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RESEARCH ARTICLE

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The association between early memory loss, financial exploitation, and financial exploitation vulnerability

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Abstract

INTRODUCTION: Older adults lose billions of dollars to financial exploitation (FE) annually. It has been described as a "burgeoning public health crisis" and "virtual epidemic." This study evaluated a conceptual framework investigating early memory loss and personal financial behaviors and their association with financial exploitation and financial exploitation vulnerability.

METHODS: The study used a cross-sectional design and included 150 participants, with *t*-tests and chi-squared tests being used in bivariate analysis and logistic and multiple regressions being used in multivariate analysis.

RESULTS: Early memory loss was related to financial exploitation and financial exploitation vulnerability in univariate analysis. However, early memory loss was only related to financial exploitation vulnerability in multivariate analysis. Personal financial behaviors also showed significant associations with financial exploitation and financial exploitation vulnerability in multivariate analysis.

DISCUSSION: Results support the proposed framework that early memory loss and personal financial behaviors share a relationship with financial exploitation and financial exploitation vulnerability.

KEYWORDS
early memory loss, elder abuse, financial exploitation, financial exploitation vulnerability

1 | INTRODUCTION

The financial exploitation (FE) of older adults has been described as a "burgeoning public health crisis" and "virtual epidemic."[1] FE occurs when someone commits the "illegal or improper use of a vulnerable adult's funds or property for their own profit or advantage."[2] One in five older adults over 65 experience FE at some point.[3] FE has some harmful effects on the older adult population. For example, older adults lose billions of dollars annually to FE. The latest estimates of FE losses to older adults range from $28.3 to approximately $48.4 billion annually.[4,5] In addition, victims of FE have the second highest 5-year mortality rate among all types of elder abuse, second to only physical abuse.[6] Victims of FE also report poorer physical health[7,8], lower self-rated health, lack of sleep,[9,10] depression, anxiety, and symptoms of post-traumatic stress disorder.[9–14]

Cohen identified six domains of FE, theft and scams, coercion, financial victimization, signs of possible financial abuse, financial entitlement, and money management difficulties.[15] The two of interest for the current study, signs of possible FE and money management difficulties, have not been studied extensively. Rarely has financial management been measured alongside studies of FE. We define these domains of interest as contextual issues surrounding finances. The Financla Exploitation Vulnerability Scale (FEVS) was created by examining a broad range of contextual issues around finances and decision-making,

Highlights

- Early memory loss and personal financial behaviors were associated with FE vulnerability.
- Individuals with MCI and PCI were more likely to experience FE.
- Individuals who experienced FE had significantly less income and lower functional ability scores and were more likely to have early memory loss.

RESEARCH IN CONTEXT

1. **Systematic review**: The authors used traditional sources (eg, ProQuest, Google Scholar) for the literature review. Several studies have investigated the links between memory loss and FE victimization and vulnerability. Recently scholars have begun to explore how early memory changes affect FE victimization and vulnerability. The relevant literature has been appropriately cited.
2. **Interpretation**: Our findings reinforce findings from previous research on early memory loss, FE, and FE vulnerability. They also add personal financial behaviors to the conversation, to include knowledge of which financial behaviors pair with memory loss to provide signs of FE vulnerability and risk of victimization.
3. **Future directions**: This manuscript proposes a theoretical framework to be used by future studies investigating these relationships. Longitudinal studies to examine predictors of FE victimization and vulnerability are needed, as is further exploration of what personal financial behaviors are associated with increased risk of FE victimization and vulnerability.

including financial strain, confidence, self-efficacy, psychological vulnerability, relationship strain, and conflict around money. This study focused on contextual issues around finances and financial management and added another key dimension, early memory loss. The FEVS and aspects of personal financial day-to-day management information were used to understand the relationship between early memory loss, financial behaviors, heightened risk of FE victimization, and vulnerability to FE.

