



Original Research Article

Reliability and Validity of the Lichtenberg Financial Decision Screening Scale

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Abstract

The scarcity of empirically validated assessment instruments continues to impede the work of professionals in a number of fields, including medicine, finance, and estate planning; adult protective services; and criminal justice—and, more importantly, it impedes their ability to effectively assist and, in some case, protect their clients. Other professionals (e.g., legal, financial, medical, mental health services) are in a position to prevent financial exploitation and would benefit from access to new instruments. The Lichtenberg Financial Decision Screening Scale (LFDSS) was introduced in 2016, along with evidence for its convergent validity (Lichtenberg, P. A., Fickern, L., Rahman-Filipiak, A., Tatro, R., Farrell, C., Speir, J. J., ... Jackman, J. D. (2016b). The Lichtenberg Financial Decision Screening Scale: A new tool for assessing financial decision making and preventing financial exploitation (2016). *Journal of Elder Abuse and Neglect*, 28, 134–151. doi:10.1080/08946566.2016.1 168333). Using a sample of 213 participants, this study investigated the internal consistency of the LFDSS and its criterion validity based on ratings by professionals using the scale. Results demonstrate that the LFDSS has excellent internal consistency and clinical utility properties. This paper provides support for use of the LFDSS as a reliable and valid instrument. The LFDSS and instructions for its use are included in the article, along with information about online tools and support.

Translational Significance: The screening scale presented in this article can be used in a variety of settings to help assess decisional capacity and prevent financial exploitation (e.g., Adult Protective Services, Medical offices, legal services, financial services). Few empirically validated, efficient scales are available for these professionals to assess the older adult's decision making capacity around specific financial transactions. This scale is offered to help fill that void.

Keywords: Financial decision making, Financial capacity, Financial exploitation

Lichtenberg et al. (2016a, b) recently introduced a new tool for assessing financial decision making, the Lichtenberg Financial Decision Screening Scale (LFDSS), and presented data that underscores the importance of measuring decision-making skills for both financial decision-making capacity and susceptibility to financial exploitation. Specifically, after administering the scale, ratings of financial transactional capacity for specific decisions by attorneys and financial services professionals were compared to ratings of a different sample by adult

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protective services (APS) professionals for cases in which financial exploitation was substantiated. Adult Protective Services, a social service agency that each state is mandated to have, is responsible for investigating cases of suspected elder abuse including financial exploitation. Based on their assessment they seek medical, criminal justice, legal, and financial remedies to assist the vulnerable older adult. In both groups, decisional incapacities were noted, with deficiencies in the communication of choice, understanding, and/or appreciation. This paper extends research on the LFDSS by examining reliability and validity data for 213 completed scales. In addition, the entire scale-along with evidence for reliability and validity—is offered for use in the arena of elder abuse prevention and investigation (see Appendix for instructions and scale). One in 10 older adults reports being financial exploited since turning age 60 (Beach et al., 2010). Lichtenberg et al. (2016a) reported that fraud rates were increasing and that psychological vulnerability appears to be both a cause and consequence of exploitation. Because Lichtenberg et al. (2016a, b) previously provided an in-depth review of financial exploitation and financial capacity, this review will focus on conceptual understandings of financial abilities and competence.

Background Information

Considerable emphasis has been placed on financial capacity and financial decision-making capacity in recent research, practice, and policy. In his recent review of conceptual models for financial capacity, Marson (2016) describes the University of Alabama at Birmingham (UAB) clinical model, which examines financial capacity across several domains-from basic coin identification to checkbook management to risk for fraud. The model was developed to examine the loss of financial capacity in Alzheimer's disease and, like many neuropsychological tests, was structured as a series of objective and novel tasks. Based on his review, Marson concluded that risk of financial incapacity is linked to both Mild Cognitive Impairment and Mild Alzheimer's disease. This finding is striking given Plassman et al. (2008) that 30% of those aged more than 71 years are estimated to have some cognitive impairment. Even with the possible decline in prevalence of dementia, pure numbers of older adults with significant cognitive problems are exploding.

