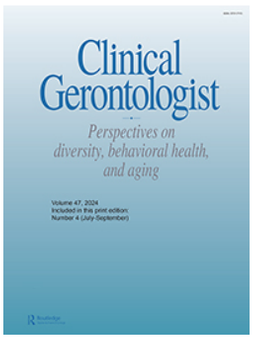

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# Cross-Validation of the Financial Exploitation Vulnerability Scale

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**ABSTRACT**

**Objectives:** The present study is a cross-validation of the Financial Exploitation Vulnerability Scale (FEVS), a measure of contextual risk for financial exploitation.

**Methods:** The sample was drawn from both the community and the SAFE program, a service for older adults who have been financially scammed. FEVS was administered within a larger assessment battery. The total score ability to differentiate exploitation groups and its correlates were examined. ROC analysis and logistic regression evaluated the clinical utility of the FEVS to detect exploitation. Results were compared to the initial validation study.

**Results:** FEVS score was significantly higher for those who were exploited and correlated with age. ROC analysis revealed adequate detection of financial exploitation. FEVS total score remained a strong predictor of exploitation when compared to demographic factors and several measures of cognitive functioning.

**Conclusions:** Cross-validation demonstrates strong evidence that the FEVS detects financial exploitation in older adults, beyond the ability of many known risk factors.

**Clinical Implications:** FEVS is an evidence-based tool for identifying exploitation and is accessible to many professionals working with older adults. Items query contextual factors that allow professionals to support clients with the appropriate standard of care.

**KEYWORDS**

Elder abuse; financial exploitation; psychological assessment

The National Center on Elder Abuse (NCEA) defines financial exploitation as the misappropriation of an older adult's money or property. This broad term captures many types of financial abuse, including cases of theft, scams by strangers, and coercion by friends or family members. The financial exploitation of older adults is an expensive personal and societal problem. In a population-based study of older adults in the United States, the prevalence of financial abuse by a family member among older adults was found to be 5.2% (Acierno et al., 2010). In a national study, the Federal Trade Commission found a prevalence of 6.5–7.3% for consumer fraud victimization among adults aged 65 and older (Anderson, 2013). According to reports from the Consumer Financial Protection Bureau (2019), from 2013 to 2017, the number of suspicious activity reports filed by deposit institutions and other financial service businesses quadrupled. Nearly 70% of these reports were for individuals over the age of 60, and a third of them were for people over the age of 80. In the United States, financial exploitation has been estimated to cost older adults about $28.3 billion each year (Gunther, 2023). There is evidence that this value may be an underestimate of the true scope of losses. For example, Anderson (2013) reported that of 37.8 million incidences of fraud, only one million were reported to relevant authorities. In a review of international samples, the mean incidence of financial abuse of older adults was 4.7% (Pillemer et al., 2016).

Some older adults are more vulnerable to exploitation than others. Lower educational attainment is a risk factor for financial exploitation (James et al., 2014). Cognitive decline, physical disability, and psychosocial and emotional changes are also associated with risk for victimization among older adults (Shao et al., 2019). In general, nonwhite people have been found to experience an increased prevalence of financial exploitation from both family members and strangers as compared to white people (Acierno et al., 2010; Beach et al., 2010). Further, African Americans tend to be at higher risk for financial exploitation when compared to whites and Latinx people (Laumann

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et al., 2008). Literature that explores age as a risk factor is mixed. Some researchers have found that advancing years make older adults more vulnerable (James et al., 2014), while others have found that younger-older adults are at increased risk for exploitation (Acierno et al., 2010; Beach et al., 2010; Boyle et al., 2013).

## Available assessment measures of financial exploitation

Most of the tools that are available to measure financial exploitation risk address only the cognitive aspects of vulnerability. These tools usually measure financial capacity, as a proxy for assessing the risk of financial exploitation. The Financial Capacity Inventory (FCI (Marson, 2016);) is a standardized, performance-based measure of financial skills. The FCI contains 18 tasks that cover nine financial domains such as cash transactions, checkbook management, financial judgment, and knowledge of assets/estate. This measure provides a risk of an older adult's financial skills. However, the FCI does not assess or account for the social vulnerability risk factors that lead to financial exploitation.

