Older and wiser: Age differences in susceptibility to investment financial fraud (the protective

role of emotional intelligence)

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Abstract

There have been inconsistent results regarding whether older adults are more vulnerable to fraud than younger adults. The two main goals of this study were to investigate the claim that there is an age-related vulnerability to fraud and to examine whether emotional intelligence (EI) may be associated with fraud susceptibility. Participants (*N* = 281; 18-82 years; *M* = 53.4) were recruited via Amazon’s Mechanical Turk and completed measures of EI, decision-making, and scam susceptibility. Participants who scored higher on “ability” EI were less susceptible to scams. The “younger” group (*M* = 2.50, *SD* = 1.06) was more susceptible to scams than the “older” group, *p* < .001, *d* = 0.56, while the “older” group (*M* = 4.64, *SD* = 1.52) reported the scams as being more risky than the “younger” group, *p* = .002, *d* = 0.37. “Older” participants were more sensitive to risk, less susceptible to persuasion, and had higher than average emotional understanding. Emotional understanding was found to be a partial mediator for age-related differences in scam susceptibility and susceptibility to persuasion.

Keywords: emotional intelligence, decision-making, susceptibility to persuasion

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Financial fraud has become so pervasive that it is now one of the top leading crimes in the world. Estimates suggest that fraud cost close to $3 trillion, which is higher than the 2018 budget of Canada, Germany, and the UK combined. Victims of financial fraud often endure a serious emotional toll, with depression, anxiety, lack of confidence in financial management and, in a number of cases, suicide (DeLiema, Mottola & Deevy, 2017). The combination of financial and emotional toll renders this crime especially devastating to the victims. With an estimated rate of 1 out of 10 people falling prey to fraud, and the loss of billions of dollars, understanding the factors that contribute to susceptibility to fraud has become an urgent issue. Furthermore, some empirical evidence (and some anecdotal) suggest that older adults are more likely to fall prey to fraudsters. Whether age is a contributing factor, however, is an open question. Thus, the present study had two primary goals: investigate the claim that there is an age-related vulnerability to scams and whether EI may be associated with scam susceptibility. Finally, our use of the term financial fraud refers to any type of fraud scheme that uses one or more mass-communication techniques or technology including the Internet to present fraudulent solicitations (The United States Department of Justice, 2015).We are using the term scam to indicate a fraudulent scheme perpetrated by a non-family member third party.

There has been some indication that older adults are more likely to be targeted by financial fraudsters (Burnes et al., 2017; Lichtenberg, et al., 2016; Peterson et al., 2014). One study (Cohen, 2017) has estimated that 5.6% of adults over the age of 65 will be targeted within a 5-year period. In contrast, there are reports indicating that older adults are not necessarily more likely to become vicitms of fraud. A 2016 report by the Office of National Statistic in 2016 (Flatley, 2016) reveals that individuals 45-54 years old are more likely to become vicitms compared to those who are older. In fact, their data suggests that individuals 16-24 years old were slightly more likely to become victims compared to those who where 75 and over (5% vs 4%, respectively). Whether older adults are more likely to fall prey to fraud is an important question that has both policy and prevention implications. To our knowledge, however, there is limited empirical data examining age difference in susceptibility to financial fraud. Furthermore, there is a real paucity of data with regard to the underlying mechanism or factors that might help explain age difference in susceptibility to financial fraud. To bridge this gap, the present study was designed to (1) examine whethere or not age differences exist in susceptibility to fraud and (2) assess a wide range of individual difference factors—from decision making competence to emotional intelligence—that might help explain differences in fraud susceptibility.

**Aging, emotional intelligence and fraud susceptibility.** As people age, there is evidence that individuals may employ different strategies in their decision-making in general. For example, older adults may rely more on heuristics and automatic processes (System 1) that stay relatively intact in late life and rely less on abilities associated with deliberative, working memory intensive processes (System 2) that tend to be the first to undergo age-related declines (Huang, Wood, Berger, & Hanoch, 2015). There is also ample evidence that emotional regulation improves through late life, which may reflect another strength in the decision making of older adults (Scheibe & Carstensen, 2009).

Emotional intelligence may also be a strength for older adults. Emotional intelligence (EI) known as “ability” EI (Krueger et al., 2009), is described as the ability to understand and use emotions in the decision-making process (Mayer, Salovey, & Caruso, 2008). The four components of Mayer and Salovey’s (1997) construct of EI include the following abilities: “(a) **perceive** emotions in oneself and others accurately, (b) **use** emotions to facilitate thinking, (c) **understand** emotions, emotional language, and the signals conveyed by emotions, and (d) **manage** emotions so as to attain specific goals.” These four components of EI could be relevant when deciding, for example, whether or not to participate in an investment opportunity. Decreased “ability” EI, therefore, could negatively impact the ability to perceive, understand and integrate emotional information. For this reason, it is predicted that lower EI will be associated with greater susceptibility to some types of fraud. To the best of our knowledge, the current study is the first to assess “ability” EI in relation to fraud susceptibility in older and younger adults.

In order to assess the role of more deliberative reasoning on susceptibility to financial fraud, in the current paper we have utilized a section of Bruine de Bruin et al.’s (2007) “Adult Decision-Making Competency Scale,” which specifically targets Resistance to Framing. This construct is understood as the ability to give consistent responses across related items regardless of whether or not they are framed as losses or gains (see Bruine de Bruin et al. 2007, p. 354). Making advantageous decisions in this task requires that individuals use deliberative, analytical decision-making to effectively override automatic or emotion-based responses.

