Profiling Victims of Investment Fraud: Mindsets and Risky Behaviors

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Millions of Americans are targeted by investment scams, resulting in billions of dollars lost each year. Previous research indicates that investment fraud victims are more likely to be male, white, and married, and to have higher socioeconomic status compared to the general US population, but little research examines what behaviors and mindsets differentiate them from other investors. A telephone survey was administered to 214 investment fraud victims and 813 general investors recruited using random digit dialing. Based on the opportunity model of predatory victimization, the aim was to identify differences in investment behaviors and psychological mindsets that may affect exposure to investment scams and make individuals more attractive and susceptible targets. In addition to being older and male, victims were more materialistic than general investors and were more frequent stock traders, and purchased more investments sold through unsolicited calls, emails, television advertisements, or "free lunch" seminars, but were less likely to invest based on a social network member's recommendation. As more retirees begin to take on managing their retirement assets, many may be tempted by unreasonable investment returns promised by unscrupulous brokers. Findings point to specific areas where investor education is needed to counteract poor investment decision-making and risky mindsets.

Keywords: opportunity model of predatory victimization, materialism, investment scam, remote investing

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INTRODUCTION

Scams and fraud are estimated to cost Americans billions of dollars annually (Deevy and Beals 2013), and investment scams are typically the most costly (DeLiema, Mottola, and Deevy 2017). They often involve unregulated penny stocks, oil and gas exploration, commodity pools, real estate investment trusts, or other opportunities where the promised returns are far too good to be true. The FINRA Investor Education Foundation (FINRA 2013) found that 86% of American survey respondents aged 40 and older had been solicited to participate in a likely investment scam, and 11% of those targeted lost money.

Deceiving investors is one of the oldest forms of white-collar crime, yet the first empirical studies on investment fraud published in the 1970s and 1980s focused predominantly on perpetrators and the tactics of white-collar criminals (Benson 1985; Stotland 1977) and less on understanding the factors associated with victimization.

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Studies profiling investment fraud victims began in the 1990s when researchers found that Ponzi scheme victims tended to be older and more affluent, and to have fewer alcohol- and mental health–related problems than victims of violent crimes (Ganzini et al. 1991). Researchers later conducted telephone surveys with investment fraud victims recruited from contact lists provided by law enforcement. These surveys independently verified that victims were predominantly male, married, and middle-aged or older. They also had higher income, education, and financial literacy, but only in relation to adults recruited from the general US population, many of whom do not invest at all (Pak and Shadel 2011; Consumer Fraud Research Group 2006; FINRA Foundation 2007).

Early research laid a foundation by identifying the sociodemographic traits associated with investment fraud, but the majority of Americans who share the same profile—white, financially sophisticated, married, older, and male—are not persuaded to invest money in a bogus opportunity. Theory-based research is needed to move victim profiling beyond demographic characteristics by identifying the psychological mindsets and behaviors associated with being a victim of investment fraud.

Theoretical Background

Routine activity theory (Cohen and Felson 1979) and lifestyle/exposure theory (Hindelang, Gottfredson, and Garofalo 1978) are frequently cited as explanatory frameworks for fraud victimization (DeLiema 2018; Holtfreter, Reisig, and Pratt 2008; Pratt, Holtfreter and Reisig 2010). Sociologists Cohen, Kluegel, and Land (1981) combined these perspectives in the "opportunity model of predatory victimization," which argues that the odds of victimization depend on how attractive the target is to offenders, the target's exposure and proximity to offenders, and lack of guardianship/oversight to prevent or stop the crime. According to this framework, sociodemographic characteristics alone do not predict victimization. Rather, social status influences lifestyles, behaviors, and daily routines that differentially affect the likelihood of interacting with offenders in risky environments.

Cohen et al. (1981) state that the concept of *target attractiveness* comprises material and/or symbolic desirability and inability to resist victimization. Some studies have used income as a proxy measure for target attractiveness (Franklin et al. 2012; Leukfeldt and Yar 2016), but income is largely unobservable to predatory brokers who use mass marketing strategies to lure as many potential investors as possible. Another common assumption is that older adults are more attractive targets because they have more wealth relative to younger cohorts and are easier to deceive. The present study extends the operationalization of target attractiveness to include psychological mindsets about money and investing that may be related to inability to resist bogus investment opportunities, after we control for income and age.

