015; Kim et al., 2019; Kramer, 2016). For example, while Kim et al. (2019) found that having higher cognitive ability was associated with seeking financial advice from professionals, Gamble et al. (2015) found that a decline in cognitive ability was associated with seeking help with financial decisions outside the household.

When we consider financial advice-seeking behavior from the sources in general, Hypothesis 1, which proposed the relationships between the three aspects of cognitive ability and financial advice-seeking, was not generally supported by the results. The base and interaction models of general financial advice-seeking behavior indicated objective and subjective financial knowledge having opposite associations with financial advice-seeking. This echoed the literature in that although objective knowledge may promote advice-seeking (e.g., Collins, 2012), subjective knowledge is negatively associated with hiring professional advisors (Finke et al., 2011). While it was not the present study's focus, investigating the inconsistent influences of objective and subjective financial knowledge on financial behavior might be a productive area for future research.

The study contributes to the literature by identifying three major sources of financial advice and comparing preferences for these sources by advice-seekers. While most previous studies using NFCS and SCF (e.g., Collins, 2012; Hanna, 2011; Robb et al., 2012) focused on financial planners and/or advisors as the main source of advice-seeking, this study used the unique variables in NFWBS to expand our understanding of the financial advice-seeking sources by incorporating other sources such as family, employers, and friends/co-workers, community-based organizations, and governments. In particular, the results in both the base and interaction models show that the relationship between cognitive ability and seeking financial advice differs with sources of advice.

Our examination of the three dimensions of cognitive ability shows that among advice-seekers, those with good memory are more likely to approach family for financial advice, and those with higher objective numeracy are more likely to seek it from financial professionals and family

TABLE 4. Logistic Regression Results on the Sources of Financial Advice—Interaction Models (Among Advice-Seekers: $n = 4,969$)

	From professionals			From family members			From social networks		
	Coef.	SE	Odds ratio	Coef.	SE	Odds ratio	Coef.	SE	Odds ratio
Cognitive ability									
Memory	−0.048	0.353	0.953	1.149***	0.317	3.155	0.017	0.258	1.017
Objective numeracy	−0.025	0.142	0.975	0.454**	0.145	1.575	0.289**	0.110	1.335
Subjective numeracy	0.146*	0.073	1.157	0.018	0.084	1.019	0.043	0.054	1.044
Financial knowledge									
Objective financial knowledge	0.165*	0.064	1.179	0.223**	0.067	1.250	−0.014	0.057	0.986
Subjective financial knowledge	0.036	0.041	1.037	−0.042	0.045	0.959	0.016	0.039	1.016
Mental distress	0.175*	0.042	1.191	−0.083+	0.045	0.920	0.134***	0.038	1.143
Self-control	0.099	0.083	1.104	0.055	0.086	1.057	0.085	0.078	1.088
Having retirement account	0.806***	0.096	2.238	−0.426***	0.105	0.653	0.350***	0.094	1.419
Having pension	0.171+	0.087	1.186	−0.060	0.090	0.942	−0.022	0.087	0.978
Having investment	0.717***	0.086	2.047	−0.238*	0.095	0.789	−0.182*	0.088	0.834
Know where	0.232***	0.048	1.261	−0.029	0.048	0.971	0.006	0.043	1.006
Know when	0.313***	0.048	1.368	−0.064	0.049	0.938+	−0.077+	0.044	0.926
Socio-demographic variables									
Age (ref: <35)									
35 ≤ age < 55	0.775+	0.450	2.170	−0.289	0.470	0.749	−0.139	0.342	0.870
55 ≤ age < 70	1.356**	0.475	3.881	−1.161*	0.463	0.313	0.471	0.357	1.602
70 ≤ age	1.592**	0.465	4.913	−1.289**	0.488	0.275	0.159	0.435	1.173
Gender (ref: female)									
Male	−0.033	0.081	0.968	−0.282	0.085	0.755	0.089	0.076	1.093
Education (ref: <college degree)									
Bachelor's degree or above	0.377***	0.089	1.458	−0.251	0.094	0.778	0.140	0.087	1.151
Race/ethnicity (ref: White)									
Black	0.357*	0.144	1.429	−0.142	0.131	0.868	0.306*	0.124	1.358
Hispanic	0.047	0.126	1.048	−0.204	0.135	0.816	−0.108	0.113	0.898
Other	0.060	0.183	1.062	0.170	0.202	1.186	0.233	0.162	1.262
Relationship status (ref: non-couple)									
Couple	−0.320**	0.094	0.726	1.199***	0.098	3.316	−0.484***	0.083	0.617

