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Why are older adults victims of fraud? Current knowledge and prospects regarding older adults' vulnerability to fraud

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ABSTRACT

Older adults are disproportionately targeted by various kinds of fraud, which result in irreversible economic losses and great psychological distress. Over the past years, researchers have conducted systematic research on the prevalence, under-reporting, and research methods of fraud victimization in older adults. Research paradigms regarding fraud victimization among older adults have mainly included cognitive, emotion regulation and motivation, and comprehensive paradigms. Factors shown to influence fraud victimization among older adults include cognitive decline, emotional regulation and motivational changes, their overly trusting nature, psychological vulnerability, social isolation, risk-taking, and a lack of knowledge and information regarding fraud prevention. Based on a review of the literature, future research can benefit from constructing a comprehensive fraud victimization theory, improving research methods, extending existing research, exploring physiological mechanisms of elderly fraud, and strengthening prevention and intervention efforts.

KEYWORDS

Older adults; financial fraud; victim; risk factors

Introduction

Older adults are disproportionately targeted by fraud attempts (Holtfreter, Reisig, Mears, & Wolfe, 2014), and fraud is the most significant and frequent form of crime that older adults may experience (Carcach, Graycar, & Muscat, 2001). Typically, fraud can have a staggering and devastating impact on their psychological, physiological, and economic well-being. Each year millions of older adults are victimized by fraud of many kinds and forced to take on unexpected, irreparable financial losses (Federal Trade Commission, 2013). Conservative estimates suggest that the annual financial loss by older adult financial fraud victims is at least $2.9 billion dollars in the United States (MetLife, 2011). Furthermore, the victimization associated with fraud is often extremely traumatic, which typically causes individuals to experience serious physical and mental health consequences, including major depression,

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generalized anxiety disorder, anger, shame, remorse, functional somatic complaints, and tranquilizer use (Button, Lewis, & Tapley, 2014; Ganzini, McFarland, & Cutler, 1990).

The absolute scope of financial fraud will escalate with the growing population of older adults (Burnes et al., 2017; Ross, Grossmann, & Schryer, 2014). Both financial abuse and financial fraud are considered as forms of financial exploitation; however, our knowledge about financial exploitation of older adults is mostly limited to the category of financial abuse – in which the abusers are mostly family members, such as adult children, spouses, or other close relatives. Little is known about the other major category of financial exploitation – financial fraud, in which the abusers are typically defrauded by predatory strangers (Burnes et al., 2017). We conducted an electronic search using "elderly", "elders", "older adults", "senior, fraud", "frauds", "scam", "scams", "white collar", or "financial exploitation" as keywords in various combinations from the most important academic database (viz. *EBSCO, PubMed, PsycINFO, Medline, Criminal Justice Abstracts, Social Work Abstracts*, and *CNKI*). This study will briefly provide a comprehensive overview of the literature regarding the prevalence, research methods, research paradigms, and risk factors associated with financial fraud among older adults, which will help extend and improve future research on fraud victimization among older adults, as well as inform fraud prevention and intervention efforts.

Related issues regarding elderly fraud

Prevalence and under-reporting of elderly fraud

The first step involved in preventing and intervening against elderly fraud is determining its prevalence and incidence. One study found that, on average, 9.1% of older adults aged 55 to 64, 7.3% of those aged 65 to 74, and 6.5% over the age of 75 become victims of consumer fraud in the U.S. every year (Anderson, 2013). Similarly, it is estimated that 4.0% of older adults aged 75+ fell victims to fraud, based on the Crime Survey for England and Wales (CSEW) data (Office for National Statistics, 2016). A recent meta-analysis study revealed that overall pooled elder financial fraud prevalence was 5.6% among community-dwelling and cognitively intact older adults (Burnes et al., 2017), providing sobering evidence of the potential scope of the problem.