Behaviors That Affect Exposure to Motivated Offenders

According to the opportunity model, behaviors that increase exposure to motivated offenders in unsupervised settings increase the odds of victimization (Cohen et al. 1981). Previous research has shown that making purchases from unknown vendors in response to unsolicited phone calls, emails, letters, television advertisements (Holtfreter, Reisig, and Pratt 2008), and online shopping (Pratt et al. 2010) increase the likelihood of being targeted by fraud. These mass marketing tactics allow fraudsters to conceal their identities and to solicit thousands of targets at low cost (Holtfreter, Van Slyke, and Blomberg 2005). Remote selling is also a tactic used by unauthorized brokers to peddle fraudulent, risky, and unregulated investment opportunities (Barnes 2017). We hypothesize that victims will be more likely than general investors to be exposed to fraud after investing in a product marketed via television advertisement, "free lunch" seminar, phone call, or email from an unknown broker.

Another investment behavior that may increase exposure to motivated offenders is engaging in frequent stock trades. Historical analysis of stock market returns shows that frequent stock turnover within a portfolio yields lower returns in the long run (Malkiel 2015), yet many people cannot resist the impulse to try to "time" the market. In the context of investing, frequently buying and selling stocks, defined here as "active trading," is a behavioral marker of low self-control. It also presents repeated opportunities for a target to be introduced to deceptive brokers pitching "get rich quick" schemes. Holtfreter et al. (2008) found that having low self-control increased the likelihood of fraud victimization once the target was exposed. In another study of adults age 60 and older, respondents who scored higher on a measure of impulsivity/low self-control were more likely to be victims of consumer products and services fraud (Reisig and Holtfreter 2013).

Fraud often spreads through "affinity networks" where people are recruited to participate by someone they know and with whom they share certain characteristics (Fairfax 2001). This is especially common in pyramid schemes, Ponzi schemes, and other frauds that promise opportunities to generate wealth. We hypothesize that compared to general investors, fraud victims will be more likely to have made an investment based on a recommendation from a close friend, relative, church member, or neighbor.

Mindsets That Affect Target Attractiveness

The old maxim "You cannot cheat an honest man" is a common rationalization fraudsters use to justify acts of

deception and to defer blame to their victims (Blum 1972). Even victims have used the term *greedy* to explain why they complied with a scam in spite of feeling suspicious that the investment opportunity might be illegal (Trahan, Marquart, and Mullings 2005). In qualitative interviews, fraud victims described daydreaming about coming into money and were careless in how they used their current funds (Blum 1972). Trahan et al. (2005) also found that the majority of Ponzi scheme victims invested because they wanted more money and a better retirement although most of them were already well off.

The stereotype of the greedy fraud victim is pervasive, yet virtually no quantitative evidence has been collected to support this classification. Materialism, or acquisition centrality, is a concept similar to greed (Mussel et al. 2018) that guides people's choices and conduct, including their patterns of consumption (Richins and Dawson 1992). Research has shown materialistic thoughts are linked to failures in self-control, particularly for those oriented at wealth and status (Kim 2013). Indeed, fraudsters use *phantom fixation*—dangling promises of wealth and rewards—to activate material values (Consumer Fraud Research Group 2006; DeLiema, Yon, and Wilber 2016). A typical claim is that the investment will provide guaranteed returns with little to no risk of loss.

Fraud perpetrators intentionally operate outside of the regulatory environment, where it is easier to swindle investors without getting caught. A 2016 survey by the Financial Conduct Authority (FCA) in the UK found that over a quarter (27%) of investment fraud victims age 55 and older lost money because they bought an unregulated product through an unauthorized broker. FINRA Foundation (2007) also reported that investment fraud victims were significantly more likely than general investors between ages 55 and 64 to show interest in and to own risky investments such as commodities, futures/options, promissory notes secured by real estate, private investments in internet startups, and sale and leaseback contracts. Believing that unregulated investments offer more profitable returns may make a person a more attractive/susceptible target. This mindset works against one of the central fraud prevention tips offered by securities regulators: always deal with authorized brokers and registered investments. Yet the appeal of "getting in on the ground floor" and participating in a "rare investment opportunity" is so persuasive that some investors ignore the red flags.

A 2013 study by the FINRA Foundation found that individuals who reported losing money in an investment scam had higher openness ratings on a personality inventory compared to nonvictims. Similarly, Pak and Shadel (2011) found that investment fraud victims engaged in significantly more sales situations and expressed more interest in common persuasion statements than the general population. Investors who are eager for money-making opportunities may be easily misled.