(*Continued*)

TABLE 4. Logistic Regression Results on the Sources of Financial Advice—Interaction Models (Among Advice-Seekers: $n = 4,969$) (Continued)

	From professionals			From family members			From social networks		
Working status (ref: working for others)									
Self-employed	0.230	0.162	1.258	0.183	0.174	1.201	-0.329*	0.150	0.720
Not working	-0.264*	0.122	0.768	0.812***	0.139	2.252	-0.581***	0.108	0.559
Retired	0.129	0.130	1.137	0.067	0.127	1.069	-0.407**	0.128	0.665
Income (ref: <$50k)									
$50k ≤ income < $100k	0.167	0.104	1.182	0.189+	0.106	1.208	-0.220*	0.097	0.803
$100k ≤ income < $150k	0.065	0.124	1.068	0.436**	0.136	1.546	-0.265*	0.123	0.767
$150k ≤ income	-0.058	0.137	0.943	0.370*	0.152	1.447	-0.114	0.136	0.892
Homeowner	0.338**	0.107	1.403	0.041	0.116	1.042	-0.095	0.097	0.910
Metropolitan	0.182	0.114	1.200	-0.240+	0.134	0.787	0.124	0.111	1.131
Health status (ref: poor)									
Fair	0.140	0.332	1.150	0.045	0.269	1.046	-0.026	0.275	0.974
Good	0.347	0.323	1.415	-0.050	0.256	0.952	-0.263	0.265	0.769
Very good	0.313	0.326	1.367	0.067	0.261	1.069	-0.126	0.267	0.882
Excellent	0.106	0.345	1.112	0.022	0.283	1.022	-0.342	0.286	0.711
Interaction terms									
ME*35 ≤ age < 55	0.560	0.428	1.750	-1.004*	0.391	0.366	-0.164	0.324	0.849
ME*55 ≤ age < 70	-0.029	0.408	0.971	-1.027**	0.378	0.358	0.154	0.343	1.167
ME*70 ≤ age	0.346	0.422	1.413	-1.244**	0.383	0.288	0.118	0.371	1.126
ON*35 ≤ age < 55	0.278	0.183	1.320	-0.348+	0.188	0.706	-0.249+	0.144	0.779
ON*55 ≤ age < 70	0.120	0.178	1.128	-0.255	0.177	0.775	-0.344*	0.150	0.709
ON*70 ≤ age	0.142	0.185	1.152	-0.261	0.180	0.770	-0.299+	0.180	0.742
SN*35 ≤ age < 55	-0.157+	0.089	0.855	-0.047	0.101	0.954	0.102	0.070	1.107
SN*55 ≤ age < 70	-0.133	0.091	0.876	-0.015	0.097	0.985	-0.067	0.072	0.935
SN*70 ≤ age	-0.166+	0.091	0.847	0.010	0.100	1.010	-0.129	0.086	0.879
Constant	-6.271	0.668	0.002	0.172	0.644	1.188	-0.928	0.517	0.395
Pseudo R square	0.215			0.130			0.065		

Note. Weighted. ME = memory, ON = objective numeracy, SN = subjective numeracy.
+$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$.

members. These findings add to the literature that stressed the importance of family as a source of information for financial decisions (Abreu & Mendes, 2012; Kwon, 2004) by suggesting that certain aspects of cognitive ability might indicate the need for financial advice from family. One reason for this might be that those with high cognitive ability can better process complex information and complete financial tasks (Korniotis & Kumar, 2010; Okonkwo et al., 2006) and tend to choose family members as cost-efficient advice sources.

The study found a positive relationship between objective numeracy (but not subjective numeracy) and seeking financial advice from family members and professionals (marginally significant) of advice-seekers. After controlling interactions between age and cognitive ability, subjective numeracy showed a positive relationship with seeking advice from professionals, especially among younger respondents. Moreover, in the interaction model, a positive relationship was presented between objective financial knowledge and seeking financial advice from professionals and family members, which is consistent with findings of previous studies (Collins, 2012; Robb et al., 2012).