However, accurate estimates regarding the prevalence and incidence of elderly fraud will likely remain unknown as many older adults are unware of or unwilling to report fraud (AARP, 1993; Pak & Shadel, 2011). Most victims of consumer fraud are unwilling to report their experience of victimization to authorities (Titus, Heinzelmann, & Boyle, 1995; Van Wyk & Mason, 2001). The study by AARP (2003) found that only 27% of known fraud victims with a loss of at least $1000 acknowledged their victimization. Furthermore, the distinction between different types of fraud may also contribute to the underreporting issue, since fraud is not a unitary construct but, rather, encompasses a broad scope of different crimes (Lea, Fischer, & Evans, 2009; Titus et al., 1995). For example, the meta-analysis study (Burnes et al., 2017) showed that the types of fraud considered in empirical studies ranged from three to twenty-two. Correspondingly, there was also a substantial variability in prevalence, victim characteristics and risk factors documented across studies. In addition, estimates regarding the prevalence of fraud vary in different sample populations, reporting periods (e.g., the past year, three years, or five years), survey design, and question wording (Deevy & Beals, 2013).

Research methods: surveys and experiments

Existing data regarding the prevalence and incidence of fraud is mainly derived from consumer complaints and representative surveys collected by official organizations (Deevy & Beals, 2013). Representative surveys provide prevalence estimates based on the overall victimization experience of the individuals sampled, including victims who have not reported their experience to authorities, so the deception rate is more accurate. Accordingly, over the past two decades, various agencies have launched representative surveys in which adults of different ages are asked whether they have experienced consumer fraud in the recent past, which is typically defined as the year preceding the survey. For example, many large-scale aging studies have paid great attention to fraud victimization among older adults, including the Health and Retirement Study (HRS; Lichtenberg, Sugarman, Paulson, Ficker, & Rahman-Filipiak, 2016), which calculates the prevalence of elderly fraud in the U.S. by asking respondents whether they have experienced fraud during a specific period of time. Similarly, consumer complaint data estimates the incidence of fraud based on official statistics and victims' active reports (Ross et al., 2014). Understandably, consumer complaint agencies possess the ability to report on various types of fraud derived from much larger samples than are available in representative surveys.

Nevertheless, data obtained from consumer complaints and retrospective reports are susceptible to many biases, research on fraud has also begun to involve field and laboratory experiments. For example, Scheibe et al. (2014) conducted a field experiment to test whether forewarning could protect vulnerable older consumers (i.e., former victims of fraud) by pitching a mock scam two or four weeks after participants were warned. Similarly, Kircanski et al. (2018) also used a laboratory design to investigate whether eliciting strong emotional states would increase older adults' susceptibility to fraud. These experimental studies may help provide potential explanation for why some older adults fell into kinds of frauds.

Research paradigms on elderly fraud

Existing research regarding fraud victimization among older adults has focused on a variety of vulnerability factors; however, theories that provide causal explanations regarding the high prevalence of elderly fraud are quite rare (Jackson & Hafemeister, 2013; Lee & Geistfeld, 1999; Lee & Soberon-Ferrer, 1997). At present, research in the field of fraud victimization among older adults includes cognitive paradigms, emotional regulation and motivation paradigms, and comprehensive paradigms.

Cognitive paradigms

Many researchers attribute the high incidence of elderly fraud to age-related declines in cognitive functioning (James, Boyle, & Bennett, 2014) and mild cognitive impairment (Han, Boyle, James, Yu, & Bennett, 2016), because the decision-making process necessary to actively recognize, resist, or avoid fraud activities requires complex, higher-order cognitive functions that may decline disproportionately among older adults (Burnes et al., 2017; Scheibe et al., 2014). Aging research has demonstrated that cognitive decline occurs with advancing age, including deficits in working memory, processing speed, abstract reasoning, decision-making, response inhibition, comprehension, problem-solving, and arithmetic/financial abilities. These deficits in cognitive processes – often referred to as fluid intelligence – negatively impact older adults' ability to successfully navigate the marketplace, as many of these cognitive functions (e.g., information processing ability) are necessary to fully understand and evaluate product information (John & Cole, 1986; Moschis, 1994). Older adults' working memory declines with age and the reduced capacity may cause them to search less information compared to younger adults (Mather, 2006; Yoon, Cole, & Lee, 2009), and instead they tend to depend on simpler or heuristic strategies to make their decisions (Mata, von Helversen, & Rieskamp, 2010), including the use of non-compensatory strategies (Pu & Peng, 2016), which may make it difficult for older adults to successfully recognize deceitful sales practices.