Boyle et al. (2012) and Boyle, Wislon, Yu, Buchman, and Bennett (2013) found that poor decision making was a consequence of cognitive decline, even without Mild Cognitive Impairment or Alzheimer's disease. Further, they found that poor decision making was associated with shortened longevity, thus underscoring Lachs and Han's (2015) concern that "age-associated financial vulnerability" may be present in many older adults.

Although the work of Marson (2016) and Boyle et al. (2012, 2013) demonstrate the sensitivity of financial capacity and decision-making capacity to cognitive change, it is not straightforward how to use these findings outside of a

detailed capacity evaluation by a mental health expert. In addition to the use of lengthy batteries of tests, both Marson and Boyle et al. employ hypothetical vignettes that may not correspond to the actual financial decisions older adults are required to make in the course of significant financial transactions.

In reviewing the process used to assess financial capability in Social Security, the Institute of Medicine ([IOM], 2016) stated that financial capability is based on realworld functioning or financial performance; contextual factors include financial knowledge and financial competence. Consistent with the IOM's emphasis on real-world performance, Marson (2016) found that the LFDSS is a real-world decisional ability model, with a specific focus on financial decision making for a significant decision or decisions. Marson also concluded that the LFDSS is particularly relevant for settings in which particular actions are being evaluated.

Conceptual Underpinnings of the Lichtenberg Financial Decision Screening Scale

Development of the LFDSS was guided by two conceptual frameworks: person-centeredness and decisional abilities. These frameworks affirm the importance of assessing the older adult's understanding of the financial decision in question, with the requirement that the older adult be able to communicate four important elements of his or her decision: choice, understanding, appreciation, and reasoning.

A Person-Centered Approach to Financial Decision Making

In working with older adults who suffer from neurocognitive disorders, the person-centered approach seeks to support autonomy by building on the individual's strengths and honoring his or her values, choices, and preferences (Fazio, 2013). Mast (2011) describes a new approach to the assessment of persons with neurocognitive impairment, the Whole Person Dementia Assessment, which seeks to integrate person-centered principles with standardized assessment techniques. Some of Mast's underlying assumptions are that (a) people are more than the sum of their cognitive abilities and (b) traditional approaches overemphasize deficits and underemphasize strengths. We used these guiding principles to assess actual financial decisions or transactions that an older adult was making or wanting to make.

Decisional Abilities Framework

Our second conceptual approach is based on Appelbaum and Grisso's (1988) decisional abilities framework. In 1988, Appelbaum and Grisso examined the legal standards used by states to determine incapacity and identified the abilities or intellectual factors necessary to make informed decisions: choice, understanding, appreciation, and reasoning. These have since been reiterated as fundamental aspects of decisional abilities (American Bar Association [ABA] Commission on Law and Aging & American Psychological Association [APA], 2008). Indeed, the ABA/APA's Assessing Diminished Capacity in Older Adults: A Handbook for Attorneys (2008) urges attorneys to assess the older adult's underlying decision-making abilities whenever diminished financial judgment is suspected.

According to the decisional abilities framework, an older adult must be able to communicate choice, understanding, appreciation, and reasoning as they relate to the choice. An individual must be able to communicate his or her choice and understand the nature of the proposed decision and its risks and benefits. It is important to note that choice must be free from coercion, and that it represents an autonomous choice of the older adult. Appreciation is the ability to grasp the situation and its potential consequences—which may affect not only the older adult, but family members and others as well. In this vein, Appelbaum and Grisso (1988) contend that the most common causes of impaired appreciation are lack of awareness of deficits and/ or delusions or distortions. Reasoning includes the ability to compare options-for instance, treatment alternatives in medical decision making-and provide a rationale for the decision or explain the communicated choice.