To try to understand susceptibility to scams, especially among older adults, James and colleagues (James, Boyle, & Bennet, 2014) developed a five-item self-report measure to capture older adults susceptibility to scams. The measure asks questions about responding to unknown callers, engaging with telemarketers, and whether participants believe people over 65 are especially targeted by con-artists. This study, with over 600 older participants, found that age, cognitive functioning, well-being, health, and financial literacy were associated with susceptibility to scams. Similarly, Modic, Anderson and Palomäki (2018) developed a susceptibility to persuasion scale. While more extensive than the James et al.’s scale, the susceptibility to persuasion scale was not used among older individuals. Consequently, it is unclear whether older adults respond differently than younger adults. In the present study we capitalize on these scales to further examine the link between age and susceptibility to fraud.

**Present Study**

A number of hypotheses guided the present study. First, it was predicted that lower scores on measures of EI will be associated with higher susceptibility to fraud. Second, it was hypothesized that lower scores on decision-making measures will be associated with higher susceptibility to fraud. It was also predicted that there will be an age effect, such that “older” adults will score higher than “younger” adults on measures of EI and lower than “younger” adults on decision-making measures. Given the conflicting findings to age and susceptibility to fraud, we remained agnostic with regard to the direction of age and likelihood of falling prey to fraud. Finally, we hypothesized that EI and decision-making ability will partially explain the relationship between age and investment fraud susceptibility.

**Method**

**Participants**

Three hundred and thirty participants were recruited to take this survey using Amazon’s Mechanical Turk and Qualtrics. Participants were compensated $1.00 for their time. If a person was between 18 and 80 years of age and a US citizen, they qualified to participate in the study. Of the 330 consenting participants, 12 were removed due to incomplete responses. An additional 37 participants were removed because they took less than 10 minutes to complete the questionnaire, which was estimated to take nearly 30 minutes. Data from the remaining 281 participants were included in the analyses. Participants were categorized by age; participants 65 and older were placed in the “older” group (*M* = 68.80, *SD* = 3.83, *n* = 147), while those 64 and younger were placed in the “younger” group (*M* = 36.49, *SD* = 10.33, *n* = 134). A full description of demographic characteristics by age group can be found in Table 1.

**Procedure and Materials**

After providing consent, participants responded to the survey questions, which took approximately 30 minutes to complete. Participants completed a survey that included the following measures: susceptibility to persuasion, “ability” EI, decision-making ability, financial risk tolerance, financial literacy, and susceptibility to investment financial scams (see Appendix A of Supplementary data for full questionnaire). At the end of the survey, participants were asked to answer eight demographic questions about their age, gender, annual income, race/ethnicity, education, employment, marital status, and high school graduation year.

**Investment Scam Pitches.** Participants were presented with two Investment Scam Pitches from the Financial Industry Regulatory Authority (FINRA) to determine the extent to which participants were willing to engage with and respond to fraudulent advertisements (Applied Research and Consulting LLC, 2013). Participants were asked to rate how appealing, risky, and beneficial they found the pitches, as well as how likely or unlikely they were to participate, using a 7-point Likert scale (*1 = Not at all appealing, 7 = Very appealing*). The ratings for Appeal, Perceived Risk, Perceived Benefit, and Likelihood to Participate were averaged to create a composite measure for Scam Susceptibility, called the Investment Scam Pitches Scam Susceptibility Construct (ISPSSC). Perceived Risk was reverse coded before inclusion in this construct. A higher score on the ISPSSC indicates higher reported Appeal, lower Perceived Risk, higher Perceived Benefit, and higher Likelihood to Participate. In the current study this construct was found to have an acceptable Cronbach’s alpha of .83.

**James’ Susceptibility to Scams Scale.** A second measure of scam susceptibility (James, Boyle, & Bennett, 2014) was used to measure participants’ susceptibility to financial scams. This measure is a 5-item self-report scale in which participants rate their level of agreement with each statement using a 7-point Likert scale (*1 = Strongly disagree, 7 = Strongly agree*) (James et al., 2014). A higher score on this measure indicates a higher susceptibility to scams. Items include, “If a telemarketer calls me, I usually listen to what they have to say” (James et al., 2014). In this study, the scale had a Cronbach’s alpha of .63.

“**Ability” Emotional Intelligence (EI).** To assess “ability” EI, participants responded to Schutte, Malouff, and Bhullar’s (2009) “The Assessing Emotions Scale.” This measure consists of 33 self-report items measuring perception of emotions, managing one’s own and others’ emotions, and utilizing one’s own emotions. Participants rated the extent to which they agreed or disagreed with each item on a 5-point Likert scale (*1 = strongly disagree, 5 = strongly agree*). This measure included items such as, “I have control over my emotions” (Schutte et al., 2009). A higher score on this measure indicates higher “ability” EI. This measure has a Cronbach’s alpha of .90 as well as having a strong correlation with performance on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Brackett & Mayer, 2003). This correlation is noteworthy as we were aiming to measure participants’ “ability” EI, and the MSCEIT was designed using the ability model of EI. The measure was found to have a Cronbach’s alpha of .93 in the current study.