There is evidence that mild cognitive impairment (MCI) or dementia is associated with impaired financial decisions (Marson et al., 2000), and may be at increased risk of falling victim to fraudulent schemes (Cohen, 2008; Han et al., 2016; Tueth, 2000). Financial decision-making abilities are one of the earlier changes that can accompany cognitive decline within individual with MCI or dementia (Marson et al., 2000). Financial incapacity is typically a cornerstone assessment in cases of financial exploitation, including financial fraud (Lichtenberg, 2016). Indeed, avoiding fraud can involve a complex array of cognitive abilities to fully understand the information, appropriately evaluate the opportunity, detect the subtleties of deception, and formulate strategies to escape the situation. Thus, individuals with cognitive impairment and/or potential financial incapacity may not possess the information-processing abilities necessary to detect deception (Lee & Geistfeld, 1999; Stiegel, 2012), which may explain why some older adults are repeatedly victimized by fraud of many kinds. In addition, a vast array of measures have been developed to assess financial competence (i.e. Financial Capacity Instrument, Marson et al., 2000; Assessment of Competence for Everyday Decision-Making, Lai et al., 2007; Financial Literacy Assessment, Lusardi & Mitchell, 2011a) and vulnerability to fraud (i.e. Consumer Vulnerability to Fraud, Lee & Soberon-Ferrer, 1997; The Susceptibility to Scams Scale, James et al., 2014).

Emotion regulation and motivation paradigms

Avoiding fraudulent or deceptive behaviors depends on the ability to successfully navigate complex, potentially conflict-ridden, social dynamics (Spreng, Karlawish, & Marson, 2016). Theories within the field of emotion regulation and motivation represent another research perspective commonly used to explain why many older adults are vulnerable to fraud. Socioemotional selectivity theory maintains that the future time perceived by individuals become increasingly more limited as they age, which causes them to prioritize different social goals as a function of these changes in perceived future time (Mather & Carstensen, 2005). This shift from knowledge-related goals to emotionally meaningful goals is accompanied by a concomitant tendency to pay greater attention to positive emotional information (Carstensen & Mikels, 2005). Specifically, when people realize that their future time is limited, they tend to avoid negative emotional experiences and pay more attention to the positive, which has been termed the "positivity effect" in the aging process (Carstensen, 2006; Mather & Carstensen, 2005). Many scholars have emphasized the role of the "positivity effect" in potential explaining older adults' vulnerability to financial fraud, because this preference for positive information than negative information may result in poor quality decision (Carstensen & Mikels, 2005).

In line with these findings, research demonstrates that older adults pay more attention to positive or neutral information as opposed to negative information, and their memory is more accurate for positive versus negative emotional stimuli as well (Mather & Carstensen, 2003). Moreover, even when experiencing interpersonal conflict, older adults tend to experience fewer negative emotions than younger adults (Birditt, Fingerman, & Almeida, 2005; Charles & Carstensen, 2008). Accordingly, it is reasonable to speculate that the following factors may contribute to older adults' vulnerability to financial fraud. First, older adults pay greater attention to the potential rewards or profits that have been falsely promised to them by perpetrators, which give them a positive emotional experience while processing the fraudulent information. As a result, they are likely to ignore implausible aspects of the fraud scenario that would otherwise elicit doubt. Second, given that older adults are more drawn to positive emotions (Carstensen, Fung, & Charles, 2003), perpetrators may frequently take advantage of this positive emotional bias and establish an emotional connection with these older victims. Therefore, despite its benefits, this "positivity effect" can dangerously impact older adults' financial decision.

Comprehensive paradigms

The phenomenon of fraud victimization among older adults is clearly a result of a combination of individual, contextual, and social factors. Though old age in and of itself does not necessarily predispose an individual to exploitation, certain factors that arise from age-related physical, cognitive, and social circumstances can contribute to greater vulnerability (Pinsker, McFarland, & Pachana, 2010). Greenspan, Loughlin, and Black (2001) have put forth a social vulnerability model that explains how vulnerability to financial exploitation involves an interaction between personal competence factors (e.g., everyday intelligence, communication skills, physical competence, and motivation/personality) and environmental factors. Given that their model was originally developed in relation to young adults with developmental disorders, subsequent research has adapted this framework for use with older adults. In particular, on the basis of the work by Greenspan et al. (2001), Pinsker et al. (2010) developed a social vulnerability model to explain financial exploitation in older adults, which – similar to the original model – also maintains that credulity and gullibility play a central role. They adapted some of the personal competence factors from the original model and also included additional factors to increase the relevance of their model to older adults, resulting in the following six personal competence factors: general intellectual functioning, cognitive functioning, physical functioning, motivation/personality traits, social intelligence, and social skills. Although this comprehensive model provides a theoretical framework for fraud victimization among older adults, the model is not specific to financial fraud, and it does not consider the influence of the external social context.