The Older Adult Self-Reported Financial Exploitation Measure (OAFEM; Conrad et al., 2010) is a 79-item self-report tool which identifies the types of financial abuse that an older adult has experienced within the last 12-month period. There are six clusters of types of financial exploitation that are assessed: thefts and scams, financial victimization, financial entitlement, coercion, signs of possible financial exploitation, and money management. This measure is useful in that it assesses the many different types of financial exploitation. However, this measure may not be ideal for older adults with cognitive impairment given the self-report nature of the measure. Further, the length of the OAFEM may not lend itself well to use in non-clinical, fast-paced settings.

The Assessment of Capacity for Everyday Decision-Making (ACED; Lai et al., 2008) is a semi-structured interview that broadly assesses decision-making abilities. It is not specific to financial decision-making but can easily be used for that purpose. This measure assesses decision-making across the four criteria outlined by Appelbaum and Grisso (1988): choice, understanding, appreciation, and reasoning. Importantly, this measure assesses the older adult's decision-making abilities regarding a specific, real-world decision. It can also highlight specific deficits in decision-making abilities to help professionals and caregivers understand how to provide an older adult support in making decisions successfully. The ACED assesses the cognitive aspects of the older adult's decision-making process but does not tap the broader psychosocial and financial context in which older adults are making decisions.

The Lichtenberg Financial Decision-making Rating Scale (LFDRS; Lichtenberg et al., 2015) is a 56-item structured interview that assesses older adults' decision-making process around real-world financial decisions, taking into consideration the older adult's personally-held values and broader situational context. The LFDRS has four subscales. One subscale is composed of items that explore the specific major financial decision in question. The other three subscales query the broader financial and psychosocial context of the decision: Financial Situational Awareness, Psychological Vulnerability, and Susceptibility. This measure benefits from taking a person-centered approach and broadly exploring the older adult's environmental context. However, this measure's length makes it challenging to use for many professionals who work with older adults, such as physicians, financial professionals, and adult protective service workers.

In sum, existing measures largely target cognitive aspects of decision-making capacity. While these elements are associated with and contribute to financial exploitation, they do not encompass the full range of risk. Namely, existing measures do not fully explore relevant situational factors related to financial exploitation.

## Development of the financial exploitation vulnerability scale

There is a lack of available tools that specifically target psychosocial and financial vulnerability to experiencing financial exploitation. Tools are especially lacking for the many non-clinical

professionals that work with older adults, such as financial workers. We developed the Financial Exploitation Vulnerability Scale (FEVS; Lichtenberg et al., 2020) to address these needs identified in the literature. The FEVS was developed from the items of the LFDRS, which was detailed above. In a recent study (Lichtenberg et al., 2020), researchers found that 17 of the items of the LFDRS successfully discriminate between older adults who have experienced financial exploitation and those who have not. These 17 items have been presented as a new scale, the FEVS, which was found to have good psychometric properties and clinical utility as a tool to detect risk for financial exploitation. Compared to other studies that have validated their measures against proxies for financial exploitation, the FEVS has been validated against verified experiences of identity theft, scam victimization, or financial abuse by a family member or friend. Exploitation was directly assessed and validated through bank records and online credit reports when available.

## Purpose of present study

The purpose of the present study is to cross-validate the FEVS in a second sample of older adults as a psychometrically sound measure of contextual risk for financial exploitation. It was expected that the FEVS would demonstrate similar results to the original validation study with this new sample.

- Hypothesis One: The FEVS total score would successfully differentiate participants who had been exploited from those who had not in an independent samples t-test.
- Hypothesis Two: The FEVS would be significantly correlated with age, race, years of formal education, word reading performance, and a measure of executive functioning.
- Hypothesis Three: The FEVS would demonstrate good clinical utility to detect financial exploitation in a ROC curve analysis.
- Hypothesis Four: The FEVS would be a significant independent predictor of financial exploitation in a logistic regression, when included with other collected variables.