Independently Verified Fraud Victims versus Self-Report Victims

The majority of victim profiling studies use general population samples where survey respondents are asked to self-report fraud victimization (Anderson 2013; FINRA 2013; Titus, Heinzelmann, and Boyle 1995). Studies that recruited victims whose victim status was independently verified by law enforcement have shown that many victims do not acknowledge being defrauded. FINRA Foundation (2007) found that only half of 101 victims admitted losing money due to being misled or defrauded by a broker, and Pak and Shadel (2011) found that only 36.9% of known victims age 55 and older acknowledged fraud in a phone interview. Given the frequency of underreporting fraud in population-based surveys, particularly among older victims, those who willingly self-report fraud may have different characteristics than independently verified victims. Therefore, the current study surveyed independently verified, "known" investment fraud victims and compared them to adult investors in the general US population. Both the known victims and the general investors were asked whether they have ever experienced investment fraud. We examine whether risk factors differ between self-reported and known victims, and whether there are differences in disclosure by respondent age.

Previous surveys that used independently verified investment fraud victims compared them to probability samples of American adults, not screening for those who also invest (Pak and Shadel 2011; Consumer Fraud Research Group 2006). Respondents who do not own investments systematically differ from investors on important characteristics that would affect the risk of exposure to investment fraud. In the present study, only investors aged 18 and older were eligible to participate in the comparison sample.

Study Objectives

Based on the opportunity model of predatory victimization (Cohen, Kluegel, and Land 1981), this study seeks to examine factors beyond demographic characteristics to determine whether known fraud victims engage in more risky investment activities that increase exposure to motivated offenders and whether they hold beliefs that make them more attractive targets compared to investors recruited from the general US population. Specifically, we hypothesize that compared to general investors, known investment fraud victims engage in more stock trading, remote investing, and investing based on recommendations from people in their social networks, which increase exposure to predatory brokers, even after we control for frequency of solicitations. Second, we predict that fraud victims will be more materialistic, more interested in new investment opportunities, and more likely to agree that unregulated investments

yield higher financial returns, thus making them more attractive and susceptible targets. These behaviors and mindsets may increase their odds of revictimization.

METHOD

Sample

The names and landline telephone numbers of 8,096 investment fraud victims were identified in 29 US fraud cases filed against companies that subsequently declared bankruptcy. The victims, who had previously invested money with these companies, were named as creditors in the bankruptcy filings. Scams included online commodity futures trading, gold coins, real estate, ATM leaseback, oil and gas exploration, and life insurance death benefit investment schemes. Of the 8,096 victims listed, only 1,164 had working telephone numbers and answered the phone. Eighteen percent ($n = 214$) agreed to be interviewed. Among the remaining 950 individuals who were contacted but who did not participate, 25 did not speak English, 308 stated that there was no such person living in the home (wrong number), and 617 refused to be interviewed.

General investors ($n = 813$) were recruited from lists of eligible landline telephones in the US using random digit dialing. They were screened for whether they currently invest or have ever invested or owned securities such as stocks, bonds, or mutual funds, either through an employer or on their own. The control sample was not intended to be nationally representative and data were not weighted. Approximately 34% of those screened were ineligible because they were not investors, and a small percentage did not speak English. The overall response rate for general investors was 11.6%.

Survey

A 49-question, 15 minute survey (web appendix A) was developed based on in-depth interviews with investment fraud victims and consultation with experts from academia and government agencies that investigate fraud. Computer-assisted telephone interviews were conducted between September 23 and October 17, 2016. All respondents were told that the purpose of the survey was to better understand people's thoughts and opinions on investing. In addition to demographic questions, respondents were asked about their investment behaviors, beliefs, and experiences. Survey development and testing was funded by AARP and administered by Opinion Access Corporation and MKTG Inc. Data was provided by AARP.

Measures

Dependent Variables. The dependent variable was whether the respondent was a known investment fraud victim (1) or an investor from the general US population (0). In a supplemental analysis (web appendix B), we tested factors associated with self-reporting investment fraud based on response to the following item: "Has anyone ever convinced you to invest your money in something by promising high or guaranteed rates of return, but the investment turned out to be worthless or you suspect your money was never invested at all? This could include investments in stocks, bonds, commodities, real estate, precious metals, and other types of investments that you were falsely told would increase in value over time" (self-report fraud victim = 1).

Independent Variables. Demographic characteristics were coded dichotomously: race/ethnicity (non-Hispanic white = 1), sex (male = 1), marital status (married/partnered = 1). Income was divided into four categories: Less than $35,000 (reference category); $35,000–74,999; $75,000–124,999; and $125,000 or more. Education was dummy-coded into three categories: high school or less (reference category), some college, and college graduate or more.