Possible factors affecting elderly fraud victimization

Many scholars have been working to determine demographic and individual risk factors for fraud victimization among older adults to accurately identify those who are at greater risk. Several key risks have been found to contribute to fraud vulnerability, such as an overly trusting nature, psychological vulnerability, social isolation, risk-taking, and basic knowledge/informational literacy. These risk factors may lead older adults more vulnerable to fraud by influencing their decision-making or changing their emotion regulation/motivation. Accurate identification of relevant determinants of financial fraud will provide a crucial basis for early detection and construction of a comprehensive theory.

Overly trusting nature

An overly trusting nature has been implicated as a primary factor in older adults' vulnerability to fraud or scams, and cultivating older adults' trust, affection, and loyalty is a primary means by which to hook them into scams and financially exploit them. Many studies have confirmed that older adults are generally more trusting than their younger counterparts (Kirchheimer, 2011; Li & Fung, 2012) and give priority to emotionally meaningful goals (Lang & Carstensen, 2002). This tendency for older adults to overly trust others, especially strangers, may also make them vulnerable to falling victim to fraud, scams, or swindles (Castle et al., 2012; Greenspan et al., 2001). Furthermore, older adults' higher levels of trust toward strangers may reflect actual changes in their brain circuitry. The neuroimaging work by Castle et al. (2012) examined the neural basis of trust and found evidence for age-related differences in the anterior insula. Older adults showed muted activation of the anterior insula to untrustworthy faces, whereas younger adults did not show this diminished response. The findings indicate that differences in neural circuitry may confer older adults' vulnerability to fraud.

Psychological vulnerability

Older adults with depression, low social needs fulfillment (Lichtenberg, Stickney, & Paulson, 2013; Lichtenberg et al., 2016), negative life events (Consumer Fraud Research, 2006), and/or social isolation (Olivier, Burls, Fenge, & Brown, 2015) exhibit a strong psychological demand to connect with others, including strangers, which allows them to be more easily targeted by con artists. For example, Lichtenberg et al. (2016) found that psychological vulnerability, which they define as a combination of depression and poor fulfillment of social needs, can longitudinally predict new cases of fraud, with individuals who are most vulnerable exhibiting a twofold likelihood of being defrauded. A similar study by Lichtenberg et al. (2013) also found that older adults with psychological vulnerability were approximately three times as likely to be victims of fraud, thus highlighting the importance of considering psychological vulnerability in determining susceptibility to fraud.

Social isolation

Social isolation is often considered a risk factor for vulnerability to fraud in older adults, because isolated elderly may engage perpetrators in a misguided attempt to cultivate social connections (Lachs & Han, 2015). Studies have found that older adults who experience social isolation are more likely to fall victim to telemarketing fraud (Consumer Fraud Research, 2006), and loneliness is a major risk factor for fraud, especially among older adults (Alves & Wilson, 2008; Lee & Geistfeld, 1999). Con artists may show false concern for lonely older adults and develop “friendships” with them over the telephone to win their trust and further lure them into the fraud scenario (Cohen, 2008). Older adults may be ideal targets for “hunters,” as many of them live alone following the death of a spouse, and the resulting isolation may make them more willing to communicate with strangers, including motivated perpetrators who can satisfy their social needs. In addition, considering the protective factors of spouse or family members, older adults who live alone are more easily targeted by con artists because they often do not receive effective supervision from family members.