## Methods

### *Participants*

Participant data were drawn from two sources. The first group was a community-based sample of 95 volunteers who were recruited for the cross-validation study of the LFDRS. The inclusion criteria for this sample required that participants: be at least 60 years old, live independently in the community, report the ability to complete activities of daily living (e.g., bathing, dressing, grooming) and instrumental activities of daily living (e.g., using transportation, managing medications and finances), have learned English as their first language, and could do basic word reading. Participants in this sample were recruited one of the three ways: 1) directly from the Healthier Black Elders Participant Registry (part of the University of Michigan–Wayne State University NIA P30 Resource Center for Minority Aging Research); 2) via presentations and attended community education events for older adults at several locations around the Greater Metro Detroit Area (e.g., senior centers, churches, and community centers); 3) by word of mouth using a snowballing method.

Twenty-one older adults were recruited through the Successful Aging through Financial Empowerment (SAFE) program, which provides financial coaching services to older adult scam and identity theft victims to help them recover lost funds and connect them with resources. These participants were referred by local area professionals who work with older adults or self-referred and agreed to have their data used in this study. The total sample consists of 114 older adults. All study procedures were approved by the Wayne State University Institutional Review Board (059612B3E). Recruitment of participants from the Healthier Black Elders Center (HBEC) required further approval from the HBEC advisory board (see Hall et al., 2016 for details). Before taking part in the study, written informed consent was obtained from participants.

### *Financial exploitation*

All participants completed the LFDRS as part of a larger assessment battery (see details in Measures) for the validation study of the LFDRS or as part of

their participation in the SAFE program. The LFDRS contains items that directly query experiences of financial exploitation (e.g., "Has anyone used or taken your money without your permission?"). If the examiner suspected that financial exploitation had occurred, they asked follow-up questions about the nature of the transaction. Members of the research team met in a consensus conference style to review the LFDRS interview and other available information to identify occurrences of financial exploitation. Participants recruited from the SAFE program self-reported experiences of financial exploitation, which were validated by examining bank statements, credit card reports, and other financial documents. In total, there are 33 participants in the sample with financial exploitation and 81 participants without experience of financial exploitation.

## Measures

### Participant characteristics

Participant demographic information was collected, including age (in years), racial/ethnic identity, sex, and years of formal education. This information was collected to determine the relationship between demographic factors, financial exploitation status, and other collected variables.

### Financial exploitation vulnerability scale (FEVS; Lichtenberg et al., 2020)

As part of participation in the LFDRS validation study or the SAFE program, all participants were administered the full 56-item LFDRS structured interview, which was designed to assess financial decision-making abilities. Details can be found in Lichtenberg et al. (2017). Of the 68 items, 34 ask about the context in which an older adult is making a financial decision, including their financial circumstances (e.g., "How often do your monthly expenses exceed your regular monthly income?"), as well as the impact of their finances on their social and psychological health (e.g. "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?"). In a recent study (Lichtenberg et al., 2020), we found that 17 of those contextual items successfully differentiated older adults who had experienced financial exploitation from those who had not. We presented those items as a new scale, the Financial Exploitation Vulnerability Scale (FEVS). It was found to have good internal consistency (Cronbach's alpha = 0.82) and the ability to detect financial exploitation (AUC = 0.82). Each of the 17 items of the FEVS has a risk score from 0–2 points or 0–3 points, depending on the number of response options. The total score range is 0–46, with higher scores indicating a higher risk of financial exploitation. Lichtenberg et al. (2020) identified an optimal cut score of seven or more points (sensitivity = 0.737; specificity = 0.756) in differentiating those who were financially exploited from those who were not.

### Wide range achievement test – 4 – word reading subtest (WRAT-4 WR; Wilkinson & Robertson, 2006)

The WRAT-4 WR subtest is a measure of single-word reading, which involves word recognition and decoding through letter recognition. The WRAT-4 WR Subtest was included as a brief measure of educational quality, a common use of this measure in neuropsychological testing and supported by literature (Sayegh et al., 2014).

