

**A Review of Scam Prevention Messaging Research:
Takeaways and Recommendations**

**Scams Against Older Adults Advisory Group
Scam Prevention Research Committee Report**

April 2024

The following is a list of the leadership and members participating in the Scam Prevention Research Committee.

Committee Leadership

Emma Fletcher, Federal Trade Commission*
Andy Mao, United States Department of Justice*
Hector Ortiz, Consumer Financial Protection Bureau*
Patti Poss, Federal Trade Commission*
Mel Trumpower, International Association of Better Business Bureaus
Gerri Walsh, Financial Industry Regulatory Authority*

Committee Members

Aaron Archer, Western Union
Laith Alattar, Social Security Administration
Ben Belton, Social Security Administration
Ashlea Bowens, United States Postal Inspection Service*
Jeremy Burke, University of Southern California, Center for Economic and Social Research
Mike Carroll, International Association of Financial Crimes Investigators
Marti DeLiema, University of Minnesota
Dan Gorin, Federal Reserve Board*
Jilene Gunther, AARP*
Marina Hodges, Blackhawk Network
Melissa Howe, NORC at the University of Chicago
Shelly Jackson, United States Department of Justice*
Ronald Long, Private Citizen
Kip Morse, International Association of Better Business Bureaus
Gary Mottola, Financial Industry Regulatory Authority*
Kim Nguyen, NORC at the University of Chicago
Nathan Olds, Walmart
Francisco Perez, University of Southern California, Center for Economic and Social Research
Rubens Pessanha, International Association of Better Business Bureaus
JerVay Rogers, United States Postal Inspection Service*
Claire Rushton, Walmart
Bridget Small, Federal Trade Commission*
Mark Solomon, International Association of Financial Crimes Investigators
Pamela Teaster, Center for Gerontology at Virginia Tech
Olivia Valdes, Financial Industry Regulatory Authority*

** Organization is a member of the Scams Against Older Adults Advisory Group.*

Note that the Committee Report is a product of the Committee, but it does not necessarily reflect the views of the individual Committee members, or their organizations, companies, or agencies.

I. Background

In 2022, the Federal Trade Commission (“FTC”) formed the Scams Against Older Adults Advisory Group (“Advisory Group”) as directed by the Stop Senior Scams Act.¹ The Advisory Group established four committees to help it accomplish its work, including the Scam Prevention Research Committee.² The Committee, made up of representatives from government, industry, academia, and other entities, aimed to identify research that could contribute to the Advisory Group’s work to stop scams from harming older adults.

The Committee looked for research to inform the goal of preventing the harm caused by scams.³ The Committee’s initial questions included: Is there empirical research showing what types of consumer education and fraud prevention messaging works best to safeguard consumers against scams? What education campaigns or warnings have been shown to work to prevent scams? What are the challenges to effective prevention campaigns and how might they be overcome? What can be learned from research drawn from other domains (e.g., health prevention messaging)?

The Committee focused on research related to consumer messaging for several reasons. First, it is an important and commonly used means to potentially disrupt scams. Many of the Committee’s members use consumer education campaigns and warnings as a key tool in fighting scams, and several of the Committee members have expertise in this area. This expertise allowed Committee members to carefully examine the body of research available on consumer messaging and identify key insights and gaps. Finally, the Committee recognized the importance of identifying gaps and limitations in the research to shine a light on the need for additional research in this area.

It is important to note that consumer education is not the only tool to fight scams. The problem must be addressed from multiple angles. Initiatives that work in the background of consumer transactions, such as by using algorithms to detect fraud, intercepting fraudulent messages before they reach consumers, and raising red flags are critically important.⁴ Further, social service programs that provide comprehensive support to people with factors associated with a greater likelihood of experiencing fraud, such as those with higher levels of debt and those who experience negative life events such as divorce, severe illness, or the death of a loved one, are also important (Anderson K. B., 2019).⁵ While this report does not address those topics, the Committee wants to call attention to the need for more publicly available research for non-messaging solutions and encourages more research in those areas. These

¹ Congress enacted the Fraud and Scam Reduction Act, Section 101, Division Q of the Consolidated Appropriations Act, 2022, Pub. L. No. 117-103 on March 15, 2022. See <https://www.congress.gov/117/plaws/publ103/PLAW-117publ103.pdf>. Subtitle A of the Act, referred to as the “Stop Senior Scams Act,” requires the FTC to create an Advisory Group comprised of various members, including those identified in the Act.