Risk taking

The potential victims’ financial risk-taking behavior may increase the likelihood of fraud victimization, as victims of fraud are more likely to be risk-takers (Consumer Fraud Research, 2006; Holtfreter, Reisig, & Blomberg, 2006; Pak & Shadel, 2007). Research has suggested that attitudes toward risky prospects have bearing on the perceived plausibility of a scam, as there is evidence that the lower the perception of risk, the more likely consumers are to read materials or listen to sales agents whom they do not know (Consumer Fraud Research, 2006), and purchase a desired item (Penz & Kirchler, 2006; Schoepfer & Piquero, 2009). Moreover, victims of telemarketing fraud have been found to exhibit similar investment behavior as that of gamblers, such that they are more likely to rely on luck when making investments and invest more money in the hope of recovering any losses (Gross, 1999). There is growing evidence that older adults show reduced negative arousal to anticipated loss (Samanez-Larkin et al., 2007), thus they may engage in riskier financial decision making, and in turn make more suboptimal decisions during risk-seeking (Denburg et al., 2007; Samanez-Larkin et al., 2007). Therefore, these age-related changes may increase the likelihood of elderly fraud victimization due to decreases in anticipated losses.

Basic knowledge/informational literacy

Older adults' vulnerability to fraud, as a result of poor fraud awareness, may stem from their low knowledge literacy and inability to effectively screen information (Boyle et al., 2013; Duan & Zhao, 2016; Gamble, Boyle, Yu, & Bennett, 2014). A 1996 study conducted by AARP on older telemarketing fraud victims found that 68% of victims reported that it was difficult to recognize fraud when they encountered it., For example, the fact that older adults fall victim to financial fraud may be closely related to their low financial literacy (DaDalt, 2016; Lusardi & Mitchell, 2011a), especially in light of the fact that consumer fraud generally does not require complex calculations to reveal its deceptiveness (Ross et al., 2014). Previous studies revealed that older adults consistently display the lowest level of financial illiteracy (Lusardi & Mitchell, 2011a, 2011b), however, older adults still overestimate their own financial knowledge (Lusardi, 2012), and older adults' confidence in their financial decisions does not decrease with age (Finke, Howe, & Huston, 2016). This information illiteracy may make it more difficult for them to recognize the "red flags" of scams.

Research prospects

Existing research has made great progress in identifying the prevalence of, characteristics of, and factors that influence fraud victimization among older adults, however, empirical research in this area is still relatively weak and have often drawn mixed results (Consumer Fraud Research, 2006; Holtfreter et al., 2006; Pak & Shadel, 2007), largely because of different research methodologies, under-reporting, various types of fraud, and different theoretical underpinnings used across the literature. In the next section, we will turn to future research agenda to rapidly advance progress toward the urgent objective.

Construction of a theory of fraud victimization

One of the greatest challenges in the study of fraud in older adults is the development of an overarching theoretical framework that draws on and extends earlier models. The first step to stopping and preventing fraud victimization among older adults is to accurately identify those who are at high risk. At present, quite a few studies have focused on exploring various risk factors of fraud victimization among older adults (James et al., 2014). However, existing theories that provide causal explanations regarding older adults' vulnerability to fraud are inadequate and not robust enough to capture the complexity of financial fraud (Jackson & Hafemeister, 2013; Lee & Geistfeld, 1999; Lee & Soberon-Ferrer, 1997), and largely limit our ability to understand the prevalence and scope of this issue. Namely, while cognitive aging theory, socioemotional selectivity theory, and the social vulnerability model all provide partial explanations of fraud victimization in older adults, they fail to accurately capture the full phenomenon. Given that fraud victimization in older adults is a complex problem that involves age-related declines in physical functioning, cognitive impairments, distinct emotional and motivational priorities, differences in trust, specific psychological needs, and situational contexts, a more comprehensive framework may advance the research of financial fraud field by adequately integrating more factors impacting vulnerability, developing more robust markers of financial fraud risk, improving the methodologies to examine fraud prevalence, constantly extending the research field, exploring the physiological basis, and further paving the way for early interventions of elderly fraud.