### Mini-mental state exam (MMSE; Folstein et al., 1975)

The MMSE consists of 11 performance-based questions that estimate cognitive functioning. The maximum total score is 30, with lower scores indicating poorer cognitive performance. The MMSE was included in the present study as an estimate of cognitive abilities.

### Trail making test – part B (TMT-B; Reitan & Wolfson, 1985)

TMT-B is a measure of visual scanning speed, graphomotor speed, and set-switching. The number of seconds to complete the task (maximum 300 seconds) and the number of errors are recorded. The present study included TMT-B as a measure of executive functioning abilities.

## Data analyses

### Demographic comparison

Independent samples t-tests (chi-square for dichotomous variables) were used to examine how demographic factors were related to FE experience. The

FE and no-FE groups were compared on collected neurocognitive scores and FEVS total score as well.

### Correlates of contextual risk

Pearson's r correlations (point biserial for dichotomous variables) were used to assess the relationship between the total FEVS score and collected demographic information and neurocognitive scores.

### Clinical utility to detect financial exploitation

A ROC curve analysis was performed in order to assess the utility of the FEVS total score to detect the positive state of FE. The sensitivity, specificity, and positive and negative predictive power were determined for all possible cut-points of the total FEVS score to validate the previously established cutoff of seven or more points.

### Measure relationships with financial exploitation

Logistic regression analysis was used to determine the extent to which the FEVS had an independent relationship with financial exploitation when controlling for other collected measures. Age, gender, race, years of education, WRAT-4 WR, MMSE, TMT-B seconds, and FEVS were entered as predictors of FE status.

## Results

As can be seen in Table 1, independent samples t-test analyses were used to examine group mean differences between participants who reported the experience of financial exploitation ($n = 33$) and those who did not ($n = 81$). Chi-square analyses were used to evaluate group differences based on gender and race, as these were dichotomous variables in the present sample. Exploitation status was not related to any of the collected demographic factors. This finding is different from our initial validation study, which found that the experience of FE was related to years of formal education and race.

Regarding measures of cognition, exploitation status was not related to reading ability (WRAT-WR) or an estimate of global cognition (MMSE). This result is different than what was found in the initial validation study, where lower performance on both MMSE and WRAT-WR was related to FE. The exploitation groups differed significantly on time to completion for TMT-B. The FE group was significantly slower to complete this task as compared to the no FE group. This finding is in line with our initial validation study.

### Correlates of contextual vulnerability

Pearson's r correlations were utilized to examine the relationship of the FEVS total score to other collected variables, including demographic information and neurocognitive measures. Point biserial correlations were used for dichotomously coded variables (gender and race). As can be seen in Table 2, the FEVS total score was significantly correlated with age, such that younger participants had higher financial exploitation vulnerability scores than older participants ($r = -0.22$, $p = .023$). This is comparable to the relationship found in the initial study. Gender, race, and years of formal

**Table 1.** Group comparison of exploitation status on demographics, neurocognitive testing, and FEVS total score.

| Measure | No Exploitation ($n = 81$) | Exploitation ($n = 33$) | Overall ($n = 114$) | Statistical Test |
|---|---|---|---|---|
| Age M(SD) | 69.7 (5.8) | 70.2 (7.4) | 69.9 (6.3) | t(112) = -0.37, $p = .71$ |
| Gender (% Female) | 66 (81.5%) | 28 (84.8%) | 94 (82.5%) | $\chi2(1) = 0.18$, $p = .67$ |
| Race (% Black) | 67 (83.8%) | 31 (93.9%) | 98 (86.7%) | $\chi2(1) = 2.11$, $p = .15$ |
| Years of Education M(SD) | 14.8 (2.5) | 14.0 (2.4) | 14.6 (2.5) | t(111) = 1.52, $p = .13$ |
| WRAT WR M(SD) | 54.1 (8.2) | 56.6 (8.9) | 54.7 (8.4) | t(89) = 1.15, $p = .25$ |
| MMSE M(SD) | 28.4 (1.8) | 27.8 (1.9) | 28.2 (1.8) | t(109) = 1.30, $p = .20$ |
| TMT-B M(SD) | 119.3 (65.6) | 174.7 (95.4) | 134.0 (78.2) | t(107) = −3.43** d = −0.74 |
| FEVS M(SD) | 5.2 (4.1) | 8.2 (5.1) | 6.1 (4.6) | t(108) = −3.17** d = −0.67 |

WRAT WR = WRAT-Word Reading subtest; MMSE = mini-Mental State Exam; TMT = Trail-Making Test; FEVS = Financial Exploitation Vulnerability Scale.
*$p < .05$; **$p < .01$.