² Information about the Advisory Group and the four committees can be found at www.ftc.gov/olderadults.

³ The Committee’s work focused on scams and fraud perpetrated by strangers rather than the problem of financial exploitation by family members, caretakers, and other known individuals. These types of financial harm are very different and research studying their prevention should not be conflated.

⁴ The Advisory Group’s Technology Committee is currently reviewing some potential solutions and intends to provide more information about this topic.

⁵ The work of the Urban Institute and the Phoenix-based Area Agency on Aging, Region One serves as an example of efforts to design, implement, and evaluate comprehensive programs for older adults on resiliency in many aspects of their lives (Yahner et al., 2022).

findings build on and complement the know-how of practitioners in the field who have learned through experience what works for the communities they serve.

II. Summary

The Committee reviewed relevant research to identify findings most useful to those working on scam prevention messaging. Several key challenges were identified in the literature: 1) people do not believe scams will happen to them; 2) scammers are good at elevating emotions to disrupt critical thinking; 3) prevention messages tend to be forgotten; and 4) even in-the-moment warnings often fail.

The research suggests some strategies to overcome these challenges: 1) make messages memorable and actionable, and give reminders; 2) convey the benefits of heeding the message; 3) consider the effect of commonly held beliefs and values; 4) warn about specific types of scams and or general tactics used by scammers; and 5) optimize the design and content of in-the-moment warnings. The Committee also notes a few research-based special considerations for effective messaging to older adults, including the advantages of positive messaging for this population, their preferred messengers and messaging platforms, and the importance of testing messages with older adults.

The Committee ends this report with a call for new research. Key topics and questions for future inquiry to address gaps in the research and inform the efforts of those working in scam prevention messaging are identified.

III. Consumer Messaging Research Review

The Committee first identified relevant research and then separated into small subgroups tasked with studying particular topics areas. After finding relatively little research directly testing the efficacy of scam-prevention messaging, the Committee included public messaging research from other subject areas, such as health messaging, in its review. The Committee identified several important takeaways from the research, including key challenges to effective scam-prevention messaging, strategies that may make consumer messaging more effective, and considerations for messaging campaigns to older adults.

A. Challenges to Effective Scam-Prevention Messaging

A review of the literature showed that successful prevention messaging in any domain is inherently difficult, and scam prevention messaging presents special challenges. The Committee highlights some of the challenges from the relevant research.

1. People Don't Believe They Are Susceptible to Scams

People often think they are less likely to experience a negative event than others (Weinstein N. D., 1980). This “optimism bias” has been shown in the scam context – 83% of respondents to a survey of 2,000 adults indicated that others were more likely be scammed than themselves (Fletcher & Pessanha, 2016). Optimism bias is known to distort perceptions of personal risk (Lei et al., 2023), and is associated with a lower likelihood of seeking prevention information and talking with others about risks and prevention (Park et al., 2021). This can seriously hinder prevention campaigns.

Optimism biases have been found to be resistant to change. Messages simply informing people that they are at risk will not necessarily overcome optimism bias (Felgendreff et al., 2021; Junger et al., 2017; Weinstein & Klein, 1995). One study tested four different health risk messaging approaches and found that none of them was effective in reducing optimism bias (Weinstein & Klein, 1995). This included providing lists of risk factors in such a way that participants might recognize themselves as being at greater risk than others.

Several studies have found that personal experience with a negative event can reduce optimism bias in some situations (Helweg-Larsen & Shepperd, 2001). More limited research has shown that secondhand experiences can have a similar effect (Chapin & Coleman, 2009), suggesting that messaging that includes stories that vividly highlight people's experiences with scams may be beneficial. Messaging approaches that simulate the experience of being scammed, such as by delivering training messages when users click on links in fake phishing emails (Kumaraguru et al., 2009), are also promising.

The false narratives and stereotypes often associated with scams can contribute to the challenge of getting people to believe scams can happen to them. Elderly, unintelligent, uneducated, naïve, and gullible are words survey respondents used to describe people more likely to be scammed (Fletcher & Pessanha, 2016). These stereotypes may reinforce optimism bias as people tend to compare themselves to those thought to be especially at risk (Helweg-Larsen & Shepperd, 2001). What's more, people who experience a scam are often seen as culpable and blameworthy (Cross, 2013; DeLiema et al., 2019; FINRA Investor Education Foundation [FINRA] et al., 2022). Messaging, including language and imagery, that might perpetuate these stereotypes and beliefs should be avoided, particularly as such ideas are not supported by research or reporting data (Anderson K. B., 2019; DeLiema et al., 2022; Federal Trade Commission [FTC], 2023).