1.1 | Cognition and FE

The key domain of early memory loss was added as a result of the identification of cognitive decline as one risk factor that increases FE vulnerability and susceptibility to scams (STS).[16–18] Belbase and Sazenbacher provide evidence to support the notion that individuals suffering from cognition issues may lose the ability to manage their finances.[19] The evidence provided shows 95% of older adults without cognitive impairment are fully able to manage their finances. This figure drops to 82% among older adults with mild cognitive impairment (MCI), and only 20% among those with dementia are recognized as being fully able to handle their finances. This declining financial management ability exacerbates the risk of being financially exploited and having increased exploitation vulnerability.

Previous studies also found significant associations between cognitive loss measures, risk of FE victimization, and/or heightened FE vulnerability. Pinsker and McFarland found cognitive decline and a measure of heightened risk of FE vulnerability shared a significant positive relationship,[20] while Lichtenberg et al. used a sample of 200 community-dwelling older adults to examine whether financial decision-making and cognitive decline were related to FE.[21] The study found evidence supporting the notion that the risk of FE increased with cognitive decline, decision-making deficits, and enhanced vulnerability. More recently, Ueno et al. presented evidence suggesting mild cognitive decline has a stronger correlation to scam vulnerability than does moderate to severe cognitive decline, suggesting that older adults may be most vulnerable to FE in the early stages of cognition loss.[22]

A recent series of studies has also examined the association of FE vulnerability and cognition. Fenton et al. proposed a theoretical model in which FE vulnerability manifests as an early sign of underlying AD neuropathology. The authors hypothesized that "early neuropathological accumulation (eg, amyloid beta [Aβ]) results in disrupted neural connectivity between brain regions integral for effective decision-making and avoidance of scams, which increases financial exploitation vulnerability" (p. 5).[23] Further, Boyle et al. used a sample of 420 non-demented older adults to investigate the longitudinal association between cognition and FE vulnerability. The rate of cognitive decline older adults experienced was positively associated with FE vulnerability.[16]

Lower scam awareness and increasing vulnerability have also been associated with an increased risk for MCI and a higher burden of Alzheimer's pathology in the brains of non-demented participants.[24] Individuals with MCI have demonstrated higher susceptibility to scams than those with no cognitive impairment.[25] The severity of cognitive impairment was positively associated with a greater level of susceptibility to scams. Further analysis showed the cognitive systems of episodic memory and perceptual speed were associated with susceptibility to scams in older adults with MCI.

1.2 | Study purpose

This study proposed and examined a conceptual framework to better understand the relationship between early memory loss, personal financial behaviors, and their relationship to experiencing FE as well