**Table 2.** Correlations among FEVS, demographics, and neurocognitive testing.

| | FEVS | Age | Gender | Race | Edu | WRAT WR | MMSE |
|---|---|---|---|---|---|---|---|
| Age | −0.22* | | | | | | |
| Gender | −0.02 | −0.02 | | | | | |
| Race | 0.10 | −0.05 | −0.09 | | | | |
| Edu | −0.09 | −0.10 | 0.07 | −0.08 | | | |
| WRAT WR | −0.11 | 0.19* | 0.03 | −0.19* | 0.34** | | |
| MMSE | −0.13 | −0.08 | −0.08 | −0.12 | 0.26** | 0.34** | |
| TMT-B | 0.17 | 0.27** | −0.01 | 0.21* | −0.32** | −0.15 | −0.37** |

WRAT WR = WRAT-Word Reading subtest; MMSE = mini-Mental State Exam; TMT = Trail-Making Test; FEVS = Financial Exploitation Vulnerability Scale.
*$p < .05$; **$p < .01$.

education were not significantly related to the FEVS. However, years of education and race were correlated with FEVS score in the original study. The scale did not have a significant relationship with an estimate of global intellectual functioning (MMSE), reading performance (WRAT-WR), or executive functioning (TMT-B). While the non-significant relationship with the MMSE is in line with the initial study findings, the lack of relationship with word-reading and set-shifting abilities was unexpected.

### Detection of financial exploitation status

The clinical utility of the FEVS to detect financial exploitation status was assessed with a ROC curve analysis. The ROC results indicated acceptable sensitivity and specificity of the scale items used to detect exploitation (area under the curve [AUC] = 0.68, CI 95%: 0.57–0.79). The AUC result would be classified within the adequate range. Therefore, by itself, the FEVS could distinguish between groups in a clinically meaningful way (Table 3). A cut score of six maximized the sum of sensitivity (0.56) and specificity (0.73). Positive predictive power was only 0.46, but negative predictive power was quite good (0.80). This cut score is slightly lower than the previously established cutoff of seven in the initial validation study. Notably, as the cut score increases, specificity and negative predictive power increase. However, positive predictive power remains about the same.

### Measure relationships with financial exploitation status

A logistic regression analysis was used to explore the relationships of FEVS and other collected variables with financial exploitation. This first logistic regression model mirrored the model included in the initial validation study (Table 4). All the included variables (demographics, WRAT-WR, MMSE, TMT-B, and FEVS) were entered simultaneously. Gender and race were entered as categorical variables. Only WRAT-WR (B = 0.12, Wald $\chi2(1) = 8.22$, $p = .004$) and FEVS (B = 0.15, Wald