2. Scammers' Tactics Can Disrupt Reasoning

Scammers often use tactics aimed at creating a heightened emotional state. These tactics play on fear, need, excitement, and urgency, and often build on notions of scarcity (Archer, 2017; DeLiema, Volker, & Worley, 2023; FINRA et al., 2021). For example, a scam may present as a call from a "grandchild" in need of urgent help or the promise of a financial windfall. When people are in a heightened emotional state, they may lack the cognitive resources to think critically and scrutinize information, which results in poorer decisions (Loewenstein, 2000). This is consistent with the finding that a heightened emotional state increased a person's stated intent to buy falsely advertised items (Kircanski et al., 2018).⁶ Compounding the problem is the fact that scams that target large numbers of people are likely to reach some whose ability to think clearly is impaired by stress or distraction at the moment of contact (DeLiema et al., 2023).

Experimental research suggests that a heightened emotional state can disrupt the ability to recall and consider prior warnings about scams during a scam attempt (Daiku et al., 2020). One field test found that people who had been taught about scammers' tactics and the value of delaying a decision and checking things out were much less likely to later engage with a fraudulent offer (Kieffer & Mottola,

⁶ Emotional appeals are also well-studied as a conventional marketing tool (Achar et al., 2016).

2017), though it is uncertain whether the guidance to delay a decision was a contributing factor. Research also suggests that having another person available to talk with can help (DeLiema et al., 2019), perhaps by breaking through the individual's emotional state to allow them to see the situation more clearly.⁷

3. Prevention Messages May Be Quickly Forgotten

In order for prevention information to be effective it must be recalled at the time it is needed. Yet research suggests that there is a significant decay factor in people's retention of prevention messages. A study of short online text and video messages found benefits that persisted for at least three months if, and only if, a reminder was provided (Burke et al., 2022). However, after six-months, people who had received the information were no better at distinguishing between real and fraudulent investment appeals than those who did not receive that information. Similarly, attendees of an in-person information security tutorial were no better at spotting phishing emails six months later than before the training (Reinheimer et al., 2020).

Other studies have found even more rapid decay. For example, a study evaluating the effectiveness of a security awareness training found that the benefits were lost within a month (Zhang, 2018). Another small study found that unsuspecting participants who received a leaflet on technical support scams were no better at avoiding a staged technical support scam after two weeks than those not exposed to the information (Bullée et al., 2016). Those participants were also given an ID holder containing an additional warning but over half still complied with a staged technical support scam that required them to enter a number from the back of that ID.

4. In-The-Moment Warnings Often Fail

Visual warnings timed or placed to be seen at the moment a risky decision may be made are commonly used in a wide range of areas, from signs at construction sites to product warning labels and computer pop-ups. But the research on these warnings is discouraging. Strong evidence shows that people become habituated to warnings over time, and that this reduces their compliance with warnings (Anderson et al., 2016; Kim & Wogalter, 2009). Even warnings people have not seen before may be subject to habituation based on similar warnings seen elsewhere (Anderson et al., 2016).

Compliance with warnings has been found to be lower under conditions of stress (Helmick-Rich et al., 2004) and task overload (Wogalter & Usher, 1999). And contradictory information (LaRose & Rifon,

⁷ Avoiding a scam attempt entirely is, of course, the best way to avoid being swept up by emotional appeals. Messages that encourage people to take specific steps to lower their exposure may be helpful. This might include, for example, enabling call blocking services or hanging up on any telemarketing calls. Particularly in cases where people have been scammed repeatedly, campaigns that encourage them or their caregivers to place restrictions on financial accounts that limit access to money may reduce or eliminate the potential for severe financial harm (FINRA et al., 2021).

2007)⁸ or requests from a trusted source (Junger et al., 2017)⁹ may reduce the effectiveness of a warning. A recent qualitative study by DeLiema, Volker, and Worley (2023) reported that people who made gift card payments to scammers saw warning signs posted in retail stores, but were coached by scammers to ignore them. These findings point to challenges for those trying to counteract the directions of scammers who have gained people's trust and have created a state of emotional agitation.