**Situational Test of Emotional Understanding (STEU)**. To measure participants’ emotional understanding, we administered selected items from MacCann and Roberts’ (2008) “Situational Test of Emotional Understanding” (STEU). The original STEU consists of 42 items measuring the emotional understanding component of the ability theory of EI. For the current study, 14 items were selected from the full scale. The STEU is scored against the answers of experts in the field. The Cronbach’s alpha for the STEU in the initial study was found to be .71 (MacCann & Roberts, 2008). Here, this measure was found to have a Cronbach’s alpha of .52. A higher score on the STEU indicates greater emotional understanding. Participants were presented with scenarios for which they were asked to choose the appropriate emotional response from five possible options.

**Adult Decision-Making Competency Scale (ADMC modified).** To assess participants’ decision-making ability, participants responded to components from Bruine de Bruin, Parker, and Fischhoff’s (2007) “Adult Decision-Making Competency Scale.” In the current study, we used only the Resistance to Framing constructs. Each of these constructs were separately found to have a Cronbach’s alpha of at least .60 (Bruine de Bruin, Parker, & Fischhoff, 2007). Here, we report a Cronbach’s alpha of .79. To measure resistance to framing, participants were presented with 28 problems, each with two possible solutions. Fourteen of these items were framed positively, while the other 14 were framed negatively. For each item, participants were asked to report the likelihood that they would choose either of the two given solutions (e.g., 1 *= Definitely would choose A,* 6 *= Definitely would choose B*). The positive and negative framing constructs were placed at the beginning and end of the questionnaire, respectively. A smaller discrepancy between the positively and negatively framed items indicates a higher resistance to framing. A higher resistance to framing comprises an important component of sound decision-making ability.

**Susceptibility to Persuasion**. To assess participants’ susceptibility to persuasion, participants responded to Modic et al.’s (2018) “Susceptibility to Persuasion – II” scale. This measure consists of 30-items rated on a 7-point Likert scale indicating the extent to which the participant agreed with each statement (*1 = Strongly disagree, 7 = Strongly agree*). This measure was originally found to have a Cronbach’s alpha of .73 (Modic & Lea, 2013). Here, this measure was found to have Cronbach’s alpha of .81. This measure includes statements such as, “I do certain things that are bad for me, if they are fun” (Modic & Anderson, 2018). A higher score on this measure indicates higher susceptibility to persuasion.

**Results**

A total of 281[[1]](#footnote-1) cases were included in subsequent analyses, 147 “older” adults and 134 “younger” adults. Similar results were produced both with and without controlling for education level. Therefore, the following reported results were analyzed without education level as a covariate.

**Interaction between measures of EI and scam susceptibility.** Four bivariate correlations were conducted to determine the relationship between EI measures and scam susceptibility as measured by the ISPSSC as well as by scores on James’ Susceptibility to Scams measure (see Table 2). Neither “ability” EI nor STEU were significantly correlated with the ISPSSC, *r*(279) = 0.111, *p* = 0.064, and *r*(279) = -0.08, *p* = 0.180, respectively. However, “ability” EI and STEU were both significantly negatively correlated with James’ Susceptibility to Scams, *r*(279) = -0.12, *p* = 0.039, and *r*(279) = -0.38, *p* < 0.001, respectively, such that participants who scored higher on “ability” EI or STEU were slightly less susceptible to scams.

**Interaction between decision-making and scam susceptibility.** ADMC modified and Financial Literacy were not significantly correlated with the ISPSSC, *r*(279) = -0.027, *p* = 0.656 and *r*(279) = -0.052, *p* = 0.385, respectively. On the other hand, ADMC modified and Financial Literacy were significantly negatively correlated with James’ Susceptibility to Scams scale, *r*(279) = -0.13, *p* = 0.031, and - *r*(279) = 0.24, *p* < 0.001.

**Age effect on decision-making, scam susceptibility and other individual differences.**

***Decision-making*.**Two independent-samples t-tests were conducted to compare ADMC modified scores and Financial Literacy in “younger” and “older” groups. Contrary to expectations, there was no significant difference in the ADMC modified scores between “younger” (*M* = 4.03, *SD* = 0.58) and “older” (*M* = 4.03, *SD* = 0.49) groups; *t*(279) = -0.051, *p* = .960, *d* < 0.01 There was also no significant difference in the Financial Literacy scores between “younger” (*M* = .81, *SD* = 0.28) and “older” (*M* = .83, *SD* = 0.25) groups; *t*(279) = 0.74, *p* = 0.46, *d* = 0.07. Performance on decision-making measures between the “younger” and “older” age groups was comparable (see Table 3 for individual differences by age group).

***Emotional Intelligence.*** Two independent-samples t-tests were conducted to compare the two measures of EI – “ability” EI and emotional understanding – between “younger” and “older” adults. As expected, the “older” group (*M* = 0.57, *SD* = 0.15) performed slightly better than the “younger” group (*M* = 0.52, *SD* = 0.18) on the measure of emotional understanding; *t*(279) = 2.67, *p* = 0.008, *d* = 0.30. However, scores on “ability” EI were comparable between “younger” (*M* = 4.02, *SD* = 0.55) and “older” (*M* = 4.02, *SD* = 0.53) groups; *t*(279) = -0.102, *p* = 0.920, *d* < 0.01. These results partially supported our hypothesis that predicted “older” adults would perform better than “younger” adults on measures of EI.