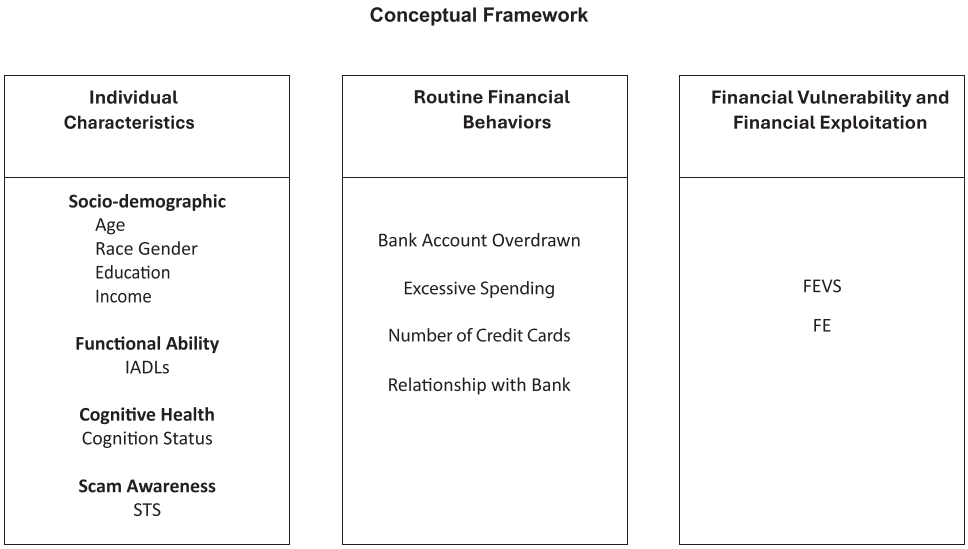

FIGURE 1 Conceptual framework describing drivers of FE and vulnerability. This framework describes the relationship between early memory loss, personal financial behaviors, and their relationship to experiencing FE as well as FE vulnerability. FE, financial exploitation.

as FE vulnerability. Data were used from the Wealth Accumulations & Later-life Losses in Early cognitive Transitions 2020–2023 (WALLET) study that examined participants' checking accounts and interviewed participants about a variety of personal finance behaviors and beliefs. As shown in Figure 1, the model consists of individual background characteristics as well as specific financial behaviors. Due to sample size constraints, the entire model could not be tested. Therefore, we focused on examining existing associations among the model variables. Individual background characteristics include functional ability, cognitive health, and susceptibility to scam variables. Personal financial behavior variables include the presence of account overdrafts, how participants judged their relationship with their bank or credit union, excessive spending and number of credit cards. The model includes personal characteristics of cognitive decline, declining functional ability, and heightened susceptibility to scams, which have been associated with heighted FE vulnerability and adverse FE outcomes.[20–22,24–26] Personal financial behaviors maybe related to heightened FE vulnerability and/or adverse FE outcomes.

The study's hypotheses are as follows:

H1: Older adults with early memory loss will report a higher rate of FE than those with no memory loss.

H2: Early memory loss will be associated with more poor personal financial behaviors.

H3: Both early memory loss and personal financial behaviors will be significantly related to adverse FE outcomes when controlling for demographic variables and financial vulnerability.

H4: Early memory loss and personal financial behaviors will be significantly related to heightened FE vulnerability.

2 | METHODS

2.1 | Data

We used data from the WALLET study. One hundred and fifty interviews with participants who met the study criteria were included in this study's sample. WALLET interviews included several standardized measures and used participants' primary checking account statements to collect detailed financial information. Survey questionnaires were used to obtain detailed sociodemographic details. The WALLET study also collected cognitive data to assess memory functioning. Participants completed several financial scales to assess financial decision-making and specific financial behaviors.[27]

2.2 | Procedure for recruitment

Given the heterogeneity of older adults, recruitment focused on adults ages 60 and over and had one participant 59.5 years old. Participants ranged from ages 59 to 96, were primarily responsible for a personal checking account, and were English speakers. They were recruited from research registries through the Michigan Alzheimer's Disease Research Center ($n = 51$) and the Wayne State University Institute of Gerontology Healthier Black Elders Center ($n = 53$). Participants were also recruited via newsletters or informational lectures given by the first author ($n = 32$) and word of mouth from WALLET participants ($n = 14$). Of those who expressed interest in the study, approximately 85% completed the study. Dropout was due to the time demands of gathering checking account statements. Prospective participants were prescreened to determine eligibility based on the following criteria: age 59.5 or older and no diagnosis within the last 2 years of epilepsy, stroke,

traumatic brain injury, bipolar disorder, schizophrenia, or significant use of drugs or alcohol.

The study coordinator arranged with all participants to obtain copies of their main checking account statements for 12 consecutive months within the previous 2 years. Hard copies were either mailed or hand delivered and electronic copies were emailed. All statements were deidentified and assigned a random ID number. Participants then completed a telephone interview about their finances. All participants were compensated for their participation and reimbursed for study-associated banking or mailing fees, if any. The study was approved by the Wayne State University Institutional Review Board.

2.3 | Analyzing Checking Account Statements

The procedures below were used to identify income from all sources, planned budgets, and expenditures, which were integrated with information obtained through the in-depth financial interview.