Limitations

One limitation of the present study is that it measured only three aspects of cognitive ability: memory, objective numeracy, and subjective numeracy. Other aspects of cognitive function such as IQ (see Chatterjee & Zahirovic-Herbert, 2010) and its relationship to financial advice-seeking and source preference might be explored in future research. A further limitation is that the present study examined only cross-sectional relationships between cognitive ability and financial advice-seeking. Therefore, it is difficult to say with confidence that the relationship is causal. Future research should explore changes in cognitive ability over time and its relationship with financial advice-seeking and the decision-making process using longitudinal data. Finally, sub-domains of financial advice such as savings and investment planning, tax planning, credit and borrowing advice, etc., can be further examined because families and individuals may prefer different sources of financial advice depending on their specific financial concerns.

Implications

The findings of this study provide implications for policy-makers and financial advice and service providers. First,

this study indicates that individuals who are more numerate and financially literate are more likely to identify financial professionals as optimal sources for financial advice, whereas those with low numeracy and financial knowledge may avoid using financial professionals such as financial advisors, planners, or counselors for financial advice. Recent studies show that financial advice from professionals is beneficial to individuals in both subjective (i.e., satisfaction) and objective (i.e., credit outcome) outcomes (Despard et al., in press; Ryan & Cude, 2021). For these reasons, policies should be developed to help those who are less financially knowledgeable and numerate to identify and adopt the best sources for financial advice, since numeracy is a significant dimension of cognitive function and associates significantly with financial behavior (e.g., Banks & Oldfield, 2007; Huhmann & McQuitty, 2009; Lusardi & Mitchell, 2007).

Financial practitioners also need to expand their services using technology and virtual service, providing platforms for accessible and transparent financial advice and services to those with low cognitive ability. Since financial knowledge plays a critical role in financial behavior (e.g., Deenanath et al., 2019; Hilgert et al., 2003; Huston, 2010), long-term policies and practices should focus on promoting financial numeracy and literacy while providing financial advice through multiple sources. Furthermore, policies should also focus on providing reachable, affordable, and customized employer-, government-, or community-based financial advice, counseling, and intervention services to larger populations such as younger generations, those with poor mental health, those living in non-metropolitan areas, and other underserved populations.

References

Abreu, M., & Mendes, V. (2012). Information, overconfidence and trading: Do the sources of information matter? *Journal of Economic Psychology*, *33*(4), 868–881.

Abt Associates. (2018). Understanding the pathways to financial well-being. *National Financial Well-Being Survey Report*. https://www.abtassociates.com/sites/default/files/2018-09/FWB%20Report%202_Final_180709.pdf

Agarwal, S., & Mazumder, B. (2013). Cognitive abilities and household financial decision making. *American Economic Journal: Applied Economics*, *5*(1), 193–207. https://doi.org/10.1257/app.5.1.193

Banks, J., & Oldfield, Z. (2007). Understanding pensions: Cognitive function, numerical ability and retirement saving. *Fiscal Studies*, *28*(2), 143–170. https://doi.org/10.1111/j.1475-5890.2007.00052.x

Bluethgen, R., Gintschel, A., Hackethal, A., & Mueller, A. (2008). Financial advice and individual investors' portfolios. http://ssrn.com/abstract=968197

Burke, J., & Hung, A. A., (2015). *Trust and financial advice*. RAND Working Paper. http://dol.gov. edgekey-staging.net

CFPB. (2017). *National financial well-being survey public use file user's guide*. https://files.consumerfinance.gov/f/documents/cfpb_nfwbs-puf-user-guide.pdf

Chang, M. L. (2005). With a little help from my friends (and my financial planner). *Social Forces*, *83*(4), 1469–1498. https://doi.org/10.1353/sof.2005.0061

Chatterjee, S., & Zahirovic-Herbert, V. (2010). Retirement planning of younger baby-boomers: Who wants financial advice? *Financial Decisions*, *22*(2), 1–12.

Cheng, Y., Kalenkoski, C. M., & Gibson, P. (2019). Factors associated with hiring and firing financial advisors during the great recession. *Journal of Financial Counseling and Planning*, *30*(2), 289–303. https://doi.org/10.1891/1052-3073.30.2.289

Christelis, D., Jappelli, T., & Padula, M. (2010). Cognitive abilities and portfolio choice. *European Economic Review*, *54*(1), 18–38. https://doi.org/10.1016/j.euroecorev.2009.04.001

Collins, J. M. (2012). Financial advice: A substitute for financial literacy? *Financial Services Review*, *21*(4), 307–322.

Deenanath, V., Danes, S. M., & Jang, J. (2019). Purposive and unintentional family financial socialization, subjective financial knowledge, and financial behavior of high school students. *Journal of Financial Counseling and Planning*, *30*(1), 83–96. https://doi.org/10.1891/1052-3073.30.1.83

Despard, M. R., Zeng, Y., Fox-Dichter, S., Frank-Miller, E., & Grinstein-Weiss,, M. (in press). Can workplace financial counseling help lower-income workers improve credit outcomes? *Journal of Financial Counseling and Planning*.