B. Research-Based Strategies for Effective Prevention Messaging

The Committee looked for research-based strategies that support effective scam prevention messaging. The review suggests that strategies that help one person or group may be unhelpful to others. Further, the effectiveness of these strategies may vary depending on a number of factors, such as the type of scam, the tactics used, and the target audience. The Committee's review of the literature identified five takeaways that if implemented may improve the effectiveness of scam prevention messaging.

1. Make Messages Memorable and Actionable, and Give a Reminder

Studies of human cognition suggest that for people to take a newly prescribed action, the message must be both memorable and actionable at the time of the required behavior (Ratner & Riis, 2014). Messages that are distilled to core concepts and include a few simple steps anyone can carry out are likely to be more memorable and actionable than complex messages (Ratner & Riis, 2014).

Recall has been found to improve when people are able to visualize the message. Pictures used to support key points may make a message especially memorable – many studies have shown that images are far more readily recalled than words (Houts et al., 2006). Concrete language (i.e., words that can evoke a mental image) has been found to improve recall (Paivio et al., 1994; Sadoski et al., 2000). Further, when people visualize themselves performing the required steps, they may be more likely to recall those steps at key moments. For example, people who self-generated a plan for getting off a telemarketing call were found to be less responsive to a later “sting” solicitation (AARP, 2003).

Several studies suggest that making messages more interesting can improve recall (Schraw & Lehman, 2001). Factors found to increase interest include ease of comprehension, cohesion (i.e., clarity and organization), vividness (i.e., exciting and vivid details), engagement (i.e., thought-provoking, stimulating, and timely) and emotiveness (i.e., evokes an emotional response) (Schraw et al., 1995).

Reminder messages appear to act as a “booster,” improving retention of information (Burke et al., 2022; Reinheimer et al., 2020). This suggests that messages given at regular intervals may help mitigate the decay rate. But repetition may not be possible in every case, and is not without potential drawbacks. The

⁸ Larose and Rifon (2007) found that privacy warnings increased risks perceptions and decreased disclosures, but not when a privacy seal was present.

⁹ Junger et al. (2017) found that people asked by a friendly researcher in a shopping area to complete a questionnaire that requested personal information complied despite a warning at the top of each page of the questionnaire to never share personal data or bank information. People exposed to the warning were not significantly less likely to disclose their bank account number than those who were not exposed.

repetition of false claims to a group of older adults resulted in people paradoxically remembering the false claim as true (Skurnik et al., 2005). Further study is needed, but this suggests that campaigns should focus on what is true (e.g., “the government will never tell you to buy gift cards”) rather than repeating what is false (e.g., “scammers are telling people the government accepts gift cards”).

2. Convey the Benefits of Heeding the Message

Individuals may need to be persuaded of the value of the message. Research suggests people will not act to reduce their risk unless they are aware of the possible consequences of *not* doing so and believe the consequences are serious (Sheeran et al., 2014; Tannenbaum et al., 2015). Importantly, increasing an individual’s sense of personal risk has been found to be most effective when people are confident in their ability to execute the recommended actions and believe the actions will be effective (Sheeran et al., 2014; Tannenbaum et al., 2015).

Other studies have concluded that some messages are better framed in terms of what people will *gain* by acting rather than on the consequences of not acting. For example, when the required actions have a relatively certain benefit, people may be more persuaded by gain-framed messages, while loss-framed messages may be more effective when the benefits are more uncertain (Rothman & Salovey, 1997; Toll et al., 2007).

Just one scam-specific study tangentially related to increasing assessments of personal risk was identified. In a study about telemarketing scams, participants were told that they should picture a person in a black ski mask standing at the door asking for money when they answer the phone. The study found that this vivid fear-inducing imagery was not effective in preventing people from later engaging with fraudulent telemarketing offer (AARP, 2003). This is consistent with research suggesting that high fear arousal actually may reduce intent to engage in preventive behavior, making things worse, or does not change intentions (Keller & Lehmann, 2008).

3. Consider the Effect of Commonly Held Beliefs and Values

Another developing strategy is to consider how a person’s beliefs and inner narratives (i.e., mental frames) might shape their reactions when targeted by a scam. Mental frames often guide people’s reactions to experiences in their lives. A qualitative study of people who had reported a scam found that their mental frames may have influenced whether they avoided or engaged with the scam (Honick et al., 2021). These mental frames included beliefs about how people should react to authority, how wealth is acquired, the importance of appearing intelligent among others, and beliefs around the notions of order and justice. For example, the belief that asking questions shows a lack of intelligence may put people at greater risk when approached with a scam. Understanding people’s mental frames may help in developing prevention campaigns with counternarratives that strengthen decision-making skills (Walton & Wilson, 2018).