1. Establish that the participant is the primary manager of the checking account.
2. Establish regular monthly/annual income; this may include multiple sources of income, such as Social Security, pensions, IRAs with a required minimum distribution, annuities, or other investment accounts. Also, establish whether there are regular payments into a savings or investment account so that these will not be counted as expenditures. Some of these income sources are easily identifiable; others must be probed and confirmed during the interview with the participant. Discuss whether the total income is equal to the budget goals for the participant.
3. Document and/or calculate monthly inflows and outflows to the checking account. Outflows will be used to determine annual expenditures, and thus verifying such transactions during the interview is crucial.

2.4 | Measures

2.4.1 | Financial Exploitation Vulnerability Scale

Participants in the study completed the 17-item Financial Exploitation Vulnerability Scale (FEVS).[21] These self-report items ask about the context in which an older adult makes financial decisions. This context includes their financial circumstances (eg, "How often do your monthly expenses exceed your regular monthly income?") and the impact of their finances on their psychosocial health (eg, "Has your relationship with a family member or friend become strained due to finances?" and "How often do you worry about financial decisions you have recently made?"). The 17 items on the FEVS have a risk score that ranges from 0 to 2 points or 0 to 3 points, depending on the number of response options. The total score range is 0 to 46, with higher scores relating to a higher risk of FE. The scale demonstrated a good internal consistency (Cronbach's alpha = 0.84). Validation studies have been conducted on the scale as well, determining the scale is a valid measure of FE vulnerability.[28,29]

2.4.2 | Adverse FE outcome

To determine whether participants had experienced an adverse FE outcome, during the intake interview they were asked the following question: "Have you lost money due to a financial scam, exploitation, or identity theft during the past year?" Participants were given the option to answer yes or no.

2.4.3 | Cognition status

The cognition status variable contained two distinct groups, participants with MCI and perceived cognitive impairment (PCI). As the data we use are from the WALLET study, the study investigated "personal finance and spending across a continuum of decline from no memory problems to PCI to MCI." The researchers combined PCI and MCI to examine "how early memory impairment (perceived or diagnosed) is related to excess spending (p. 7)." Participants with MCI were obtained through the Michigan Alzheimer's Disease Research Center, which uses a consensus diagnosis conference process and nationally agreed-on procedures and definitions for diagnosing MCI.[27] The PCI measure was established by the Centers for Disease Control to investigate population-based issues and coordinate with each state's Behavioral Risk Factor Surveillance Survey.[30] Participants were asked, "Are your memory, thinking skills, or ability to reason worse than a year ago"? If the answer was yes but there was no cognitive work-up or no positive findings on a cognitive work-up, then the participant was classified as having PCI. The no-memory-loss group included those who denied any problems with memory and had no neurocognitive diagnoses.

2.4.4 | Susceptibility to scams scale

The susceptibility to scams scale is a five-item measure in which participants rate their agreement with items using a seven-point Likert scale, ranging from 1 = strongly agree to 7 = strongly disagree.[31] Internal consistency for this scale was less than ideal (Cronbach's alpha = 0.43). The validity of the susceptibility to scams scale was supported in the display of its relationship to various age-related vulnerabilities such as cognitive impairment and dementia.[31]

2.4.5 | Instrumental activities of daily living

The instrumental activities of daily living (IADL) measures functional abilities for common tasks, such as cooking, transportation, medication, and financial management. The self-report version of the Lawton and Brody IADL Scale was administered to participants.[32] Extensive study

has been completed to provide evidence of the reliability and validity of the Lawton Scale[33] (Cronbach's alpha = 0.72). Coyne and Klumer note "the validity of the Lawton IADL was tested by determining the correlation of the Lawton IADL with four scales that measured domains of functional status. All correlations were significant at the 0.01 or 0.05 level."[34]

2.4.6 | Personal financial behaviors

This was a computed variable, a four-point variable made up of one question from the WALLET interview guide and three factors from the information collected during the participant interview. The interview guide question was "How would you rate your relationship with your banking institution?" Participants received one point if they had a poor relationship with the bank and zero points if they had a fair to excellent relationship with the bank. Participants received one point if they were found to have excess spending overall and one point if they had excess spending in just one category.