Dohmen, T., Falk, A., Huffman, D., & Sunde, U. (2010). Are risk aversion and impatience related to cognitive ability? *American Economic Review*, *100*(3), 1238–1260.

Elmerick, S. A., Montalto, C. P., & Fox, J. J. (2002). Use of financial planners by US households. *Financial Services Review*, *11*(3), 217–231.

Estrada-Mejia, C., & de Vries, M., & Zeelenberg, M. (2016). Numeracy and wealth. *Journal of Economic Psychology*, *54*, 53–63. https://doi.org/10.1016/j.joep.2016.02.011

Fan, L. (2017). The influences of financial help-seeking and other information sources on consumer's financial management behavior. *Doctoral dissertation.*. https://www.libs.uga.edu/etd

Fan, L. (2021). Information search, financial advice use, and consumer financial behavior. *Journal of Financial Counseling and Planning*, *32*(1), 21–34. https://doi.org/10.1891/JFCP-18-00086

Finke, M. S., Huston, S. J., & Winchester, D. D. (2011). Financial advice: Who pays. *Journal of Financial Counseling and Planning*, *22*(1), 18–26.

Fisher, G. G., Hassan, H., Faul, J. D., Rodgers, W. L., & Weir, D. R. (2017). *Health and Retirement Study: Imputation of cognitive functioning measures: 1992–2014 data description (Final release version)*. Survey Research Center: University of Michigan, . http://hrsonline.isr.umich.edu

Gamble, K. J., Boyle, P. A., Yu, L., & Bennett, D. A. (2015). Aging and financial decision making. *Management Science*, *61*(11), 2603–2610. https://doi.org/10.1287/mnsc.2014.2010

Grable, J. E., & Joo, S. H. (1999). Financial help-seeking behavior: Theory and implications. *Journal of Financial Counseling and Planning*, *10*(1), 14–25.

Grable, J. E., & Joo, S. H. (2001). A further examination of financial help-seeking behavior. *Journal of Financial Counseling and Planning*, *12*(1), 55–74.

Grable, J. E., & Joo, S. H. (2003). A snapshot view of the help-seeking market. *Journal of Financial Planning*, *16*(3), 88–94.

Hanna, S. D. (2011). The demand for financial planning services. *Journal of Personal Finance*, *10*(1), 36–62.

Hilgert, M., Hogarth, J., & Beverley, S. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, *87*, 445–457.

Huhmann, B. A., & McQuitty, S. (2009). A model of consumer financial numeracy. *International Journal of Bank Marketing*, *27*(4), 270–293. https://doi.org/10.1108/02652320910968359

Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, *44*(2), 296–316. https://doi.org/10.1111/j.1745-6606.2010.01170.x

Kim, H. H., Maurer, R., & Mitchell, O. S. (2019). *How cognitive ability and financial literacy shape the demand for financial advice at older ages* . NBER Working Paper No.25750. NBER Working Paper. https://www.nber.org/papers/w25750

Korniotis, G. M., & Kumar, A. (2010). Do older investors make better investment decisions? *Review of Economics and Statistics*, *93*(1), 244–265.

Kramer, M. M. (2016). Financial literacy, confidence, and financial advice seeking. *Journal of Economic Behavior & Organization*, *198–217*, https://doi.org/10.1016/j.jebo.2016.08.016 131(A)

Kwon, J. (2004). Clustering users of multiple source of information for saving and investment. *Journal of Personal Finance*, *3*(4), 33–48.

Lachance, M. E., & Tang, N. (2012). Financial advice and trust. *Financial Services Review*, *21*(3), 209–226.

Lei, S., & Yao, R. (2016). Use of financial planners and portfolio performance. *Journal of Financial Counseling and Planning*, *27*(1), 92–108. https://doi.org/10.1891/1052-3073.27.1.92

Lim, H., Heckman, S. J., Letkiewicz, J. C., & Montalto, C. P. (2014). Financial stress, self-efficacy, and financial help-seeking behavior of college students. *Journal of Financial Counseling and Planning*, *25*(2), 148–160.