***Scam Susceptibility*.** An independent-samples t-test was conducted to compare overall susceptibility to the Investment Scam Pitches as well as scores on James’ Susceptibility to Scams scale. First, we address age differences in responses to the Investment Scam Pitches. Contrary to expectations, there was not a significant difference in the ISPSSC between “older” (*M* = 4.31, *SD* = 1.21) and “younger” (*M* = 4.50, *SD* = 1.21) groups; *t*(279) = -1.31, *p* = 0.191, *d* = 0.16.

Four independent-samples t-tests were then conducted to compare scores on the individual components of the ISPSSC – Appeal, perceived Benefit, perceived Risk, and Likelihood to Participate – between “younger” and “older” groups. There were no significant differences in 1) the perceived Appeal between the “older” (*M* = 4.69, *SD* = 1.46) group and “younger” group (*M* = 4.65, *SD* = 1.49) (*t*(279) = 0.19, *p* = 0.850, *d* = 0.03); 2) the perceived Benefit between the “younger” group (*M* = 4.78, *SD* = 1.34) and the “older” group (*M* = 4.62, *SD* = 1.24) (*t*(279) = -1.07, *p* = 0.290, *d* = 0.12); or 3), the Likelihood to Participate between the “younger” group (*M* = 4.40, *SD* = 1.32) and the “older” group (*M* = 4.10, *SD* = 1.49) (*t*(279) = -1.74, *p* = 0.083, *d* = 0.21). However, there was a significant difference in the perceived Risk of the Investment Scam Pitches, such that the “older” group (*M* = 4.64, *SD* = 1.52, *n* = 147) perceived the pitches to be higher risk than did the “younger” group (*M* = 4.09, *SD* = 1.43, *n* = 134); *t*(279) = 3.08, *p* = 0.002, *d* = 0.37.

Additionally, the Likelihood to Participate in the Investment Scam Pitches was significantly related to perceived Risk (*b* = -0.254, *p* < 0.001), perceived Benefit (*b* = 0.430, *p* < 0.001), and perceived Appeal (*b* = 0.200, *p* = 0.005), R2 = 0.007, *F*(3, 277) = 74.23, *p* < 0.001, such that lower perceived Risk or higher perceived Benefit and Appeal all predicted a higher Likelihood to Participate. Using hierarchical linear regression with the above three predictors in the model, age group (*b* = -0.040, *p* = 0.381) and education (*b* = 0.001, *p* = 0.979) did not continue to predict Likelihood to Participate above and beyond the other predictors, ΔR2 = 0.005, *F*(2, 125) = 0.39, *p* = 0.681. These findings are consistent with Wood, Liu, Hanoch, Xi and Klapatch’s (2018) results that intention to contact a scammer is inversely related to the perception of risk and positively associated to the perception of benefits.

An independent-samples t-test was also conducted to compare between age groups as measured by James’ Scam Susceptibility scale. The “younger” group (*M* = 2.50, *SD* = 1.06) was significantly more susceptible to scams than the “older” group (*M* = 1.96, *SD* = 0.87); *t*(279) = -4.66, *p* < 0.001, *d* = 0.56.

***Financial Risk Tolerance*.** An independent-samples t-test was conducted to compare Financial Risk Tolerance between age groups as measured by Jacobs-Lawson’s (2003) “Financial Risk Tolerance” scale. The “younger” group (*M* = 3.55, *SD* = 1.36) scored significantly higher on Risk Tolerance than did the “older” group (*M* = 3.07, *SD* = 1.21); *t*(279) = -3.14, *p* = 0.002, *d* = 0.37. These results suggest that younger adults are willing to tolerate more financial risk, which coincides with findings from the current study that suggest the “older” group found the Investment Scam Pitches to be more risky than did the “younger” group.

***Susceptibility to Persuasion****.* An independent-samples t-test was conducted to compare Susceptibility to Persuasion between age groups as measured by Modic and Anderson’s (2018) “Susceptibility to Persuasion – II” measure and by Kaptein et al.’s (2009) “susceptibility questionnaire.” When measured by Modic and Anderson’s scale, the “younger” group (*M* = 3.75, *SD* = 0.71) was significantly more susceptible to persuasion than the “older” group (*M* = 3.44, *SD* = 0.63); *t*(279) = -3.87, *p* < 0.001, *d* = 0.46. Using Kaptein et al.’s measure, there was not a significant difference in the susceptibility to persuasion scores for “younger” (*M* = 5.16, *SD* = 0.74) and “older” (*M* = 5.08, *SD* = 0.69) groups; *t*(279) = -0.95, *p* = 0.34, *d* = 0.11.