We aimed to build on the conceptual model of decisionmaking abilities described by Appelbaum and Grisso (1988) and incorporate the Whole Person Dementia Assessment approach by using both person-centered principles and standardized assessment methods. Person-centered principles allow for the fact that even in the context of dementia or other mental or functional impairments, the individual may still possess important areas of reserve or strength, such as financial judgment. The value of standardization is that it allows a domain to be assessed across time and practitioners, with the assurance that the same areas will be evaluated. However, only when an assessment is rooted in a specific sentinel financial transaction or decision can a third party render an opinion on the presence or absence of financial exploitation, since financial decision-making capacity in high-risk older adults is rarely completely present or completely absent (Dong, 2014). Our 10-item screening scale is designed to assess capacity to make a real-life financial decision or transaction.

Purpose of the Study

The purpose of this study is twofold: (1) to investigate the internal consistency of the LFDSS and (2) to investigate its convergent validity. Study hypotheses are:

- 1. The LFDSS will demonstrate essential unidimensionality and acceptable internal consistency statistics.
- 2. The LFDSS risk scores will produce cutoff scores that compare favorably with ratings made by professionals who have evaluated the older adult's decision-making capacity. Sensitivity, specificity, and positive and negative predictive power will all be above .80.

Methods

Participants

Adults aged 60 or older were eligible for the study if they were making, or had made in the previous 6 months, a significant financial decision (or group of related decisions; e.g., multiple gifts to the same person). In addition, the older adult had to be evaluated by one of the participating professionals and agree to administration of the LFDSS. Participants were consecutive cases seen by either APS or other professionals, and in the sample they were either seen by APS or by a different professional: There was no overlap of participants between APS and non-APS cases. Non-APS professionals administering the scale included elder law attorneys, financial planners, certified public accountants, social workers, and physicians. For all participants, age, education, and gender were collected, but personal or identifying information was not. Because the data were anonymous, the Wayne State University Institutional Review Board issued a concurrence of exemption. Although written informed consent was not required, the individuals being assessed received an information sheet that included the elements of a consent form.

Procedures

APS and other professionals, all of whom were volunteers, were trained as follows. First, the person received in-person or webinar-based training that addressed cognition, cognitive decline, and dementia in older adults; financial exploitation; financial capacity and financial decision making; and the linkages between financial decision making and financial exploitation and specific applications of the LFDSS. Second, videos of four administrations of the LFDSS were provided, as well as a video that offered an overview of the instrument's conceptual approach. Last, the LFDSS creator contacted each professional within 2 weeks to answer any questions about how to administer the scale and use its rating system.

Measures

Demographic measures

Age, gender, and education were collected by self-report. It is important to know whether LFDSS scores are significantly related to any of these variables, because this could bias the scale if it is highly related to demographic measures.

Lichtenberg Financial Decision-Making Screening Scale (LFDSS)

The LFDSS is a structured, multiple-choice interview intended to be administered in a standardized fashion. In introducing the LFDSS to the older adult, the administrator is instructed to read a one-sentence explanation aloud to the older adult: "I am going to ask you a set of questions to better understand the financial transaction/decision you are making or have already made. Please answer these as best you can and feel free to elaborate on any of your answers."

The LFDSS contains 10 items-seven from the Lichtenberg Financial Decision Rating Scale (LFDRS; Lichtenberg et al., 2015) Intellectual Factors subscale and three from the LFDRS Susceptibility to Undue Influence subscale. Two scores were calculated by non-APS professionals. First, the administering professional assigned an overall decision-making score that ranged from 0 (Major concerns) to 2 (No concerns). This is the same type of scoring for which Lichtenberg et al. (2015) demonstrated interrater reliability and criterion-related validity (Lichtenberg et al., 2016b). Second, an overall risk score was assigned, using 7 of the 10 items. For these 7 items, the literature supports the use of an ordinal risk score. For example, if the financial decision poses high risk or significant changes to previously established bequests, a higher risk score would be assigned than in cases of minimal financial risk or no changes to bequests. The other three LFDSS items are descriptive and neutral-for instance, there is no way of determining whether a new will is riskier than a new investment or gift. For each of the five items, however, the highest risk score is assigned when the administrator rates the older adult's response as inaccurate or the older adult does not know the correct answer.