Investment solicitations were measured as the frequency of phone calls, emails, and letters the respondent received in a typical month from solicitors pitching an investment opportunity. Response options were 0 = Don't get any [calls/emails/letters] at all; 1 = Between 1–5 [calls/emails/letters]; 2 = Between 6–9 [calls/emails/letters]; 3 = Between 10–15 [calls/emails/letters]; and 4 = More than 15 [calls/emails/letters]. Responses to the three solicitation methods were summed (range = 0–12; mean = 2.2, standard deviation (SD) = 2.4.

Remote investing was measured with four questions that asked respondents whether they had ever purchased an investment product based on an offer (1) advertised in a television commercial; (2) in an email; (3) promoted during a "free lunch" or dinner seminar; and (4) presented in a phone call from someone they didn't know. Responses to these four items were summed (range = 0–4; mean = 0.30, SD = 0.61). Nearly a quarter of the sample had invested remotely in response to one or more of these solicitation methods.

Respondents were asked whether they ever made an investment based primarily on the recommendation of (1) a close friend, (2) a church member, (3) a relative or family member, and (4) a neighbor. Forty percent responded "yes" to one or more of these questions. Responses were summed (range = 0–4; mean = 0.49, SD = 0.68).

Respondents were also asked how many times per year they sold one stock and bought another or invested in something new. Response options were: 0 = "None," 1 = "1–2," 2 = "3–4," 3 = "5–6," and 4 = "7 or more." Higher values indicate more active trading (mean = 1.15, SD = 1.38).

Mindset questions were asked on a scale of 0 to 3, where 0 = "strongly agree/very likely," 1 = "slightly agree/somewhat likely," 2 = "slightly disagree/slightly unlikely," and 3 = "strongly disagree/very unlikely." Items were reverse-

coded such that higher values indicate greater levels of agreement/likelihood. A factor analysis was performed with all mindset items to aid in data reduction (web appendix C). Eight factors were retained with eigenvalues ranging from 3.24 to 0.15. Items loading on two of the factors—materialism and interest in new investment opportunities—were used in the regression analysis. Other factors were used to construct composite measures and were modeled in an expanded analysis presented in web appendix D.

To minimize participant burden in the phone interview, materialism was estimated using just three items adapted from Richins' (2004) 18-item Material Values Scale and modeled as a latent construct to account for measurement error (factor loadings presented in web appendix C). Selection of the three items was informed by previous analysis of investment fraud pitches and victim interviews (Shadel and Pak 2007). Items were modified slightly (in italics; original phrasing in brackets) to address the specific domain of investment fraud: (1) "I admire people who own a significant number of *financial assets* [expensive homes, cars, and clothes]"; (2) "Some of the most important achievements in life include acquiring *money* [material possessions]"; and (3) "Buying things gives me a lot of pleasure." A confirmatory factor analysis (web appendix C) indicates that the materialism measure is unidimensional.

Interest in new investment opportunities was modeled as a latent construct (factor loadings in web appendix C) comprising four survey items: (1) "I am interested in receiving investment offers because you never know when something great might come along"; (2) "I don't mind taking chances with my money, as long as I think there's a chance it might pay off"; (3) "I like to keep my eyes and ears open for emerging investment opportunities that no one has heard about yet"; and (4) "If your favorite media organization advertised a particular type of investment, how would that influence your interest in such an investment?" While the first three items were asked on an agreement scale, response options for the last item were asked on a likelihood scale. Confirmatory factor analysis (web appendix C) indicates that the measure is unidimensional.

To determine whether victims might be more likely than general investors to look outside of conventional investment products because of the potentially higher returns of unregulated products, respondents were asked their agreement with: "The most profitable financial returns are often found in investments that are not regulated by the government" (mean = 1.26, SD = 1.06, range 0–3). This item did not load with other items in the factor analysis.

Analysis

Data were cleaned and coded using SAS 9.4. Approximately one-third of respondents in both groups declined to report their annual household income, so logistic regression was conducted using MPlus 7 specifying the MLF option and using a full-information maximum likelihood (FIML) approach to ensure that all cases were included regardless of missing responses. Model diagnostics were conducted to rule out collinearity that could bias parameter estimates. Zero-order correlations between the independent variables (web appendix E) were all less than Pearson's $r = .37$ and variance inflation factors (VIF) were very low, ranging from 1.06 to 1.36, suggesting that multicollinearity would not impact the regression estimates (Fox 1991).

Categories of independent variables were added sequentially to the logistic regression models. The first model included demographic characteristics only. The second model included demographic characteristics and risky investment behaviors controlling for frequency of investment solicitations (targeting). Mindset variables were added in the third model. To examine whether significant effects change, we performed a secondary analysis by entering variables into the models in reverse order—mindset characteristics first and demographic characteristics last (web appendix F). Using the same independent variables, we analyzed additional models using self-reported investment fraud as the dependent variable (web appendix B).