**Table 3.** FEVS sensitivity, specificity, and negative and positive predictive power for each cutoff score.

| Cut Score | Sensitivity | Specificity | PPP | NPP |
|---|---|---|---|---|
| 1 or Greater | 0.97 | 0.15 | 0.32 | 0.92 |
| 2 or Greater | 0.88 | 0.29 | 0.34 | 0.85 |
| 3 or Greater | 0.78 | 0.40 | 0.35 | 0.82 |
| 4 or Greater | 0.75 | 0.51 | 0.38 | 0.83 |
| 5 or Greater | 0.63 | 0.65 | 0.42 | 0.81 |
| 6 or Greater | 0.56 | 0.73 | 0.46 | 0.80 |
| 7 or Greater | 0.44 | 0.76 | 0.42 | 0.77 |
| 8 or Greater | 0.41 | 0.81 | 0.46 | 0.77 |
| 9 or Greater | 0.41 | 0.85 | 0.52 | 0.78 |
| 10 or Greater | 0.34 | 0.88 | 0.55 | 0.77 |
| 11 or Greater | 0.25 | 0.91 | 0.53 | 0.75 |
| 12 or Greater | 0.19 | 0.95 | 0.60 | 0.74 |
| 13 or Greater | 0.16 | 0.95 | 0.55 | 0.73 |
| 14 or Greater | 0.13 | 0.96 | 0.57 | 0.73 |
| 15 or Greater | 0.09 | 0.97 | 0.60 | 0.73 |
| Area Under the Curve = 0.68; CI 95%: 0.57 – 0.79 | | | | |
| Cronbach's Alpha = 0.80 | | | | |

**Table 4.** Logistic regression predicting financial exploitation from demographics and neurocognitive factors.

| | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| Age | −0.034 | 0.051 | 0.445 | 1 | 0.505 | 0.967 |
| Gender | −0.084 | 0.714 | 0.014 | 1 | 0.906 | 0.919 |
| Race | −1.277 | 1.124 | 1.291 | 1 | 0.256 | 0.279 |
| Education | −0.150 | 0.122 | 1.529 | 1 | 0.216 | 0.860 |
| WRAT WR | 0.120 | 0.042 | 8.219 | 1 | 0.004** | 1.127 |
| MMSE | −0.156 | 0.176 | 0.781 | 1 | 0.377 | 0.856 |
| TMT-B | 0.007 | 0.004 | 3.089 | 1 | 0.079 | 1.007 |
| FEVS | 0.145 | 0.060 | 5.776 | 1 | 0.016* | 1.156 |
| Constant | −0.519 | 6.287 | 0.007 | 1 | 0.934 | 0.595 |

WRAT WR = WRAT-Word Reading subtest; MMSE = mini-Mental State Exam; TMT = Trail-Making Test; FEVS = Financial Exploitation Vulnerability Scale.
*$p < .05$; **$p < .01$.

$\chi 2(1) = 5.78$, $p = .016$) were significantly related to exploitation status. The overall concordance rate between predicted exploitation status and observed exploitation status was 81.0%. The probabilities predicted by the logistic regression of the FEVS and WRAT-WR were included in a ROC curve analysis to determine the combined utility of these measures to detect financial exploitation risk. The results indicated that the predicted probabilities of these two measures result in an AUC of 0.68 which is the same as the FEVS alone. This finding is comparable to the results of the initial validation study. However, TMT-B was significant rather than WRAT-WR. This result suggests that as in the original sample both FEVS and a measure of cognitive functioning had significant independent relationships with financial exploitation status.

## Discussion

The broad goal of the present study was to cross-validate the FEVS as a psychometrically sound scale in a new sample of older adults and explore its relationship to demographic, cognitive, and psychosocial factors. The FEVS was significantly related to financial exploitation status such that older adults who had experienced exploitation had higher scores than those who had not. The effect size of this difference was within the moderate range, which highlights how the vulnerability of an exploited older adult manifests itself in their broad financial context. Years of education, and Black race were related to vulnerability to exploitation in the initial validation study. However, none of the collected demographic factors differentiated exploitation status presently. In the cognitive domain, word-reading performance and an estimate of global cognitive functioning were not related to the experience of financial exploitation, though they had been in the initial study. In multivariate analysis, financial exploitation status was differentiated by a visuomotor set-switching task (an aspect of executive functioning). This was consistent with the FEVS validation study and suggested that exploitation vulnerability is related to diminished ability to hold complex information in mind while executing transactions.