Whether a mental frame increases or decreases risk may vary by scam type. A study by AARP (2003) found that people who had lost money to lottery scams differed from those who had lost money to investment scams on factors such as likelihood of relying on their hunches or going along with the crowd.

More work is needed to develop messaging to counteract some of the deeply held views that may affect a person's response to a scam. Appealing to a positive idea or widely held value may be beneficial (e.g., being a savvy person) (Nanda, 2013; Chong & Druckman, 2007). For example, a prevention campaign might work to change people's self-perception from someone who "could never be scammed" to someone who "shrewdly evaluates each situation to ensure it isn't a scam."

4. Educate About Specific Types of Scams and General Tactics

Several studies have found that knowledge about specific types of scams can reduce the likelihood of being defrauded (AARP, 2003; DeLiema et al., 2019; Fletcher & Pessanha, 2016; Scheibe et al., 2014; Titus et al., 1995). Anti-scam messaging campaigns may struggle, though, to keep up as new scams are created (Organisation for Economic Co-operation and Development [OECD], 2005), and a reactive approach may reach people only after the scam has been circulating for some time. Further, forewarning people about one type of scam may not inoculate them against other scams. (DeLiema et al., 2023).

Studies also suggest that campaigns that give general information about how scams work, and common tactics scammers deploy can help (AARP, 2003; Burke et al., 2022; DeLiema et al., 2019; Fletcher & Pessanha, 2016; Kieffer & Mottola, 2017). And there is some limited evidence that people remember the "gist" of scam prevention messages longer than the specific details (Scheibe et al., 2014). An advantage of such skills-based approaches is that they may be protective across a range of scams and even as scams evolve over time (OECD, 2005).

No study has specifically addressed whether specific or general messaging is more effective. While both strategies are supported by the literature, whether a more general approach could be more or as effective as a specific approach is uncertain and an important research question. A combination of approaches is commonly used, and in practice, there is not always a clear dichotomy. Many scam prevention campaigns have elements of both.

5. Optimize the Design and Content of In-The-Moment Warnings

Despite the challenges with in-the-moment warnings, several studies have found that design can improve a warning's effectiveness. Simply increasing the font size of a warning has been found to help (Ebert et al., 2023). Warning messages that change in format, color, and design may be more resistant to habituation (Anderson et al., 2016; Kim & Wogalter, 2009), though this may not be possible for in-person warnings such as labels and signs. Active warnings that interrupt a task and require the user to make a decision have been shown to be more effective than passive warnings that can simply be closed (Egelman et al., 2008).

The content of a warning also matters. An experiment that tested warnings on a real-world payment platform found that warnings that gave the *appearance* of being specific to a particular user or transaction were less likely to be ignored (e.g., "The current transaction is highly likely to be deceptive . . ." or "You may be scammed . . .") than generic warnings (Wen et al., 2022). Warnings that included information about the *consequences* of ignoring the warning were found to be more effective than a

control warning that did not include this information, though only when the stated consequence was “high-threat” (Ebert et al., 2023).¹⁰

C. Special Considerations for Messaging to Older Adults

The Committee also looked for research that provided insights for effective messaging particular to older adults. Certainly, all of the challenges and strategies discussed above apply when trying to create the most effective scam prevention campaigns for people of any age. Nevertheless, there are some important takeaways that are specific to older adults.

1. Aim for Positive Messaging

A major takeaway from the messaging research, particularly with health prevention messaging studies, is the finding that older adults respond to and retain positively framed messages better than negatively framed messages (Reed et al., 2014).¹¹ Studies have shown a “positivity effect,” whereby older adults (relative to young adults) show an attention preference for positive versus negative information. Positive, emotionally meaningful information and images are better remembered and preferred (Carstensen & Hershfield, 2021). The general idea from this research is that as people’s life horizons shorten, their motivational goals shift from exploration and novelty to emotionally meaningful experiences and relationships. The research suggests that those creating scam prevention messaging for older adults should emphasize the benefits of the message rather than risks. Education campaigns and warning about scams might highlight the value of helping others with scams or otherwise provide a sense of control or agency over the problem, rather than reinforcing stereotypes or using scare tactics.