RESULTS

Sample Characteristics

Demographic characteristics are presented in table 1. More than 80% of known investment fraud victims were male compared to 42.2% of general investors ($\chi^2 = 101.3$, $p < .001$). Age differences were also statistically significant ($t = -5.65$, $p < .001$). Mean age of known victims was 70.7 years (SD = 12.2) and 64.8 years for general investors (SD = 13.6). More than 68.3% of victims and 63.3% of general investors were married, 15.4% of victims and 13.0% of general investors were widowed, 8.2% of victims and 8.9% of general investors were divorced or separated, and 8.2% of victims and 9.0% of general investors were never married ($\chi^2 = 2.37$, $p = .499$). Both groups were majority non-Hispanic white ($\chi^2 = 7.16$, $p = .067$). Differences in educational attainment were not significant ($\chi^2 = 5.13$, $p = .400$). More than half of the fraud victims and general investors attended college or had an advanced degree (62.2% and 55.8%, respectively). Differences in household income were also not significant ($\chi^2 = 7.97$, $p = .335$). Forty-one percent of general investor households made $50,000 or more per year compared to 46.2% of known victim households. More general investors were working full-time (30.7% compared to 24.3% of victims), whereas a higher percentage of known victims were working part-time (14.5% compared to 9.7%). Significantly

TABLE 1

SAMPLE CHARACTERISTICS OF KNOWN VICTIMS ($N = 214$) AND GENERAL INVESTORS ($N = 813$)

Variable	Known victims	General investors	*t*-test / χ^2	*p*-value
Age (mean (SD))	70.7 (12.2)	64.8 (13.6)	–5.65	<.0001
Gender (% male)	80.8%	42.2%	101.34	<.0001
Race/ethnicity			7.16	.067
non-Hispanic white	89.0%	86.4%		
Hispanic	3.0%	2.5%		
Black	2.0%	6.7%		
Other	6.0%	4.5%		
Marital status			2.37	.499
Married/partnered	68.3%	63.3%		
Widowed	15.4%	13.0%		
Divorced/separated	8.2%	8.9%		
Never married	8.2%	9.0%		
Education level				
High school or less	17.3%	17.8%	5.13	.400
Some college	18.7%	24.2%		
College	27.6%	28.0%		
Advanced degree	34.6%	27.8%		
Household income			7.97	.335
Less than $24,999	8.9%	7.9%		
25,000– $49,999	12.6%	16.8%		
$50,000–$74,999	14.0%	13.5%		
$75,000–$124,999	19.6%	14.3%		
$125,000 or more	12.6%	12.7%		
Missing	32.2%	34.9%		
Employment status			15.85	.027
Full-time	24.3%	30.7%		
Part-time	14.5%	9.7%		
Retired	52.2%	47.7%		
Unemployed	1.9%	1.0%		
Other	2.8%	7.7%		

more victims were retired than general investors: 52.2% versus 47.7% ($\chi^2 = 15.85$, $p = .027$).

Demographic, Behavioral, and Mindset Characteristics Associated with Victimization

Table 2 presents the results when fraud victimization (known victim vs. general investor) is regressed on demographic, behavior, and mindset characteristics. In model 1 (demographic characteristics only) every year increase in age was associated with a 4% increase in the odds of being an investment fraud victim (odds ratio [OR] = 1.04, $p < .001$). Males were over five times as likely to be victims as females (OR = 5.50, $p < .001$). Race/ethnicity, education, marital status, and household income were not significant.

In model 2, known victims engaged in significantly more stock trades per year than general investors (OR = 1.56, $p < .001$), and received a higher frequency of mail, phone, and email investment solicitations (OR = 1.10, $p = .021$). For every additional remote investment made, the odds of being a known victim increased by 64% (OR = 1.64, $p < .001$), even after we controlled for frequency of solicitations. Contrary to predictions, the odds of being a known victim *decreased* by 30% for every investment that was made following a recommendation from a friend, relative, neighbor, or church member (OR = 0.70, $p = .017$). After we adjusted for these behaviors, males were approximately two and a half times more likely to be victims than females (OR = 3.64, $p < .001$), and age remained statistically significant (OR = 1.04, $p < .001$).

In model 3, the latent construct of materialism was positively associated with being a known fraud victim (OR = 2.25, $p = .047$), as was greater agreement that unregulated investments are more profitable (OR = 1.27, $p = .043$). Interest in new investment opportunities (OR = 0.62, $p = .229$) was not significantly associated with known victimization.