Questions are to be read aloud as they are written. If the older adult responds before all of the choices have been offered and a rating can be made, the interviewer can make the rating without reading the remaining choices. If necessary, however, the interviewer should read all of them aloud and ask the person to choose one. The interviewer is encouraged to allow the older adult to expand on any answers and to write down what the person says. The interviewer can ask the older adult to elaborate, or the person may do this spontaneously. The interviewer is also encouraged to ask follow-up questions and record the person's answers.

Scoring of items

The LFDSS is a rating scale, and therefore the interviewer's judgment is critical. Scoring involves two steps and should be done as follows:

- 1. On each item, the older adult's response should be recorded by circling the person's answer(s).
- 2. On each item, the interviewer should place an X next to the answer that the interviewer believes is most nearly correct. For example, if the response given is not accurate or it appears that the older adult does not know the answer, the interviewer should place an X in the box next to "Don't know/inaccurate response."

Two scores were also derived for APS professionals: (a) whether financial exploitation was substantiated or unsubstantiated and (b) an overall risk score. Specific information on risk scoring is available from the corresponding author.

Additionally, two LFDSS summary scores based on the responses on individual items were calculated. Only the following seven items were included: "Was this your idea or

did someone suggest it or accompany you?"; "How will this decision impact you now & over time?"; "How much risk to your financial well-being is involved?"; "How may someone else be negatively affected?"; "Who benefits most from this financial decision?"; "Does this decision change previous planned gifts or bequests to family, friends, or organizations?"; "To what extent did you talk with anyone regarding this decision?". The first method dichotomized the items so that a one indicated, "Don't know/inaccurate" and a zero indicates all other responses. The second method created ordinal variables with a higher score indicating a "Don't know/inaccurate" response. For both methods, a higher score indicates a lower ability to make financial decisions. Scores ranged from zero to seven when the dichotomous variables were used and from zero to 15 when using the ordinal variables.

Statistical Analyses

Reliability

Internal consistency estimates for both scales were computed using the *psych* package in R (Revelle, 2015; Revelle & Zinbarg, 2009; Rizopoulus, 2009; Zinbarg, Revelle, Yovel & Li 2005). Internal consistency estimates (ordinal coefficient alpha; Zumbo, Gadermann, & Zeisser, 2007) and McDonald's omega total (McDonald, 1999, 2000) for the dichotomous variables were computed based on tetrachoric correlations, while polychoric correlations were used for the ordinal variables. The explained common variance (ECV), a measure of essential unidimensionality was computed based on a bifactor model. Internal consistency estimates were examined for the total sample by gender, education, age, and referral source.

Criterion validity

To obtain an optimal cutoff point for both scales, receiver operating characteristic (ROC) curves were created. Sensitivity, specificity, positive predictive value (ppv), negative predictive value (npv), and overall correct classification were calculated at each potential cutoff point.

Results

The sample consisted of 213 participants (see Table 1 for complete demographics). The mean age was 77 years (SD = 10.10). Most respondents (56.8%) were female, with a mean education of 13.7 years (SD = 2.87). Most were completed by non-APS professionals (62.4%; see Table 1). Of the APS nonprofessionals, the majority (74%) were conducted by attorneys and the rest were split between health care providers and financial planners. The mean of the dichotomous version of the LFDSS was 0.98 (SD = 1.81), with a range of 7 (0–7). The ordinal (risk score) version of the LFDSS mean was 4.50 (SD = 3.91), with a range of 15 (0–15). As expected, there were differences in base rates of