**Mediation analyses.** Preacher and Hayes’s (2008) multiple mediations program INDIRECT was used to examine whether EI, along with the measures of decision-making, mediated the relationship between age group and scam susceptibility. Education was not included as a control variable[[2]](#footnote-2), because it was not a significant predictor of scam susceptibility, *r*(279) = 0.07, *p* = 0.264. As shown in Figure 1 using standardized weights, age group by itself was a significant predictor of scam susceptibility, β = -0.217, *p* < 0.001, as well as a significant predictor of emotional understanding: β = 0.158; *p* = 0.008. When age group and the measures of EI and decision-making were entered together, emotional understanding, “ability” EI, and age group made statistically significant unique contributions to the prediction of scam susceptibility, β = -0.294, *p* < 0.001, β = -0.113, *p* = 0.036, and β = -0.217, *p* < .001, respectively, but decision-making and financial literacy did not, β = -0.073, *p* = 0.189, and β = -0.112, *p* = 0.053, respectively. These results indicate that for both the “younger” and “older” participant groups, the lower they scored on emotional understanding and “ability” EI, the more susceptible they were to scams. The estimated mediation effect was -0.052 (calculated as the difference between -0.269 and -0.217), z = -2.11, *p* = 0.035, obtained with 1000 bootstrap estimates. The only significant mediator was emotional understanding (-0.046, z = -2.37, *p* = 0.018), which indicates that emotional understanding mediated the relationship between age and scam susceptibility. However, because age contributed to predicting scam susceptibility even with all mediators in the model, the mediation effect was only partial. That is, “older” adults are less susceptible to scams than “younger” adults, partially because of their better emotional understanding. However, decision-making abilities were not a significant mediator for age-related differences in scam susceptibility.

Preacher and Hayes’s (2008) mediations program INDIRECT was also used to examine whether the measures of EI and decision-making mediated the relationship between age group and susceptibility to persuasion when not controlling for educational level[[3]](#footnote-3). As shown in Figure 2 using standardized weights, the total mediation effect of -.057 was significant (calculated as the difference between -.226 and -.169), z = -2.23, *p* = .026, obtained with 1000 bootstrap estimates. The significant mediator, as identified by bootstrap tests, was emotional understanding (-0.051, z = -2.41, *p* = 0.016), whereas nonsignificant mediators were “ability” EI (<0.001, z = 0.10, *p* = 0.920), ADMC (modified) (<0.001, z = -0.05, *p* = 0.959), and financial literacy (-0.006, z = -0.71, *p* = 0.477). These results indicate that emotional understanding partially mediated the relationship between age and susceptibility to persuasion. That is, “older” adults are less susceptible to persuasion than “younger” adults, partially due to their comparatively better understanding of emotional status.

Mediation analyses were also conducted for the relationship between age group and Financial Risk Tolerance. Education was also included in the analysis because it was a significant predictor of Financial Risk Tolerance, *r*(279) = 0.25, *p* < 0.001. We found that participants with a higher level of education tolerated more financial risk than those with less education. As shown in Figure 3 using standardized weights, the total mediation effect of -.065 was significant (calculated as the difference between -0.185 and -0.120), z = -2.65, *p* = 0.008, obtained with 1000 bootstrap estimates. The only significant mediator, as identified by bootstrap tests, was emotional understanding (-0.036, z = -2.20, *p* = 0.028), whereas nonsignificant mediators were “ability” EI (<.001, z = 0.10, *p* = .919), ADMC (modified) (<0.001, z = -0.05, *p* = 0.960), financial literacy (-0.004, z = -0.68, *p* = 0.498), and educational level (-0.025, z = -1.59, *p* = 0.113). These results indicate that emotional understanding partially mediated the relationship between age and Financial Risk Tolerance. That is, older adults are less likely to tolerate financial risk than younger adults, partially due to their increased emotional understanding. The same mediation analyses were also used for the relationships between age group and perceived risk and fraud exposure, but none of the potential mediators were signiﬁcantly related to either perceived risk or fraud exposure.

**Discussion**

Is older age associated with greater susceptibility to investment financial fraud? Results from the present study provide two important insights. First, adults over 64 may in fact be less vulnerable to some types of investment financial fraud than their younger counterparts. Secondly, it seems that emotional intelligence plays a more crucial role than cognitive (or decision) ability.

On some measures, “younger” adults evidenced increased risk, on others there were no age differences. For example, “younger” participants were more susceptible to scams than “older” participants based on scores on James’ et al (2014) susceptibility to scams scale. However, this relationship was not seen when scam susceptibility was measured by responses to the Investment Scam Pitches. “Older” and “younger” adults showed no significant differences in scores for the Appeal, Perceived Benefit, or Likelihood to Participate in the Investment Scam Pitches.

Why did we find divergent results for two seemingly related measures? One strength of the present paper is the utilization of two, rather than one, measures of scam susceptibility. Previous work tended to focus on a single type of scam, despite the fact that scammers targeted different age groups with different type of scams (National Consumer League, 2012). Thus, different type of scams might be more (or less) appealing to different age groups and different age groups might be targeted by different means. Older adults, for example, might be more likely to receive scams via their (snail) mail, while younger adults might be more likely to be targeted via email. Furrthermore, the James et al. (2014) measure is general in its nature (and focuses on scams via the phone) but the financial scams are far more specific—and possibly more easily identifiable as scams. Thus, the two measures might evaluate two slightly different aspects of scam susceptiblity. Also, it is possible that younger adults show greater scam susceptiblity due to the educational outreach efforts by senior citizen organizations (the AARP for instance) to help older adults be more vigilant to scams. Nonetheless, younger adults are being targeted at an increasing rate, especially online, given that they are more likely to shop online, and hence be contacted by retailers and fraudulent advertisers. Thus, the type of scam and the format of the scam may influence whether differences in age-related susceptibility are observed.

Results of the current study showing that “younger” and “older” adults do not differ in their reported likelihood to participate in a scam is consistent with past research on susceptibility to persuasion and scams, which found that “younger” adults were just as likely as “older” adults to respond to fraudulent offers (Modic & Lea, 2013). The only individual component that showed a significant group difference by age in the current study was how risky individuals perceived the Investment Scam Pitches. “Older” adults found the fraudulent investment pitches to be significantly more risky than “younger” adults. This finding is consistent with data from the current study showing that “younger” adults scored higher on Financial Risk Tolerance than “older” adults. These two outcomes suggest that “older” adults are both more sensitive in their perception of financial risk and also less likely to tolerate financial risk, compared to “younger” adults.