Excess spending, measured as a percentage, was defined as expenditures beyond income. Income included Social Security, pensions, tax refunds, work income, and any planned distributions from a retirement or investment account. We confirmed that this represented the amount of money individuals had budgeted to spend during the year. Excess spending was determined by subtracting the sum of the 12-month expenditures (from the checking account) from the total income. To identify potential excess expenditures in a category (ie, at least double the proportion of income across the 12 months as would be appropriate), we examined expense categories, for example, phone, television/computer, insurance, water, gas, electricity, charitable contributions, and online shopping.

2.4.7 | Number of credit cards

The number of credit cards was determined by reviewing the participants' financial statements. The number was then confirmed by the participants during the interview.

2.4.8 | Income

All sources of income were gathered from participants financial records. These included Social Security, any pension, and investment incomes. The amount calculated during the review of financial records was confirmed during participant interviews. Income amounts were divided by 1000 to scale the variable for analysis.

2.5 | Statistical analysis

IBM SPSS Statistics 26 was used to analyze the data, and *t*-tests and chi-squared tests were performed to evaluate the differences in individual characteristics and routine financial behaviors between those who experienced FE and those who did not. A correlation matrix was then performed to assess the strength and direction of the relationship of all the variables included in the analysis. A stepwise logistic regression was performed to investigate the relationship of an adverse FE experience and the other factors in the model, while a stepwise multiple regression was performed to identify the relationship of FEVS scores and other model factors.

3 | RESULTS

The sample consisted of 150 community-dwelling older adults. Participants were mostly female (80.7%) and African American (64.7%). The sample had a mean age of approximately 73 years, with an average of 15.6 years of education. On average, the income of the sample was US$44,649. Approximately 55% of the sample suffered from PCI or MCI, with the rest being cognitively normal. As shown in Table 1, *t*-tests and chi-squared tests were performed to assess the differences between the FE and no-FE groups. Significant differences were found in cognition status, income, personal financial behaviors, and FEVS. Individuals with MCI and PCI were more likely to experience FE ($\chi^2(1) = 7.948$, $p < .01$). The no-FE group had significantly more income ($t = 2.065$, $p < .05$, and $d = 0.40$), fewer adverse personal financial behaviors ($t = -3.268$, $p < .01$, and $d = 0.86$), and significantly lower FEVS scores ($t = -5.419$, $p < .01$, and $d = -1.06$). These findings supported hypothesis 1 in that older adults with early memory loss experienced a higher rate of FE than those with no memory loss.

A correlation matrix was calculated using point biserial[35] and Pearson correlations to determine the direction and strength of the relationship between demographics, cognition, routine financial behaviors, FE victimization, and FE vulnerability. The results are presented in Table 2. In relationship to hypothesis 2, no significant relationship was found between cognition and personal financial behaviors. These findings did not support the second hypothesis. While the bivariate analyses did not support hypothesis 2 in that personal finance behaviors would be related to cognition, the personal finance behaviors did share significant relationships with FE (rpb = 0.265, $p < .01$) and FEVS ($r = 0.358$, $p < .01$).