Improvement and diversification of methodological issues

Given that cross-sectional research based on retrospective reports may fail to truly reflect older adults' victimization experience and prohibit us from drawing causal conclusions about fraud victimization, longitudinal and/or experimental designs may help provide a more comprehensive picture of fraud victimization among older adults. In particular, longitudinal designs can test causal relationships between fraud vulnerability and its determinants and outcomes by testing the temporal precedence of this vulnerability (Boyle et al., 2012; Lichtenberg et al., 2016). So far longitudinal studies in this area are relatively rare, and there exists little information as to how age-related changes in biological, psychological, and societal variables influence susceptibility to fraud. However, experimental studies in this area have increased over the past few years, which have allowed for a more systematic understanding of the reasons that older adults are more vulnerable to fraud (Yoon et al., 2009). For example, Kircanski et al. (2018) found that eliciting strong emotional states increased older adults' intention to purchase falsely advertised items. Similarly, work by Fischer, Lea, and Evans (2013) distributed an experimentally manipulated simulated scam to examine why so many people respond to worthless scam offers. However, these experimental studies tend to sacrifice external validity in favor of internal validity. More fruitful insights regarding fraud vulnerability among older adults are likely to emerge in more natural or ecological contexts if multiple research methods are employed. Future research may need to combine multiple research methods that involve case analyses, cross-sectional designs, longitudinal designs, field experiments, laboratory experiments, and neuroimaging paradigms.

Extension of existing research

Although the phenomenon of elderly fraud has attracted significant attention, largely based on media attention and anecdotal evidence, over the past several years, it has become clear that systematic research has lagged behind intense public interest and lay commentary on the matter (Lea et al., 2009). Firstly, the distinction of different types of fraud is crucial, as different individuals may be more vulnerable to different types of fraud, and victim characteristics and risk factors also vary widely as a function of offense type (AARP, 1996). General surveys that collapse across all scam types tend to find that older consumers experience less victimization, whereas studies that analyze victims by scam type (e.g., telemarketing, investment, and lottery fraud) tend to find disproportionately larger numbers of senior victims (Deevy, Lucich, & Beals, 2012; Pak & Shadel, 2007). However, many studies do not distinguish between different types of fraud, which obscures many of the distinguishing characteristics between victims and non-victims when analyzing victims as a whole (Deevy et al., 2012; Lea et al., 2009; Pak & Shadel, 2007). Thus, future research is necessary to segment victims by fraud types to precisely estimate the nature and extent of fraud victimization among older adults, as well as to accurately profile victims (Pak & Shadel, 2007).

Secondly, individual difference within older adults is one of neglected issues in the field of fraud victimization, that is, why are some older adults victimized and others not? Such research is important because there is considerable heterogeneity within elder fraud victims, and not all older adults who are targeted by con artists become scam victims. For example, prior fraud victimization predicts whether older adults are vulnerable to future incidents of fraud victimization (Titus, 2001), and it is likely that certain traits make some older adults more vulnerable to fraud than others. Furthermore, the complexity of fraud victimization among older adults means that the determinants are not a result of a single factor but, rather, a combination of multiple risk factors, such as social, psychological, and contextual variables (Peterson et al., 2014; Spreng et al., 2016). It is thus necessary to examine elderly fraud within a social-psychological context and to integrate levels of analysis and determinants to better understand the interplay between biological, psychological, and societal variables in fraud victimization, by which to identify older adults who are at high risk and, thus, more susceptible to fraud (DeLiema, 2015). The concomitant concern is that these factors tell us little about why they are victimized (Van Wyk & Mason, 2001), and it is imperative to extend this work by examining the potential mechanisms that underlie these multiple risk factors.

Thirdly, current research on fraud victimization among older adults emphasizes the vulnerabilities conferred by age-related cognitive and neural declines but fails to consider the existence of possible protective factors (Ross et al., 2014). For instance, Grossmann, Na, Varnum, Kitayama, and Nisbett (2013) found age-related increases in wise reasoning, and this wisdom that has been accumulated across the lifespan should help older adults make quick and high-quality financial decisions. It is thus reasonable to expect that well-informed older adults should not be easily tricked by fraud. Indeed, as many proverbs say, “The older, the wiser” and “Old birds are not to be caught with chaff.” In addition, research has failed to consider everyday factors, such as age-related changes in income and purchasing behaviors, which can affect the prevalence of consumer fraud across various age groups (Ross et al., 2014). Once these protective factors are identified, further exploration is needed to examine how multiple risk and protective factors interact with each other to affect fraud victimization among older adults. In addition, some researchers (e.g., DeLiema, 2015; Friedman, 1998) have emphasized that perhaps a more promising avenue for future research involves studying older adults who have successfully evaded fraud attempts. Such research can help consumers more effectively avoid scams by providing information regarding the characteristics, influential factors, coping strategies, and escape mechanisms of older adults who have not fallen victim to fraud.