| | Table 1. | Demographics | Characteristics | of the | Sample |
|--|----------|--------------|-----------------|--------|--------|
|--|----------|--------------|-----------------|--------|--------|

| | Ν | % | Mean | Standard deviation |
|----------------------------|-----|------|-------|-----------------------|
| Referral Source | | | | |
| Adult Protective Services | 80 | 37.6 | | |
| Professionals | 133 | 62.4 | | |
| Age (years) | 213 | | 76.93 | 10.10 |
| Age categories (4) | | | | |
| More than 65 years | 26 | 12.2 | | |
| 65–74 years | 56 | 26.3 | | |
| 75-84 years | 74 | 34.7 | | |
| 85+ years | 57 | 26.8 | | |
| Gender | | | | |
| Female | 121 | 56.8 | | |
| Male | 92 | 43.2 | | |
| Highest Grade of Education | 183 | | 13.66 | 2.87 |
| (years) | | | | |
| Category education | | | | |
| Less than high school | 19 | 10.3 | | |
| High school | 80 | 43.5 | | |
| Some college + | 85 | 46.2 | | |
| Missing education | 29 | .0 | | |
| Lichtenberg Financial | 213 | | 0.98 | 1.81 |
| Decision Screening Scale | | | | |
| (dichotomous variables) | | | | |
| Lichtenberg Financial | 213 | | 4.50 | 3.91 |
| Decision Screening Scale | | | | |
| (ordinal variables) | | | | |

decisional ability concerns. APS cases are high-risk cases, and in 70% of the time decisional ability concerns were noted. The base rate for decisional concerns in the professional group was 17%; higher than expected and underscoring the importance of decisional ability assessment in professional practice.

Table 2 shows item frequencies by response categories. Table 3 shows internal consistency estimates using both coding methods. Estimates for both were very good, with the dichotomous method slightly outperforming the ordinal method. The alpha and McDonald's omega total for the total sample were both 0.958. The ECV was 85.052% for the dichotomous method; for the ordinal method, estimates were 0.904, 0.906, and 75.339%, respectively. Alphas and omegas for different demographic groups (see Table 3) were all above .9 for the dichotomous method, with ECVs ranging from 39.731% (college and above) to 82.819% (75 and older). Alphas and omegas for different demographic groups were all above .8 for the ordinal method, with ECVs ranging from 54.747% (male) to 76.418% (75 and older). The results of Table 3 are indicative of good levels of internal consistency reliability. Having an internally consistent scale indicates that the items hold together well and relate to the total score, but are not redundant with one another. Further, the analyses indicate that these reliability estimates fare well across gender, age, and for those

with lower education. The ROC analyses indicate that the scoring methods offered with the scale are highly predictive of the professional's judgment independent of these scoring methods.

Figure 1 shows the distribution of scores for both the dichotomized and ordinal scoring. Figure 2 shows the ROC curve for the LFDSS score using dichotomized variables, and Figure 3 shows ROC curve for the LFDSS score using ordinal variables. The area under the curve, which was computed for each ROC curve, measures a test's ability to correctly classify those with and without a condition (larger is better). Tables 4 and 5 show the sensitivity, specificity, ppv, npv, and overall correct classification for both scales at each potential cutoff point. The estimate of the area under the curve was 0.880 (standard error = .029; Youdens I = .61) for the dichotomous scale and 0.931 (standard error = .019; Youdens J = .66) for the ordinal scale. These indicate that the dichotomous scale was "good" and the ordinal scale was "excellent" at correctly classifying participants as presenting some or major concerns with regard to decisional ability. Despite the more highly educated group displaying a low reliability estimate there was no change in cut score for this group.