2. Test Messages

Physical and cognitive changes may affect older adults’ ability to notice and comprehend warning signs, potentially reducing their effectiveness (Rousseau et al., 1998; Yu et al., 2021). One study simulated the effects of fading and wear and tear on warning signs and found that older adults had greater difficulty than younger age groups in comprehending visually degraded warnings (Shorr et al., 2009). And researchers have found that older adults may have greater difficulty than younger adults in comprehending unfamiliar and complex warning symbols (Lesch et al., 2011). These findings point to the value of user-testing any messaging materials, particularly with older adults.

3. Choose Preferred and Trusted Information Sources

Studies have also shown that who delivers the message matters. One field experiment using print ads found that people 60 and over reported more favorable brand attitudes when products were endorsed by

¹⁰ The “high-threat” warning stated “Warning: To Prevent this site from sharing a video of your mouse movements and keystrokes with third parties, press ‘Decline’.” The “low-threat” warning told people to press “Decline” to avoid display problems with older browsers, and was no more effective than the control.

¹¹ This meta-analysis cites numerous studies including earlier foundational work (Charles et al., 2003; Mather & Carstensen, 2003).

a middle-aged rather than an older or a younger spokesperson (Bristol, 1996). Older adults perceived younger endorsers to be less credible than middle-aged and older endorsers and perceived the use of older adults in ads more negatively than those with middle-aged endorsers.

Another important consideration is the potential reach of different message delivery platforms and older adults' preferred information sources. A 2011 survey asked older adults to identify their sources of information about how to protect themselves from fraud (Mears et al., 2016). Nearly half (48%) said they got information from television, followed by magazines (26%), websites (24%), email (16%), brochure/flier (16%), and 20% "other" (e.g., newspaper). The dominance of television and the greater reliance on more traditional information sources among older adults is also supported by more recent surveys (Krantz-Kent, 2018; Nielson, 2021; Shearer, 2021). Social networks also appear to play an important role in amplifying scam prevention messages. In a survey of adults of all ages, word of mouth was identified as second only to news stories as a source of scam information, and social media ranked third (DeLiema et al., 2019).¹²

While some messaging platforms are likely to reach far more people than others, this cannot be the only consideration. Prevention efforts are likely to be most effective when they use a variety of media. Mears et al. (2016) found that older adults who learned about scams from a variety of sources were more aware of fraud prevention programs. And people who rely on specific types of media may be missed if prevention messages are not pushed out through a variety of distribution channels. Additionally, the use of a variety of channels may increase the likelihood that people will be repeatedly exposed to the same message, which may improve retention.

IV. Research Recommendations

Overall, the Committee concluded that more research that employs a wide range of designs and methods is needed to help government, industry, consumer groups, and others develop campaigns and warnings that have the best chance of succeeding in preventing scams. While messaging may not work all the time and for all people, those preparing messaging need more evidence-based guidance on how to best use their resources to make the most impact. The Committee makes several key recommendations:

Representative Studies. The Committee generally calls for more research on consumer fraud messaging that includes people of various ages, genders, races, ethnicities, cultures, education levels, income levels, cognitive abilities, and other important demographic differences. Many of the studies reviewed by the Committee were limited to a small number of participants and lacked diversity in the participant pool. Studies based on more representative samples are needed to inform the work of creating campaigns and warnings to disrupt scams affecting all members of the public. In addition, studies are needed of effective messaging that include people from populations that may face challenges in accessing and receiving scam prevention messaging, such as those with limited internet access or those with cognitive impairment.

¹² Survey respondents identified the following as sources of information about scams: news story (55%), word of mouth (41%), website (22%), social media (16%), TV/radio public service announcement (15%), in-person meeting/seminar (4%), and brochure (3%).

Message Testing. The Committee noted the difficulty of studying fraud “in the wild,” and the value of experiments, particularly those that expose participants to prevention messages and then test their resistance to a subsequent staged scam attempt.¹³ Message testing using focus groups and other qualitative methods commonly used in the marketing field is also important. And these approaches could be combined through multidisciplinary research (e.g., experimental testing of messages that have been pretested using focus groups). This would be particularly helpful in testing general prevention messages that could then be used over an extended period.

Industry Collaboration. Committee members expressed support for collaborative research with consumer-facing entities conducting transactions. For example, an embedded researcher with access to transactional data might study the effects of warning signs or text alerts. Access to real-world data would provide generalizability and make such research highly translatable to applied settings.