Web appendix F presents the results when variables are added to the models in reverse order. Only materialism was significantly associated with being a victim of investment fraud (OR = 1.88, $p = .029$), but after risk behaviors were added in model 2, agreeing that unregulated investments are more profitable was statistically significant (OR = 1.24, $p = .025$).

Web appendix D presents an expanded model with additional mindset and behavior characteristics from the survey: financial satisfaction, loneliness, interest in high returns, checked the background of a broker, and signed up for the Do Not Call list. Although some variables were significantly correlated with investment fraud victimization, none were significant predictors in the model. The addition of these variables reduced the significance of the materialism construct, favorable attitudes toward unregulated investments, and investments based on a recommendation from a social network member (all $p < .1$), although the magnitude of the effect sizes was nearly the same as in the simplified model presented in table 2.

Self-Reported Investment Fraud

Less than half (47.6%) of the known victims and 18.5% of general investors responded that they had ever lost money in a potential investment scam. As shown in web appendix B, similar factors were associated with self-reporting investment fraud. These included being older, male, remote investing, and greater trading and solicitation frequency. Of the mindset variables, only materialism was associated with self-reporting investment fraud in model 3 (OR = 1.93, $p = .048$). Known victims were nearly two and a half times as likely to self-report victimization compared to general investors (OR = 2.43, $p < .001$).

We found no significant age differences between victims who correctly acknowledged losing money in an investment scam and victims who responded that they had never been victimized using a post hoc multivariate analysis of variance (ANOVA). While known victims were

TABLE 2

FACTORS ASSOCIATED WITH INVESTMENT FRAUD VICTIMIZATION (KNOWN VICTIM = 1; $N = 1{,}027$).

	Model 1: Sociodemographic characteristics			Model 2: Behaviors			Model 3: Mindsets		
Sociodemographic characteristics	**Odds ratio (95% confidence interval)**		***p-value***						
Age	1.04	(1.03, 1.06)	***.000***	1.04	(1.02, 1.06)	***.000***	1.04	(1.02, 1.06)	***.000***
Sex (male=1)	5.50	(3.76, 8.04)	***.000***	3.64	(2.33, 5.68)	***.000***	3.89	(2.31, 6.55)	***.000***
Non-Hispanic white	1.38	(0.81, 2.35)	*.233*	1.39	(0.68, 2.86)	*.370*	1.51	(0.69, 3.29)	*.306*
Married/partnered	1.22	(0.85, 1.80)	*.318*	1.13	(0.72, 1.78)	*.605*	1.28	(0.76, 2.17)	*.359*
High school or less (ref)	—	—	—	—	—	—	—	—	—
Some college	0.78	(0.46, 1.35)	*.379*	0.67	(0.35, 1.26)	*.209*	0.67	(0.34, 1.34)	*.261*
College or more	1.05	(0.65, 1.71)	*.839*	0.82	(0.46, 1.45)	*.483*	0.89	(0.48 1.66)	*.717*
Income ≤ $35,000 (ref)	—	—	—	—	—	—	—	—	—
Income $35,000–74,999	0.87	(0.49, 1.55)	*.631*	0.83	(0.41, 1.67)	*.596*	0.67	(0.31, 1.44)	*.302*
Income $75,000–124,999	1.33	(0.71, 2.49)	*.381*	1.27	(0.60, 2.69)	*.539*	1.00	(0.44, 2.30)	*.997*
Income ≥ $125,000	1.10	(0.54, 2.21)	*.800*	0.72	(0.31, 1.69)	*.450*	0.56	(0.22, 1.42)	*.222*
Exposure to offenders/risk behaviors									
Frequency of solicitations				1.10	(1.02, 1.19)	***.021***	1.08	(0.99, 1.18)	*.075*
Trading frequency				1.56	(1.36, 1.77)	***.000***	1.63	(1.38, 1.94)	***.000***
Remote investments				1.64	(1.23, 2.19)	***.001***	1.51	(1.08, 2.10)	***.015***
Invested based on recommendation				0.70	(0.51, 0.97)	***.032***	0.68	(0.47, 0.98)	***.036***
Target suitability/investment mindset									
Materialism							2.25	(1.01, 5.02)	***.047***
Interest in new investment opportunities							0.62	(0.29, 1.35)	*.229*
Favorable attitudes toward unregulated investments							1.27	(1.01, 1.59)	***.043***

significantly older than general investors ($F(1, 947) = 18.4$, $p = < .001$), differences in mean age by self-reporting fraud were not significant ($F(1, 947) = 0.66$, $p = .417$).