Exploration of the physiological basis of fraud vulnerability

Further research is also needed to explore the biological underpinnings that confer vulnerability to fraud in older adults, as well as the interplay between biological, social, physiological, and contextual factors. Appraisal of socially conveyed information in domains relevant to financial fraud has been consistently associated with medial prefrontal cortex structure and function, such as trustworthiness judgement (Castle et al., 2012; Spreng et al., 2017) or deceptive advertising (Asp et al., 2012; Denburg et al., 2007). Castle et al. (2012) found that older adults showed muted activation of the anterior insula to untrustworthy faces compared with younger counterparts, which may partially underlie older adults’ vulnerability to fraud. Meanwhile, Asp et al. (2012) emphasized the role of the ventromedial prefrontal cortex (vmPFC) in the doubting process. Individuals with vmPFC damage exhibited higher credulity and purchasing intention for products featured in misleading advertisements. In the context of fraud, Spreng et al. (2017) identified structural and functional brain differences associated with financial fraud in older adults. Aged-related brain changes, that is, cortical thinning in the anterior insula and posterior superior temporal cortices, leading to altered socio-emotional functioning, may increase vulnerability to financial fraud. In view of the complexity of fraud victimization, the integrity of ventral frontal brain regions and their connections to other brain systems should be on the future agenda (Spreng et al., 2016), particularly in situations of potential fraud perpetrated by strangers.

Strengthening intervention research

Although the media has increasingly reported on cases involving elderly fraud, and law enforcement agencies have reinforced efforts to crack down on criminals and increase publically available knowledge regarding fraud, these measures are not sufficient to effectively protect older adults from being scammed (DeLiema, 2015). Thus, prevention strategies should target modifiable risk factors, like unmet care and support needs (DeLiema, 2015), that allow for the development of more feasible intervention plans that effectively improve older adults' fraud detection ability, coping strategies, and escape plans. For example, forewarning is one method that has been found to effectively reduce fraud susceptibility in older adults (Scheibe et al., 2014). In addition, preventive measures should focus on increasing the reporting rate of fraud victimization among older adults (Mason & Benson, 1996), emphasizing the importance of filing a report in a timely manner, and increasing awareness regarding formal reporting channels. Studies have found that individuals who know how to report fraud are less vulnerable and are more likely to report incidents of victimization to authorities (Copes, Kerley, Mason, & Van Wyk, 2001).

Conclusions

There is strong debate about whether older adults experience higher levels of fraud victimization than other age groups (Burnes et al., 2017; Ross et al., 2014); however, older adults represent a distinct demographic group differentiated by a unique set of age-associated fraud vulnerabilities (Burnes et al., 2017; Lachs & Han, 2015). What, however, is most puzzling is that these frauds, in most cases, do not require complex cognitive ability (Fischer et al., 2013; Ross et al., 2014) to simply recognize that these offers are too good to be true and then get the "uh-oh" signal. Therefore, many scholars have been working to determine why many well-informed older adults cannot seem to recognize these deceitful, worthless sales practices and likely fall victim to various kinds of fraud.

Future research on vulnerability to fraud among older adults should derive from and contribute to the development and refinement of a comprehensive, idiosyncratic fraud victimization theory, which links critical and influential factors to each other, such as in the above discussion of physical, cognitive, emotional/motivational, temperamental, and situational factors. To fully understand the potential reasons for older adults' vulnerability to fraud, future studies should address extensions of existing research including discriminating between different kinds of fraud, delineating heterogeneity within older victims, integrating multifactorial risk/protective factors, mapping of physiological markers of older victims and implementing multi-method-oriented designs. Future studies can help to accurately identify high-risk older adults who are vulnerable to fraud victimization, and may thus help in the design of early warning mechanisms or interventions aimed at protecting older adults from being scammed.

Conflicts of interest

none

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