Based on review of the sensitivity, specificity, ppv, and npv, it is recommended that a cutoff of 1 and above be used for the dichotomous variable scale and a cutoff of 5 and above be used for the ordinal variable (risk score) scale. The ordinal risk scores are determined by an algorithm which is not provided in this paper due to the ease of mistakes with it. The score is automatically calculated when using the online version of the scale (see https://olderadultnestegg.com). Estimates for sensitivity, specificity, ppv, and npv and correct classifications for the binary item version at a cutoff score of 1 and above were .89, .88, .79, .94, and .88, respectively. Comparable values for the ordinal version cutoff score of 5 and above were .88, .91, .83, .93, and .90, respectively.

Discussion

One of the dilemmas facing the field of elder abuse and neglect is the dearth of evidence-based instruments that can be used in the field when risk of financial exploitation is present (e.g., bank transactions, meetings with financial planners or CPAs, legal or insurance documents, criminal justice investigations, or in medical or social-services settings). Without standardized, evidence-based tools, findings from any single interview are hard to replicate or compare with a subsequent interview, especially when interviews occur more than several hours or days apart. The LFDSS, in contrast, offers an efficient way to screen for financial decision-making concerns in older adults. The scale can be administered by anyone who is willing to be trained in its use and understands how the assessment fits into his or her practice. The scale can be used for both investigation (examining a decision already made) and prevention

Table 2. Item Frequencies

| | | n | % |
|---|--|-----|------|
| Was this your idea or did someone else suggest it or | My idea | 130 | 61.0 |
| accompany you? | Someone else suggested/drove me here | 60 | 28.2 |
| | Don't know/inaccurate | 23 | 10.8 |
| How will this decision impact you now and over | Improve financial position | 60 | 28.2 |
| time? | No impact | 87 | 40.8 |
| | Negative impact/debt | 25 | 11.7 |
| | Don't know/inaccurate | 41 | 19.2 |
| How much risk to your financial well-being is | Low risk or none | 135 | 63.4 |
| involved? | Moderate risk | 16 | 7.5 |
| | High risk | 21 | 9.9 |
| | Don't know/inaccurate | 41 | 19.2 |
| Who will be negatively affected? | No one | 127 | 59.6 |
| | Family/Someone else/Charity | 55 | 25.8 |
| | Don't know/inaccurate | 31 | 14.6 |
| Who benefits most from this financial decision? | I do | 65 | 30.5 |
| | Family/Friend/Caregiver/Charity/organization | 122 | 57.3 |
| | Don't know/inaccurate | 26 | 12.2 |
| Does this decision change previously planned gifts or | No | 139 | 65.3 |
| bequests to family, friends, organizations? | Yes | 50 | 23.5 |
| | Don't know/inaccurate | 24 | 11.3 |
| To what extent did you talk with anyone regarding | Not at all/Mentioned it/Discussed in depth | 190 | 89.2 |
| this decision? | Don't know/inaccurate | 23 | 10.8 |

Table 3. Internal Consistency Estimates for the 7-Item Lichtenberg Financial Decision Screening Scale Using Different Coding

 Methods

| | N | Dichotomous variables ^a | | Ordinal variables ^b | | | |
|------------------------------|-----|------------------------------------|---------------------------|------------------------------------|-------|---------------------------|------------------------------------|
| | | Alpha | McDonald's omega total | Explained common variance (ECV) | Alpha | McDonald's omega total | Explained common variance (ECV) |
| Total sample | 213 | .958 | .958 | 85.052 | .904 | .906 | 75.339 |
| Male | 92 | .973 | .977 | 78.605 | .929 | .941 | 54.747 |
| Female | 121 | .940 | .949 | 71.446 | .873 | .875 | 69.208 |
| College and above | 85 | .918 | .932 | 39.731 | .874 | .879 | 62.550 |
| High school and below | 99 | .944 | .950 | 72.605 | .858 | .863 | 55.205 |
| Less than 75 years old | 82 | .968 | .973 | 71.592 | .918 | .926 | 64.622 |
| 75 years old or greater | 131 | .949 | .950 | 82.819 | .886 | .888 | 76.418 |
| Adult Protective Services | 80 | .942 | .943 | 70.302 | .912 | .914 | 73.326 |
| Professionals | 133 | .947 | .956 | 58.786 | .846 | .855 | 62.620 |

^aAlpha, McDonald's omega total, and explained common variance were all calculated using tetrachoric correlations. Explained common variance was obtained from a bifactor model.