Our results are aligned with previous work revealing that older adults are less likely than younger adults to fall prey to fraud (Office of National Statistics, 2016). It is possible that researchers working in the field conflate two related, but mutually exclusive issues. On the one hand, older adults might not be more susceptible to falling prey to fraud. However, they may be targeted more often for two possible reasons. Scammers might believe that older adults are easier targets due to their age and cognitive changes. Second, and possibly more important, older adults tend to have more assets. Indeed, a report by the Brookings Institute (Sawhill & Pulliam, 2019) shows that age based financial inequality has risen in the last 25 years, with older adults possessing a growing proportion of the wealth. This could also help explain data emerging from The Guardian (“Millennials most likely to fall prey,” 2019) showing that while younger adults are falling vicitims more often to bank scams, older adults tend to lose larger amount of money (£10,716) compared to their younger counterparts (£2,630). Likewise, a report by the Federal Trade Commision (Fletcher, 2019) reveals that older individuals (especially those 70 years and over) lose higher sums of money to romance scams compare to their younger counterparts.

Together, these findings suggest that age may play only a minor role in falling prey to investment financial frauds. Rather, a person’s confidence, or overconfidence, might be a better predictor. This idea has been championed by Pressman (1998) who suggested that investors’ overconfidence is at the root of the problem, though he lacked empirical evidence to support his ideas. Work by Deliema, Shadel and Pak (2019), who studied fraud among investors, lends some support to this conjecture. The researchers found that investors who fell prey to fraud tend to engage in riskier investment activities, such as more frequent stock trading and remotely buying investment from unknown brokers. Likewise, work by Gamble, Boyle, Yu and Bennett (2015) suggests that overconfidence is one of the key factors associated with becoming a victim of financial fraud.

Finally, we predicted that lower scores on “ability” EI and emotional understanding would be correlated with higher susceptibility to fraud. Indeed, participants who scored higher on “ability” EI or emotional understanding were slightly less susceptible to fraud as measured by James’ scam susceptibility scale. However, neither “ability” EI nor emotional understanding were significantly correlated with responses to the Investment Scam Pitches. This could be because the items from the James’ scale targeted susceptibility to persuasive tactics, while the Investment Scam Pitches posed more of a cognitive task. This explanation is supported by our mediation analysis showing that emotional understanding is a partial mediator for the relationship between age and Susceptibility to Persuasion. Regarding the age-related differences in susceptibility to persuasion, it was found that “younger” adults were more susceptible to persuasion compared to “older” adults. It is interesting to note that, while “younger” adults were more susceptible to persuasion, they were not more likely to participate in the Investment Scam Pitches. However, the “younger” adults’ higher susceptibility to persuasion could account for why “younger” adults found the fraudulent investment pitches to be significantly less risky than the “older” adults. In other words, the “younger” adults may have been more likely to believe that the fraudulent investment offers were genuine.

Although the above results are the first to illustrate a link between EI and susceptibility to fraud, previous work has argued that emotional intelligence plays a key role in financial decisions (for a review, see Bouzguenda, 2018). Work by Leowenstein and colleagues (2001), for example, has powerfully argued that emotions play a key role in risk taking, an idea that has received earlier support from the work by Bechara et al. (1997). In their original study, Bechara et al. demonstrated that lacking emotion can be detrimental to making decisions and detecting negative outcomes. In fact, their research showed that particpants who had intact cognitive capacity but lacked emotional ability performed poorly. One of the implications of their seminal work is that emotions serve as a warning signal regarding which option is good and which one is bad. It seems reasonable to extend this line of argument, and suggest that similar pricnciples apply to the present study. Thus, participants who exhibited higher emotional intelligence or capacity are more likely to recognize the risks involved in these scams. Needless to say, this line of research needs further investigation.

We also predicted that lower scores on decision-making competence (ADMC) would be correlated with higher susceptibility to scams. Consistent with our predictions, participants who scored lower on the ADMC modified and the financial literacy tasks were more susceptible to scams as measured by James’ scam susceptibility scale. These findings are consistent with the dual-systems understanding of decision-making (Huang et al., 2015); if an individual is unable to adequately employ the system 2 processes in order to override fast, emotion-based reasoning and make a controlled, evidence-based decision, they will likely perform more poorly on the resistance to framing task and be more susceptible to financial scams.

We predicted an age effect, such that “older” adults will score lower than “younger” adults on decision-making measures (see Buirne de Bruin, et al., 2007). The anticipated age-related decline in decision-making ability was not observed. “Older” and “younger” adults in our sample performed equally well on measures of decisional competence.