DISCUSSION

This study sought to identify differences in mindsets and behaviors between known investment fraud victims and adult investors from the general US population, controlling for demographic characteristics and the frequency of investment solicitations. Although data were collected retrospectively, findings point to several factors that might increase the probability of revictimization. Mainly, known victims engaged in significantly more risky investment behaviors that could increase their exposure to offenders via frequent stock trading and purchasing investments remotely from unknown brokers. Although investment fraud perpetrators typically do not reside in close proximity to their targets, these results provide support for the *exposure* principle of the opportunity model of predatory victimization. Values such as materialism and favorable attitudes toward unregulated investments may also contribute to target attractiveness by increasing susceptibility to common persuasion messages; however, these factors were not as strongly associated with being a victim as the investment behaviors.

The opportunity model argues that crime is more likely to occur when offenders and targets interact in the absence of capable guardians. Engagement with fraudulent offers is usually facilitated by mass marketing and remote sales where oversight is minimal. Reisig and Holtfreter (2013) found that mail order and infomercial purchasing was associated with fraud victimization among adults age 60 and older, and Pratt, Holtfreter, and Reisig (2010) found that buying something online increased the odds of being targeted by online fraud by 377%. Ours is the first study to find that known victims were more likely than general investors to invest after receiving a sales pitch over the phone, in an email, after attending a "free lunch" seminar, or after watching a television commercial, adding to the evidence that investment fraud victims engage in behaviors that increase unguarded exposure to fraudsters. Yet, contrary to expectations, making an investment based on a recommendation from a close friend, relative, neighbor, or church member was associated with being a general investor rather than a known victim. Prior literature suggests that some investment scams spread through affinity networks, as investors do not exercise the necessary due diligence when they are recruited by those they already trust (Fairfax 2001). It is possible that the investment schemes represented in this study's victim sample did not use those methods of investor recruitment.

This study extended the principle of target attractiveness to examine psychological mindsets that may be associated with investment fraud susceptibility. Compared to general investors, known victims were significantly more materialistic and also more likely to agree that unregulated investments yield higher returns. Perpetrators exploit these psychological orientations by promising unbelievable

returns that are not possible with conventional investment products. Individuals who are especially motivated by money may ignore the improbability of these promises or believe that the potential upsides outweigh potential losses. These beliefs could also signal overconfidence and a tendency to discount risk, mindsets that make investors particularly attractive targets for predatory brokers.

Contrary to expectations, known victims did not express more interest in new investment opportunities compared to general investors, after we adjusted for investment behaviors. Because data were collected after fraud occurred, victims may have become more skeptical of these investment opportunities following their financial loss. A prospective longitudinal study is needed to capture respondents' mindsets and investing behaviors before fraud. Experimental studies could also shed light on causality by experimentally activating mindsets like materialism and testing whether participants are subsequently more likely to accept investment offers that promise higher-than-average returns.

Consistent with prior research (Pak and Shadel 2011; FINRA 2013; Graham 2014; Shadel and Pak 2007), we found that, after adjusting for other characteristics, known victims were three times more likely to be male. Results mirror FINRA Foundation's (2013) finding that males were more willing to take on investment risk than females and were also more likely to be targeted, to engage with the solicitors, and to lose money in a potentially fraudulent offer. Results of post hoc mediation analyses (Baron and Kenny 1986; Sobel 1982) indicate that trading frequency, remote purchasing, and solicitation frequency partially mediate the effect of gender on likelihood of investment fraud victimization (web appendix G). While purely speculative, overconfidence in investing among males (Bhandari and Deaves 2006) may lead them to underestimate the risk of engaging in these risky behaviors that increase exposure to fraudsters. For women, lower confidence in investment decisions (Estes and Hosseini 1988) may motivate them to avoid risky investments. A recent study using nationally representative data found that there was no association between self-rated financial knowledge, financial literacy, gender, and self-reported investment fraud victimization (DeLiema et al. 2018). So while there is no concrete evidence that overconfidence drives gender differences in investing, Barber and Odean (2001) found that men traded stocks 45% more than women over a six-year period, and as shown in the present study, frequent trading mediated the relationship between gender and likelihood of investment fraud. More research is needed on the effects of overconfidence and how it relates to gender differences in trading.

Age was positively associated with being a known victim of investment fraud. This finding is consistent with psychology and neuroscience studies that report positive associations between age and susceptibility to scams (Gamble et al. 2014; Han et al. 2016; James, Boyle, and Bennett 2014), but it could also be a product of living longer and thus having more time to experience fraud. For example, among the general investor sample, age and self-reported investment fraud were positively associated. This finding differs from prior fraud research using random probability samples that measured fraud prevalence in the previous year (Anderson 2013; Titus et al. 1995).