A stepwise logistic regression model was used to test hypothesis 3. As shown in Table 3, in step 1 of the model, the relationship of sociodemographic data to FE was assessed and was statistically significant, $\chi 2(5) = 9.448$, $p < .001$). The model explained 9.3% (Nagelkerke R^2) of the variance in classifying the FE and no-FE groups and correctly classified 79% of cases. The significant positive relationship between income and an adverse FE outcome was the only significant relationship in the model. In step 2 of the model, cognition, functional ability (IADL), and STS were added to the model to assess the impact of individual characteristics on FE when accounting for sociodemographic measures. Step 2 of the model was statistically significant ($\chi 2(8) = 22.305$, $p < .01$). The model explained 22.5% of the variance in classifying the FE and no-FE group and correctly classified 79.7% of cases. Income shared significant positive relationships with FE, while functional ability (IADL)

TABLE 1 Demographics, social support, independence, stress, and FEVS ($N = 150$).

	FE ($n = 34$)	No FE ($n = 116$)	Overall sample ($n = 150$)	t or χ^2	Effect size
Gender				3.114	
Male	3	26	29 (19.3%)		
Female	31	90	121 (80.7%)		
Race				1.511	–
African American	25	72	97 (64.7%)		
White (non-Hispanic)	9	44	53 (35.3%)		
Cognition status				7.948**	$\Phi = 0.23$
PCI/MCI	26	57	83 (55.3%)		
Cognitively normal	8	59	67 (44.7%)		
Age, M (SD)	73.09 (8.55)	72.81 (7.64)	72.87 (7.83)	−0.181	–
Education, M (SD)	15.74 (1.91)	15.56 (2.41)	15.60 (2.30)	−0.388	–
Income, M (SD)	35,770 (22,469.47)	47,252 (30,025.44)	44,649 (28,825.16)	2.065*	$d = 0.40$
STS	12.47 (4.11)	11.67 (3.99)	11.85 (4.02)	1.003	–
Personal financial behaviors	1.55 (0.85)	.97 (0.87)	2.23 (0.74)	−3.286**	$d = 0.86$
No. credit cards	3.42 (3.56)	3.46 (3.17)		.057	–
FEVS	8.71 (5.84)	4.14 (3.77)	5.17 (4.72)	−5.419**	$d = -1.06$

Note: *$p < .05$, **$p < .01$.
Abbreviations: FE, financial exploitation; FEVS, Financial Exploitation Vulnerability Scale; IADL, Instrumental Activity of Daily Living; MCI, mild cognitive impairment; PCI, perceived cognitive impairment; STS, susceptibility to scams.

TABLE 2 Pearson and point biserial correlation matrix: demographics, mental health, functional ability, and FEVS ($N = 95$).

	Age	Race	Gender	Education	Income	IADL	Cog DX	STS	Personal financial behaviors	No. credit cards	FE
Race	−0.037										
Gender	0.010	−0.344**									
Education	0.024	−0.190*	0.093								
Income	0.085	−0.295**	0.263**	0.488**							
IADL	−0.063	−0.159	0.225**	0.267**	0.175*						
Cognition status	0.095	−0.075	−0.002	−0.040	0.029	−0.247**					
STS	0.071	0.056	−0.003	−0.174*	−0.168*	−0.237*	0.121				
Personal financial behaviors	−0.070	−0.066	−0.054	−0.147	0.165	−0.152	0.054	0.134			
Number of credit cards	0.023	−0.039	−0.131	0.135	0.165*	−0.018	0.001	−0.042	0.007		
FE	0.015	0.222	−0.144	0.032	−0.167*	−0.276**	0.230**	0.083	0.265**	−0.005	
FEVS	−0.137	0.202*	−0.194*	−0.102	−0.296**	−0.358*	0.318**	0.093	0.358**	−0.141	0.407**

Note: *$p < .05$, **$p < .01$.
Abbreviations: FE, Financial exploitation; FEVS, Financial Exploitation Vulnerability Scale; IADL, Instrumental Activity of Daily Living; STS, susceptibility to scams.

shared a significant negative relationship with FE. In step 3 of the model, personal financial management behaviors and vulnerability to financial exploitation (FEVS) were added to the model. This model was statistically significant ($\chi 2(11) = 36.173, p < .001$). The model explained 35.3% of the variance in the FE and no-FE groups and correctly classified 80.4% of cases. Income and personal financial behaviors shared significant relationships with FE. Each US$1000 increase in income is associated with a 2% decrease in the likelihood of experiencing FE,

TABLE 3 Logistic regression: relation of demographics, cognition, and banking to FE outcome ($N = 150$).