The FEVS was correlated with younger age. Although this relationship was not in the expected direction, "younger-old" age has been associated with vulnerability to financial exploitation in other studies (Acierno et al., 2010; Beach et al., 2010; Boyle et al., 2013). Early old age is often a period of significant financial transition due to retirement, which could contribute to the increased contextual vulnerability of this group. Additionally, adults who have been vulnerable to financial exploitation throughout their lives due to other risk factors like disability may be captured in this younger-old stage. The FEVS was not correlated with collected cognitive measures. This result is notable because the FEVS and a measure of executive functioning (TMT-B) were significantly different between the financially exploited and non-exploited group in the t-test analyses. This finding illuminates how contextual vulnerability and cognition were related to financial exploitation as independent sources of risk that are not related to one another. The FEVS captures the vulnerability emerging from the environmental and psychosocial experience of the older adult.

This study also provides more support for the FEVS as a psychometrically sound scale. The AUC

of the FEVS in a ROC curve analysis predicting financial exploitation was within the acceptable range but is slightly lower than that found in the initial validation study (AUC = 0.82, CI 95%: 0.76–0.87; Lichtenberg et al., 2020). In the present study, the cut score that maximized the sum of sensitivity and specificity was six, very near to the initial validation study cut score of seven. Importantly, both specificity and negative predictor power continue to increase significantly at higher cut scores. As such, the most conservative approach would be to use a higher cut score. The FEVS can be used flexibly in different professional settings based on the time and resources available and the standards of practice of the profession. Some settings, such as APS and social work offices, may want to use a lower cut score on the FEVS to capture a larger number of vulnerable older adults and connect them to relevant resources. In another setting with a narrower scope of practice (neurology office), providers may wish to use a higher cut score and focus more on critical items relevant to their field.

The FEVS was also a significant independent predictor of financial exploitation in a logistic regression, as was word reading performance. Together, these two measures correctly classify 81.0% of the individuals based on financial exploitation status. Although Trail B (a measure of timed mental set-shifting ability) did not emerge as a significant independent predictor in the present study, it did in the initial validation study. Notably, including the predicted probabilities of this logistic regression model in a ROC curve analysis did not yield better detection of financial exploitation. Further, a brief, self-report questionnaire like the FEVS is likely to be significantly less threatening to most older adults than neurocognitive testing, which will allow for more conversations to be generated about financial exploitation with this vulnerable population. The FEVS can be used in conjunction with the Financial Vulnerability Survey Professional Guide (Lichtenberg, 2022) to further probe responses. For example, if an older adult endorsed concerns regarding worsening memory (Item 14), the examiner could further inquire about how long these changes have been occurring and how they impact the older adult's management of their finances.

## Strengths and limitations

The FEVS fills an important need in the available literature for a brief, standardized measure of contextual vulnerability to financial exploitation that is accessible to a wide variety of professionals who work with older adults. This cross-validation study has demonstrated that the FEVS has good psychometric properties as a scale to detect financial exploitation and is related to other measures of financial and psychosocial vulnerability. The items of the FEVS are rooted in a theoretical model of financial decision-making that centers the older adult within their real-world context. This scale can be conveniently administered as a self-report measure in waiting rooms or given as part of a clinical interview. For mental health professionals, the FEVS would make a good addition to an assessment battery or a part of a clinical interview, especially when concerns about financial management are raised. Each item of the FEVS provides actionable information for professionals to provide additional support to vulnerable older adults.

This study used a convenience sample, which may limit the generalizability of these findings. The present study sample is also modest, though not unreasonable, to study financial exploitation in the community and will benefit from additional exploration in other samples. However, the large sample of Black older adults, a group often underrepresented in the literature, is an important strength for this study. Several types of financial exploitation were included in this study (e.g., identity theft, scams, and financial abuse from family), so further research will be needed to determine if there are any differences based on the type of victimization. Future research could also explore the relationship of the FEVS to measures of financial decision-making and exploitation. Though this cross-validation study provides important support for the validity of this scale, an implementation study will be needed to determine how well the FEVS is used in practice by other professionals.

## Disclosure statement

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## Data availability statement

The data that support the findings of this study are available from the authors upon reasonable request.

**Clinical implications**

- Cross-validation demonstrates that the FEVS has good clinical utility as a standardized measure of contextual risk for financial exploitation.
- This screening is accessible to a wide variety of professionals and their items query actionable information to inform standards of practice in these settings.

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