We predicted that “older” adults would score higher than “younger” adults on measures of EI. There was no significant difference in the overall “ability” EI between “younger” and “older” participants. However, the “older” group scored significantly higher than the “younger” group on emotional understanding. There is a dearth of research on how components of emotional intelligence continue to develop in older adulthood. Additionally, the literature is mixed with regards to whether “ability” EI improves or declines with age. The findings from the current study is consistent with past research that shows emotional intelligence is a cumulative knowledge base, in that it continues to develop with age and experience (Mayer et al., 2008). Some research has similarly shown that EI increases with age, however, their samples did not include participants over 66 years of age (Extremera & Fernandez- Berrocal, 2002; Kafetsios, 2004). A more recent study on a sample of 17 to 76-year-old participants showed that “ability” EI peaks during the late 20s but ultimately declines to its lowest point by the mid 70s (Cabello, Latorre, Fernandez-Berrocal, 2014). It is clear that more research is needed to understand how emotional intelligence develops and changes throughout the lifespan.

Finally, we predicted that age-related differences in scam susceptibility would be partially explained by age-related differences in emotional understanding. We found that “older” adults were less susceptible to some types of scams than “younger” adults, partially because of their better emotional understanding. However, decision-making abilities were not a significant mediator for age-related differences in scam susceptibility.

**Limitations and Future Directions**

This study provides suggestions for future studies examining age-related susceptibility to scams. As a result of incomplete responses or inadequate time spent completing the questionnaire, data from 49 participants were removed and therefore not included in the analysis. This resulted in smaller sample sizes for the “older” (*N* = 147) and “younger” (*N* = 134) groups. The length of the questionnaire was thought to be one of the contributing factors for the high rate of incompletion. Additionally, to better compare results of this study with past studies on decision-making and scam susceptibility, it would have been ideal to use the Iowa Gambling Task (IGT) to assess decision making. Given resource and time limitations, the IGT was substituted with the Resistance to Framing construct from Bruine de Bruin et al.’s (2007) Adult Decision-Making Competency Scale. A second limitation is the use of the MTurk pool when studying a social problem of the elderly. The oldest old, over age 80, are underrepresented on MTurk and may have unique vulnerabilities not captured by this methodology. There is, therefore, an urgent need not only to replicate this work with other on-line platforms, but more importantly, with community dwelling participants.

Although research interest in financial scams is increasing, there is currently limited research on the characteristics that make an individual most vulnerable to this type of crime. Future research should consider different methods of scam solicitation, as results from the current study suggest that older adults are targeted by more variation in types of scams. In addition, research on scam susceptibility by age group should incorporate more than two age groups. The current study did not find significant differences in decision-making or scam susceptibility between younger and older adults, but participants were separated into only two age groups. Recent research has shown that individuals between the ages of 45 and 54 are more likely than adults over 54 to report having been a victim of financial fraud (Anderson, 2016). Further research is needed to understand the role of age, decision-making, and other characteristics in scam susceptibility.

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Table 1

*Participant Demographics as a Function of Age*

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | “younger” ≤ 64  (*N* = 134) | “older” > 64  (*N* = 147) | *p*-value |
| Age (years) |  |  | < .001 |
| Mean | 36.49 | 68.80 |  |
| Standard deviation | 10.33 | 3.83 |  |
| Minimum | 21 | 65 |  |
| Maximum | 64 | 82 |  |
| Sex |  |  | 0.863 |
| Male | 46.3% | 40.1% |  |
| Female | 53.7% | 59.2% |  |
| Declined to state | ---- | .7% |  |
| Education |  |  | 0.019 |
| No high school/GED | .7% | .7% |  |
| High school/GED | 14.9% | 25.2% |  |
| Associate’s | 17.2% | 20.4% |  |
| Bachelor’s | 50.0% | 38.8% |  |
| Master’s | 14.2% | 10.2% |  |
| Professional (MD, JD, etc.) | 2.2% | 2.7% |  |
| Ph.D. | .7% | 2.0% |  |
| Ethnicity |  |  |  |
| White | 67.9% | 85.0% |  |
| Latino/a | 5.2% | 0.7% |  |
| Black | 9.0% | 6.8% |  |
| Native American | 1.5% | 1.4% |  |
| Asian | 11.9% | 2.0% |  |
| Mixed Race | 4.5% | 3.4% |  |
| Declined to state | ---- | 0.7% |  |