	Model 1	Model 2	Model 3
	ExpB/se	ExpB/se	ExpB/se
Age	1.02 (0.03)	1.00 (0.03)	1.02 (0.03)
Race	1.39 (0.53)	1.54 (0.56)	1.83 (0.60)
Gender	0.52 (0.71)	0.90 (0.74)	1.56 (0.80)
Education	1.18 (0.11)	1.27 (0.12)	1.33 (0.14)
Income	0.98* (0.01)	0.98* (0.01)	0.98* (0.01)
Cognition status		2.48 (0.50)	2.26 (0.56)
IADL		0.87* (0.06)	0.89 (0.06)
STS		0.96 (0.06)	0.95 (0.06)
Personal financial behaviors			2.03* (0.32)
No. credit cards			1.09 (0.07)
FEVS			1.12 (0.06)
Constant	0.01 (2.69)	1.43 (3.36)	0.02 (3.78)

Note: *$p < .05$.
Abbreviations: FE, financial exploitation; FEVS, Financial Exploitation Vulnerability Scale; IADL, Instrumental Activity of Daily Living; STS, susceptibility to scams.

TABLE 4 Multiple regression: Demographics, cognition, and banking on FEVS.

	Model 1	Model 2	Model 3
	b/se	b/se	b/se
Age	−0.06 (0.05)	−0.09* (0.04)	−0.08* (0.04)
Race	0.63 (0.83)	0.64 (0.75)	0.90 (0.70)
Gender	−1.15 (0.99)	−0.51 (0.90)	−0.55 (0.84)
Education	0.06 (0.18)	0.24 (0.17)	0.28 (0.16)
Income	−0.04* (0.02)	−0.04** (0.01)	−0.03* (0.01)
Cognition		2.47*** (0.68)	2.19*** (0.63)
IADL		−0.33*** (0.09)	−0.25** (0.09)
STS		−0.01 (0.09)	− 0.04 (0.08)
Personal financial behaviors			1.44*** (0.36)
Number of credit cards			− 0.15 (0.10
FE			1.80* (0.82)
Constant	10.39* (4.32)	20.15*** (5.04)	14.09* (4.77)

Note: *$p < .05$, **$p < .01$, ***$p \leq .001$.
Abbreviations: FE, financial exploitation; FEVS, Financial Exploitation Vulnerability Scale; IADL, Instrumental Activity of Daily Living; STS, susceptibility to scams.

while there is a twofold increase in the likelihood of experiencing FE associated with the occurrence of each of the noted adverse financial behaviors. These results provide partial support for hypothesis 3. Once financial vulnerability was accounted for, early memory loss was not related to FE outcomes; however, personal financial behaviors did share a significant relationship with FE when controlling for sociodemographic variables and FEVS.

Hypothesis 4 was tested with a stepwise multiple regression model. As can be seen in Table 4, the first step of the model assessed the relationship between demographic measures and the total FEVS score. Step 1 was statistically significant ($F(5, 137) = 3.261$, $p < .01$, adj. $R^2 = 0.074$). Income had a significant negative relationship with FEVS ($B = -0.036$, $p < .05$). Step 2 of the model was statistically significant as well ($F(8, 134) = 7.072$, $p < .001$, adj. $R^2 = 0.255$). Cognition and FEVS shared a significantly positive relationship ($B = 2.47$, $p < .001$). FEVS shared significantly negative relationships with age ($B = -0.093$, $p < .05$), income ($B = -0.040$, $p < .01$), and functional ability (IADL) ($B = -0.328$, $p < .001$). The third, and final, step of the model investigated if early memory loss, financial management behaviors, and FE were significantly related to heightened FE vulnerability. This step of the model was statistically significant ($F(11, 131) = 8.796$, $p < .001$, adj. $R^2 = 0.377$). FEVS shared a significant negative association with age ($B = -0.080$, $p < .05$), income ($B = -0.032$, $p < .05$), functional ability (IADL) ($B = -0.253$, $p < .01$), and positive relationships with cognition ($B = 2.178$, $p < .001$), personal financial behaviors ($B = 1.440$, $p < .001$), and FE ($B = 1.808$, $p < .01$). These findings support hypothesis 4. The cognitive condition of PCI/MCI is associated with an increase in the FEVS score of approximately 2.2 points, and each added negative personal financial behavior is associated with an increase of around 1.4 points. These findings support hypothesis 4.