Scam-specific Scope. The Committee notes that researchers should take care not to conflate scams with the problem of elder financial exploitation more broadly. Scams are generally perpetrated by unknown individuals, often on a massive scale, and include many elements that are dissimilar to elder financial exploitation by family members, caretakers, and other known individuals.

Specific Areas of Research. Here are some of the specific questions stemming from the Committee’s research review:

- **Optimism Bias.** What works best to help people see the personal risk of scams and overcome their optimistic thinking that they are not vulnerable? How should practitioners present scam messaging to make sure it is heard and seen as valuable? Can messaging change the stereotypes about who is vulnerable to scams? Can vivid storytelling or other vicarious experiences overcome people’s perceptions that they do not need to engage with prevention messaging? What types of stories are most effective?
- **Memorability.** What more can practitioners do to make scam prevention messages more memorable? What works to keep people from forgetting scam prevention messaging long term? How often does a message need to be repeated to be recalled?
- **Actionability.** What specific actions should be included in an actionable message (i.e., what actions if performed most reduce risk)? Do messages that encourage people to take specific steps to lower their exposure (such as enabling call blocking and hanging up on telemarketers) make a difference in preventing scams? Do people follow the steps, and is there a way to measure the impact?
- **In-the-Moment Warnings.** How can visual in-the-moment scam warnings be made more effective? What format and placement are best – whether online, in a retail store, or at a payment

¹³ Two studies reviewed by the Committee serve as examples of how such experiments can be designed (AARP, 2003; Yu et al., 2023).

provider? What design elements (font, color, and format) and content (language and type of information) help improve a warning's effectiveness?

- **Messengers.** What types of messengers are most effective in delivering scam prevention messages? Are there special considerations when the messenger is the government or a corporation?
- **Emotional Arousal.** Are there ways to counteract the emotional arousal tactics that scammers use to cloud thinking? Can campaigns that encourage people to postpone decisions until they are in a neutral state help? Will informing people of emotional arousal as a common tactic improve their resistance?
- **General v. Specific.** Do general messages about scammers' tactics or specific messages about particular types of scams work best? Are there circumstances where one type of messaging is preferable to another? What succinct general messages might be effective in a long-term education campaign?
- **Mental Frames.** What messaging approaches can work to overcome or counteract beliefs that may make people more susceptible to certain types of scam tactics? Does appealing to widely held values (e.g., the importance of financial security to older adults) help?
- **After a Scam.** Are there any differences in what messaging is needed for those who have already been scammed? Does such messaging result in the intended behaviors such as reporting, disputing credit card charges, etc.? How does changing the language that is used lead to improved outcomes? And is there messaging that can prevent people from being scammed more than once?

On a final note, there are some unique considerations when creating prevention messaging for older adults. Further study of those special considerations would be beneficial to maximize the effectiveness of education campaigns and warnings. It is important to remember that older adults are not a monolithic group. Like all age groups, the older segment of the population includes people of a diverse spectrum of backgrounds, abilities, values, beliefs, and circumstances. As demonstrated in the FTC's annual reports, there are differences in the types of scams reported by older adults, and the ways scammers contact and request payment from older adults versus younger adults. (FTC, 2023). The Committee encourages research that gives evidence-based strategies for serving this large and varied segment of the population with effective education campaigns.

V. Conclusion

In conclusion, the Committee found several key challenges to creating effective scam prevention campaigns in the identified literature. It also found research supporting several promising strategies and some special considerations for effective messaging to older adults.

The Committee commends the many researchers, institutions, and organizations that have conducted, funded or otherwise supported this important area of research. Their work is vital as the Scams Against Older Adults Advisory Group and others aim to stop scams from harming all people.

The Committee encourages researchers and funders to support needed research on how to overcome the challenges with scam prevention messaging identified in this report and provide better evidence for practitioners on strategies that work to prevent fraud. The Committee looks forward to seeing more research on scam prevention consumer messaging to help develop new campaigns and warnings that have the best chance of succeeding in preventing scams.