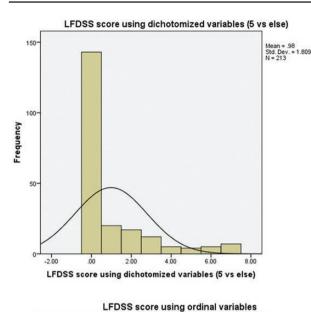
^bAlpha, McDonald's omega total, and explained common variance were all calculated using polychoric correlations. Explained common variance was obtained from a bifactor model.

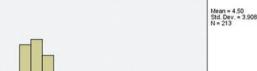
(using the tool to examine a planned decision) since use of the tool for decisions in the future can help identify decisional incapacity.

demonstrate excellent internal consistency. The two ways of scoring the scale were validated against the professional's own overall ratings and provide strong evidence for its validity.

The main findings of this study are support for both the reliability and validity of the LFDSS. The scale measures a single factor, decision making, and the items

A second issue facing the field is the accessibility of evidence-based instruments. Not only is the LFDSS provided





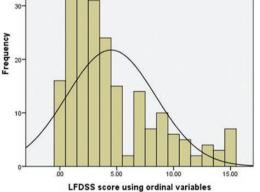


Figure 1. Histograms for the Lichtenberg Financial Decision Screening Scale (LFDSS).

here (see Appendix), but we have also created a website for training, scale administration, and interpretation of scores, as well as a place for storing the data obtained by administering the scales. Our site (https://olderadultnestegg.com) offers overall instruction in the following areas:

- 1. Detecting cognitive impairment in older adults.
- 2. Assessing compensatory strategies and self-awareness in those older adults who are exhibiting cognitive impairment.
- 3. Assessing for potential undue influence.
- 4. Understanding how to integrate findings with legal standards.

The site provides an overall video introduction to our scales and clips of LFDSS administrations; instructions for step-by-step administration of the scale on a laptop, tablet, or smartphone; a risk score; and guidance on general interpretation of results.

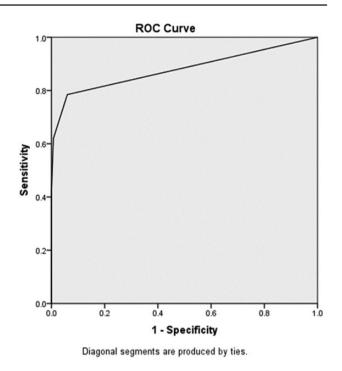
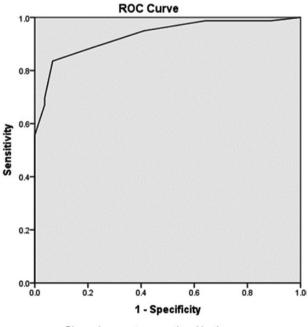


Figure 2. Receiver operating characteristic (ROC) curve for the Lichtenberg Financial Decision Screening Scale (LFDSS) score using dichotomized variables.



Diagonal segments are produced by ties.

Figure 3. Receiver operating characteristic (ROC) curve for the Lichtenberg Financial Decision Screening Scale (LFDSS) score using ordinal variables.