Li, Y., Gao, J., Enkavi, A. Z., Zaval, L., Weber, E. U., & Johnson, E. J. (2015). Sound credit scores and financial decisions despite cognitive aging. *Proceedings of the National Academy of Sciences*, *112*(1), 65–69. https://doi.org/10.1073/pnas.1413570112

Loibl, C., & Hira, T. K. (2007). New insights into advising female clients on investment decisions. *Journal of Financial Planning*, *20*(3), 68–75.

Lusardi, A., (2008). *Financial literacy: An essential tool for informed consumer choice?* CFS Working Paper No. 2008/19. http://nbn-resolving.de/urn:nbn:de:hebis:30-56927

Lusardi, A., (2012). *Numeracy, financial literacy, and financial decision-making*. NBER Working Paper No.17821. National Bureau of Economic Research.

Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, *42*(1), 35–44. https://doi.org/10.2145/20070104

Lusardi, A., & Mitchell, O. S. (2011). *Financial literacy around the world: An overview*. NBER Working Paper No.17107. https://doi.org/10.3386/w17107

Mazzonna, F., & Peracchi, F. (2018). *Self-assessed cognitive ability and financial wealth: Are people aware of their cognitive decline?* EIEF Working Paper No. 1808. Einaudi Institute for Economics and Finance. http://www.eief.it/eief/images/WP_18.8.pdf

McClune, S. (2010). Consumer demographics: What do financial planning services consumers look like now? *Journal of Financial Planning*, *23*(3), 4–7.

Moreland, K. A. (2018). Seeking financial advice and other desirable financial behaviors. *Journal of Financial Counseling and Planning*, *29*(2), 198–207. https://doi.org/10.1891/1052-3073.29.2.198

Murman, D. L. (2015). The impact of age on cognition. *Seminars in Hearing*, *36*(3), 111–121. https://doi.org/10.1055/s-0035-1555115

Ofstedal, M. B., Fisher, G. G., & Herzog, A. R. (2005). *Documentation of cognitive functioning measures in the Health and Retirement Study*. Survey Research Center: University of Michigan, . http://hrsonline.isr.umich.edu/sitedocs/userg/dr-006.pdf

Okonkwo, O. C., Wadley, V. G., Griffith, H. R., Ball, K., & Marson, D. C. (2006). Cognitive correlates of financial abilities in mild cognitive impairment. *Journal of the American Geriatrics Society*, *54*(11), 1745–1750. https://doi.org/10.1111/j.1532-5415.2006.00916.x

Perry, V. G., & Morris, M. D. (2005). Who is in control? The role of self-perception, knowledge, and income in explaining consumer financial behavior. *Journal of Consumer Affairs*, *39*(2), 299–313. https://doi.org/10.1111/j.1745-6606.2005.00016.x

Richards, M., Shipley, B., Fuhrer, R., & Wadsworth, M. E. (2004). Cognitive ability in childhood and cognitive decline in mid-life: Longitudinal birth cohort study. *British Medical Journal*, *328*, 552–557. https://doi.org/10.1136/bmj.37972.513819.EE

Robb, C. A., Babiarz, P., & Woodyard, A. (2012). The demand for financial professionals' advice: The role of financial knowledge, satisfaction, and confidence. *Financial Services Review*, *21*(4), 291–305.

Ryan, M. P., & Cude, B. J. (2021). Financial advice, plan choice, and retirement plan satisfaction. *Journal of Financial Counseling and Planning*, *32*(1), 35–51. https://doi.org/10.1891/JFCP-18-00050

Salthouse, T. A., (1996). General and specific speed mediation of adult age differences in memory. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *51*(1), 30–42.

Shin, S. H., Kim, K. T., & Seay, M. (2020). Sources of information and portfolio allocation. *Journal of Economic Psychology*, *76*,102212. https://doi.org/10.1016/j.joep.2019.102212

Spaniol, J., & Bayen, U. J. (2005). Aging and conditional probability judgments: A global matching approach. *Psychology and Aging*, *20*(1), 165–181. https://doi.org/10.1037/0882-7974.20.1.165

Suchman, E. A. (1966). Health orientation and medical care. *American Journal of Public Health*, *56*(1), 97–105. https://doi.org/10.2105/AJPH.56.1.97

Xiao, J. J., & Porto, N. (2019). Financial education and insurance advice seeking. *The Geneva Papers on Risk and Insurance-Issues and Practice*, *44*(1), 20–35. https://doi.org/10.1057/s41288-018-0108-1

Yeo, J., & Lee, Y. G. (2019). Understanding the association between perceived financial well-being and life satisfaction among older adults: Does social capital play a role? *Journal of Family and Economic Issues*, *40*, 592–608.