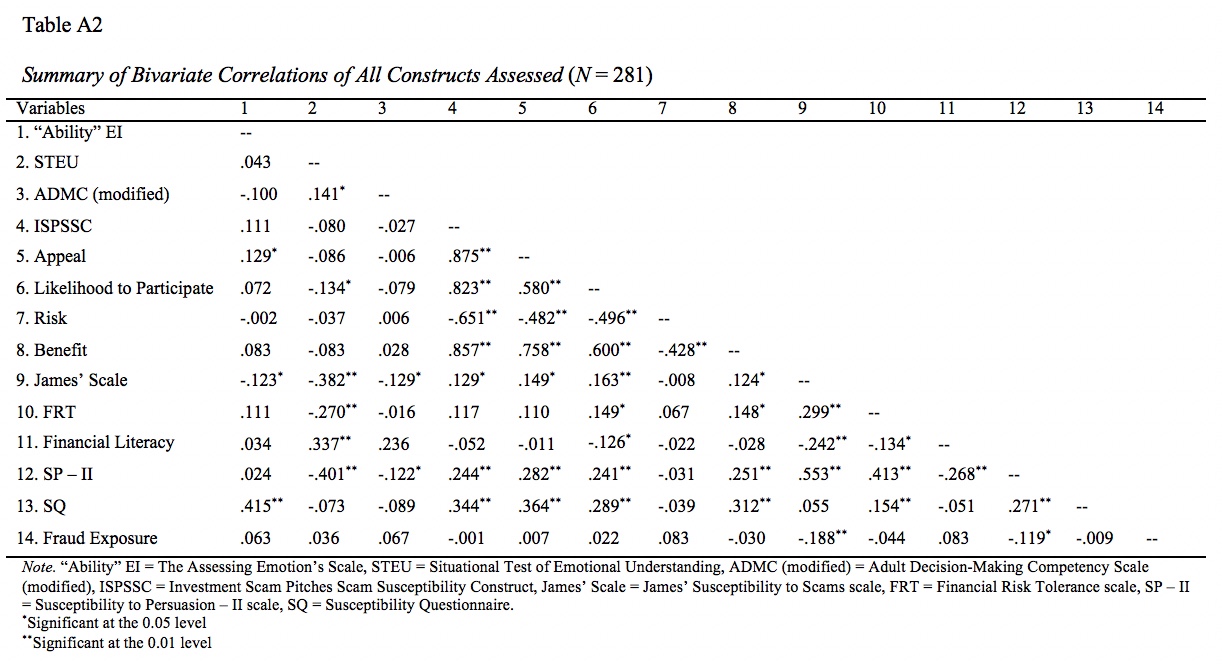


Table 3

*Means and Standard Deviations of Study Variables as a Function of Age* (*N* = 281)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | “younger” ≤ 64  (*N* = 134) | | “older” > 64  (*N* = 147) | |  |  |
| Measure | *M* | *SD* | *M* | *SD* | *t*(279) | *p* |
| “Ability” EI | 4.02 | 0.55 | 4.02 | 0.53 | -0.102 | .920 |
| Emotional Understanding | 0.52 | 0.18 | 0.57 | 0.15 | 2.67 | .008\*\* |
| ADMC (modified) | 4.03 | 0.58 | 4.03 | 0.49 | -0.051 | .959 |
| ISPSSC | 4.50 | 1.21 | 4.31 | 1.21 | -1.31 | .191 |
| Appeal | 4.65 | 1.49 | 4.69 | 1.46 | 0.194 | .846 |
| Likelihood to Participate | 4.40 | 1.32 | 4.10 | 1.49 | -1.74 | .083 |
| Risk | 4.09 | 1.43 | 4.64 | 1.52 | 3.082 | .002\*\* |
| Benefit | 4.78 | 1.34 | 4.62 | 1.24 | -1.071 | .285 |
| James’ Scale | 2.50 | 1.06 | 1.96 | 0.87 | -4.664 | <.001\*\* |
| Financial Risk Tolerance | 3.55 | 1.36 | 3.07 | 1.21 | -3.137 | .002\*\* |
| Financial Literacy | 0.81 | 0.28 | 0.83 | 0.25 | 0.740 | .460 |
| SP-II (Modic) | 3.75 | 0.71 | 3.44 | 0.63 | -3.868 | .000\*\* |
| SQ (Kaptein) | 5.16 | 0.74 | 5.08 | 0.69 | -0.951 | .342 |
| Fraud Exposure | 3.15 | 1.80 | 3.94 | 1.41 | 4.111 | <.001\*\* |

*Note.* Investment Scam Pitches Scam Susceptibility Construct (ISPSSC) = MEAN(Appeal, Likelihood to Participate, reverse coded Risk, Benefit), SP-II = Susceptibility to Persuasion – II scale, SQ = Susceptibility Questionnaire.

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

**.006**

**-. 112\*\***

**Scam Susceptibility**

**.158\*\***

**-.294 \*\*\***

**(-.269)\*\*\***

**-.112**

**Age Group**

**(0 =Younger; 1 = Older)**

**-.003**

**.044**

**-.217\*\*\***

**-.073**

*Figure 1*. Standardized paths showing that measures of EI and decision-making mediate the relationship between age group and scam susceptibility. Total effects are shown in parentheses (*N* = 281).

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

**. 040**

**.006**

**Susceptibility to Persuasion**

**.158\*\***

**-.322\*\*\***

**(-.169)\*\*\***

**-.144\***

**Age Group**

**(0 =Younger; 1 = Older)**

**-.003**

**.044**

**-.226\*\*\***

**-.039**

*Figure 2*. Standardized paths showing that measures of EI and decision-making mediate the relationship between age group and susceptibility to persuasion. Total effects are shown in parentheses (*N* = 281).

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

**-.101**

**.246\*\*\***

**. 116\***

**.006**

**Financial Risk Tolerance**

**R**

**r**

**.158\*\***

**-.227\*\*\***

**(-.120)\***

**-.100**

**Age Group**

**(0 =Younger; 1 = Older)**

**-.003**

**.044**

**-.185\*\***

**-.015**

*Figure 3*. Standardized paths showing that measures of EI and decision-making mediate the relationship between age group and financial risk tolerance. Total effects are shown in parentheses (*N* = 281).

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

1. With 134 participants in one group and 147 participants in the other group, a two-tailed *t-*test with alpha = 0.05 attained power of 80% for a small effect size (d = 0.34). (G\*Power: Faul, Erdfelder, Lang, & Buchner, 2007). [↑](#footnote-ref-1)
2. A similar analysis including education as a covariate produced comparable results. [↑](#footnote-ref-2)
3. Education was not a significant predictor of scam susceptibility, *r*(279) = .04, *p* = .552. A similar analysis controlling for education produced comparable results. [↑](#footnote-ref-3)