4 | DISCUSSION

The major findings of this study were that, although early memory loss was related to FE in bivariate analyses, once personal financial behaviors were accounted for, early memory loss was no longer a significant predictor of FE. Early memory loss was, however, significantly related to FE vulnerability in bivariate and multivariate analyses. Early memory loss's association with FE vulnerability is consistent with previous research findings that early memory loss plays a role in FE vulnerability.[20–22] Although early memory loss did not have a significant relationship with FE outcomes when controlling for individual background characteristics and FE vulnerability, early memory loss's relationship to FE vulnerability may have an indirect relationship with FE. These findings support the associations proposed by the conceptual framework, giving much needed insight into the relationship between early memory loss and routine financial behaviors and the impacts of said relationship on FE outcomes and vulnerability.

These findings add an understanding of financial behaviors to the conversation on early memory loss and FE and provide an understanding on how these factors may indicate heightened vulnerability. In relation to the findings of this study, caregivers of and professionals working with older adults with early memory loss should monitor personal financial behaviors to gauge vulnerability and increased risk of FE victimization. Individuals who are overdrafting their accounts may not be keeping track of their finances, and this behavior may indicate declining financial management skills, which, according to Belbase and Sazenbacher, is a sign of cognitive decline, in turn increasing their FE vulnerability and risk of FE victimization.[19] In addition,

a lack of good personal financial behaviors could be a signal of a disinterest in financial management due to a decline in skills. If caregivers notice these behaviors, then the use of a tool, such as the FEVS, to assess the level of vulnerability the older adult is experiencing may prevent FE victimization. If these behaviors are paired with early memory loss and an elevated FEVS score, protection measures can be put into place to protect older adults and their finances.

In addition to the clinical and practical implications mentioned earlier, this study also has several implications for future research. The first is to investigate the relationship between an expanded list of banking practices and FE outcomes and vulnerability, such as distrust in banking, employee awareness, and understanding of banking practices and procedures. The WALLET study collected banking variables related to wealth and banking, but the overall design was not intended to investigate banking dynamics. A study specifically focusing on the association between older adults' FE outcomes and vulnerability and the social and environmental factors of banking may be better able to answer these questions. Another implication for future research would be the need for more longitudinally designed studies on the topics of older adults, wealth management, and banking as they relate to FE outcomes and vulnerability. Longitudinal studies would determine whether any of these relationships change over time and provide insight into the causal nature of the already identified relationships.

Although the study provided some very interesting insights into FE vulnerability and victimization, it is not without its limitations. First, this was a cross-sectional study, using participant data on FE, FE vulnerability, and financial behaviors from a snapshot of one point in time. This limits the ability to measure changes in the relationship between these variables over time and impedes our ability to test the predictive ability of our model. Also, the study largely involved African Americans, so the results are not generalizable. Although this is a limitation in most respects, the largely African American sample provides a view of an underrepresented group in social science research and broadens the knowledge base on African American older adults and finances. Despite these limitations, this study provides some novel approaches to understanding the relationship of memory loss, financial behaviors, financial vulnerability, and exploitation.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

CONSENT STATEMENT

All human subjects verbally provided informed consent.

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