Limitations

This is the first in-depth examination of the reliability and validity of the LFDSS. Although the results are strong, they represent findings from a single study; accordingly,

| Cutoff | Sensitivity | Specificity | Positive predictive value | Negative predictive value | Overall correct classification | |
|--------------|-------------|-------------|------------------------------|------------------------------|--------------------------------|--|
| 1 or greater | 0.8857 | .8811 | .7848 | 0.9403 | .8826 | |
| 2 or greater | 0.9800 | .8160 | .6203 | 0.9925 | .8545 | |
| 3 or greater | 1.0000 | .7444 | .4177 | 1.0000 | .7840 | |
| 4 or greater | 1.0000 | .6979 | .2658 | 1.0000 | .7277 | |
| 5 or greater | 1.0000 | .6802 | .2025 | 1.0000 | .7042 | |
| 6 or greater | 1.0000 | .6667 | .1519 | 1.0000 | .6854 | |
| 7 or greater | 1.0000 | .6505 | .0886 | 1.0000 | .6620 | |

Table 4. Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value, and Overall Correct Classification Were Calculated at Each Potential Cutoff Point for the Lichtenberg Financial Decision Screening Scale Using Dichotomous Variables

 Table 5.
 Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value, and Overall Correct Classification Were

 Calculated at Each Potential Cutoff Point for the Lichtenberg Financial Decision Screening Scale Using Ordinal Variables

| Cutoff | Sensitivity | Specificity | Positive predictive value | Negative predictive value | Overall correct classification |
|---------------|-------------|-------------|------------------------------|------------------------------|--------------------------------|
| 1 or greater | 0.3959 | .9375 | .9873 | 0.1119 | .4366 |
| 2 or greater | 0.4756 | .9796 | .9873 | 0.3582 | .5915 |
| 3 or greater | 0.5769 | .9518 | .9494 | 0.5896 | .7230 |
| 4 or greater | 0.7071 | .9211 | .8861 | 0.7836 | .8216 |
| 5 or greater | 0.8800 | .9058 | .8354 | 0.9328 | .8967 |
| 6 or greater | 0.9167 | .8431 | .6962 | 0.9627 | .8638 |
| 7 or greater | 0.9138 | .8323 | .6709 | 0.9627 | .8545 |
| 8 or greater | 1.0000 | .7929 | .5570 | 1.0000 | .8357 |
| 9 or greater | 1.0000 | .7614 | .4684 | 1.0000 | .8028 |
| 10 or greater | 1.0000 | .7204 | .3418 | 1.0000 | .7559 |
| 11 or greater | 1.0000 | .6979 | .2658 | 1.0000 | .7277 |
| 12 or greater | 1.0000 | .6802 | .2025 | 1.0000 | .7042 |
| 13 or greater | 1.0000 | .6734 | .1772 | 1.0000 | .6948 |
| 14 or greater | 1.0000 | .6601 | .1266 | 1.0000 | .6761 |
| 15 or greater | 1.0000 | .6505 | .0886 | 1.0000 | .6620 |

there are limitations to the conclusions. For example, we were not able to assess the performance of the measure in different racial and ethnic groups. Other investigators are encouraged to use the scale and to examine reliability and validity in a variety of populations. An additional limitation is that the evidence for essential unidimensionality for the binary version of the scale was lower among those with a college education. We have yet to be able to compare the results of this screening scale with other measures of decision making although we did find significant correlations between the LFDSS and cognitive tests in our preliminary study (Lichtenberg et al. 2016b).

Finally, the LFDSS is a screening scale and, as such, does not examine aspects of financial decision making that are key contextual factors. The LFDRS, in contrast, allows for more intensive evaluation of decision-making abilities and is a key element in performing a comprehensive evaluation of financial decision-making capacity. Screening scales, by design, are brief, efficient, reliable, and valid, but do not offer comprehensive assessment of strengths and weaknesses. Nevertheless, evidence-based screening scales are valuable tools for preventing and investigating financial exploitation. The LFDSS represents a novel and important advance for the field of financial exploitation and financial decision-making capacity.

Supplementary Material

Supplementary data are available at Innovation in Aging online.

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Conflict of Interest

None.

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