This study affirms that fraud is vastly underacknowledged by victims of any age. A 2007 FINRA Foundation study also found that only 50% of known victims stated that they were misled or defrauded by a broker. Given the low rate of recognition of fraud, it is likely that most of these incidents were not reported to consumer protection agencies. Investor education campaigns should aim to reduce the stigma of investment fraud so that victims feel empowered to report to law enforcement and to speak out about their experience.

Aside from older age and being male, no other demographic characteristics significantly differentiated the known victims from the general investors. Prior studies have found that investment fraud victims were more likely to be white, to be married, and to have higher socioeconomic status (Pak and Shadel 2011), but those studies compared investment fraud victims to the general US population. In the present study, only investors were eligible to participate in the comparison group. These individuals likely share a similar demographic profile with known investment fraud victims.

Limitations and Future Research

The primary limitation of this study is that data are retrospective and cross-sectional and so we cannot conclude that risky investment behaviors and psychological mindsets drive fraud victimization. One possible direction is that materialism and preference for unregulated investments promote engagement in risky investment behaviors, which in turn increase an individual's exposure to investment fraud, but an alternative pathway is that victims become more active traders and express higher material values as a result of wanting to make up for lost financial ground. Additional research should investigate whether investment behaviors and mindsets are stable or whether individuals modify their investment strategies and beliefs following victimization.

Only three items from the full material values scale were used in the survey to minimize participant burden in the phone interview. This reduced the reliability of the measure. Future data collection methods should allow for longer questionnaires and explore the relationship between victimization and dispositional greed using the measure developed by Seuntjens et al. (2015), which may have greater ecological validity. Also, participant nonresponse/refusal was high using telephone recruitment.

Although 29 different types of fraudulent investments were represented in the victim sample, these do not represent the total universe of investment schemes. Also, this victim identifying information, including data on the company they invested with, was used solely for recruitment purposes and not linked to survey data. Data on fraud type is needed to determine whether victims' mindsets and behaviors vary according to the type of investment purchased, the amount of money lost, and the number of times the person was involved in scams.

One hundred forty-nine (18.5%) general investors reported that they had experienced investment fraud in the past. Prior research showed that framing a survey in a criminal context significantly reduced fraud disclosure among women and older adults (Beals et al. 2015), so sensitive terms like *fraud*, *scam*, *victim*, and *financial loss* were omitted from the self-report item in the survey. Without these clarifying terms to improve the item's face validity, some general investors may have misreported investments that performed poorly but were not actually fraudulent (false positives), and others may have failed to report true incidents of investment fraud (false negatives). Because removing general investors who self-reported fraud did not strongly affect the regression estimates (see web appendix H), they were included in the general investor comparison sample. Further refinement of the self-report measure is needed to improve item sensitivity and specificity.

Implications

Although survey data were collected after victimization, results are broadly consistent with the opportunity model of predatory victimization in the context of investment fraud. Known victims expressed higher material values, were more likely to agree that unregulated investments yield higher returns, and engaged in more risky investment behaviors, yet they were less likely to invest based on a recommendation from someone in their social networks. Together, these factors may have increased victims' exposure to motivated offenders and their attractiveness as targets, but prospective data is needed to examine directionality.

To prevent poor financial decisions, previous research has shown that financial literacy training is more effective if it focuses specifically on the financial decision at hand and includes information on the motives and methods of influence agents (Bolton, Bloom and Cohen 2011). Similarly, the Persuasion Knowledge Model (Campbell and Kirmani 2000; Friestad and Wright 1994) argues that a target's assessment of a sales interaction depends on prior knowledge about the product or offer, ability to recognize persuasion attempts, and beliefs about the influence agent's motives. To prevent revictimization, investor education should focus specifically on the risks of unregulated investment products, the pitfalls of active trading, and the tactics that rogue brokers use to solicit and deceive their targets, such as remote selling and promising unrealistic returns. Given that exposure is one of the key correlates of victimization, state and federal regulators should restrict how companies can advertise and sell investment products using TV advertising, cold calls, mass mailers, and "free lunch" seminars.

DATA COLLECTION INFORMATION

The authors jointly developed the survey measure that was administered by Opinion Access Corporation and MKTG Inc. using computer-assisted telephone interviews between September 23 and October 17, 2016. Data was provided by AARP to the first author, who conducted analyses at the Stanford Center on Longevity. The final article was jointly authored.

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