References

- AARP. (2003). Off the hook: Reducing participation in telemarketing fraud. https://assets.aarp.org/rgcenter/consume/d17812_fraud.pdf
- Achar, C., So, J., Agrawal, N., & Duhachek, A. (2016). What we feel and why we buy: The influence of emotions on consumer decision-making. *Current Opinion in Psychology*, 10, 166-170. <https://doi.org/10.1016/j.copsyc.2016.01.009>
- Anderson, B. B., Vance, A., Jenkins, J. L., Kirwan, C. B., & Bjornn, D. (2016). It all blurs together: How the effects of habituation generalize across system notifications and security warnings. *Lecture Notes in Information Systems and Organisation*, 43-49. https://doi.org/10.1007/978-3-319-41402-7_6
- Anderson, B. B., Vance, A., Kirwan, C. B., Jenkins, J. L., & Eargle, D. (2016). From warning to wallpaper: Why the brain habituates to security warnings and what can be done about it. *Journal of Management Information Systems*, 33(3), 713-743. <https://doi.org/10.1080/07421222.2016.1243947>
- Anderson, K. B. (2019). *Mass-Market Consumer Fraud in the United States: A 2017 Update*. Federal Trade Commission. <https://www.ftc.gov/reports/mass-market-consumer-fraud-united-states-2017-update>
- Archer, A. K. (2017). "I made a choice": Exploring the persuasion tactics used by online romance scammers in light of Cialdini's compliance principles. *Regis University Student Publications (comprehensive collection)*, 823. <https://epublications.regis.edu/theses/823>
- Bristol, T. (1996). Persuading senior adults: The influence of endorser age on brand attitudes. *Journal of Current Issues & Research in Advertising*, 18(2), 59-67. <https://doi.org/10.1080/10641734.1996.10505052>
- Bullée, J. H., Junger, M., Hartel, P., & Montoya, L. (2016). Telephone-based social engineering attacks: An experiment testing the success and time decay of an intervention. *Singapore Cyber Security R&D Conference*, 107-114. <http://doi.org/10.3233/978-1-61499-617-0-107>
- Burke, J., Kieffer, C., Mottola, G., & Perez-Acer, F. (2022). Can educational interventions reduce susceptibility to financial fraud? *Journal of Economic Behavior and Organization*, 198, 250-266. <https://doi.org/10.1016/j.jebo.2022.03.028>
- Carstensen, L. L., & Hershfield, H. E. (2021). Beyond stereotypes: Using socioemotional selectivity theory to improve messaging to older adults. *Current Directions in Psychological Science*, 30(4), 327-334. <https://doi.org/10.1177/09637214211011468>
- Chapin, J., & Coleman, G. (2009). Optimistic bias: What you think, what you know, or whom you know? *North American Journal of Psychology*, 11(1), 121-132.

- Charles, S. T., Mather, M., & Carstensen, L. L. (2003). Aging and emotional memory: The forgettable nature of negative images for older adults. *Journal of Experimental Psychology*, *132*, 310-324. <https://doi.org/10.1037/0096-3445.132.2.310>
- Chong, D., & Druckman, J. N. (2007). Framing theory. *Annual Review of Political Science*, *10*(1), 103-126. <https://doi.org/10.1146/annurev.polisci.10.072805.103054>
- Cross, C. (2013). 'Nobody's holding a gun to your head...': Examining current discourses surrounding victims of online fraud. *Crime, Justice and Social Democracy: Proceedings of the 2nd International Conference*, *1*, 25-32. https://eprints.qut.edu.au/61011/15/QUT_conference_CROSS.pdf
- Daiku, Y., Kugihara, N., Teraguchi, T., & Watamura, E. (2020). Effective forewarning requires central route processing: Theoretical improvements on the counterargumentation hypothesis and practical implications for scam prevention. *PLOS ONE*, *15*(3), e0229833. <https://doi.org/10.1371/journal.pone.0229833>
- DeLiema, M., Fletcher, E., Kieffer, C., Mottola, G., Pessanha, R., & Trumpower, M. (2019). *Exposed to Scams: What Separates Victims From Non-Victims?* FINRA Investor Education Foundation, BBB Institute for Marketplace Trust, & Stanford Center on Longevity. https://www.finrafoundation.org/sites/finrafoundation/files/exposed-to-scams-what-separates-victims-from-non-victims_0_0.pdf
- DeLiema, M., Volker, J., & Worley, A. (2023). Consumer experiences with gift card payment scams: causes, consequences, and implications for consumer protection. *Victims & Offenders*, *18*(7), 1282-1310. <https://doi.org/10.1080/15564886.2023.2244468>
- DeLiema, M., Yiting, L., Taylor, M., & Motolla, G. (2022). *Does one size fit all? An examination of risk factors by scam type*. FINRA Investor Education Foundation. <https://finrafoundation.org/sites/finrafoundation/files/Does-One-Size-Fit-All-An-Examination-of-Risk-Factors-by-Scam-Type-Brief.pdf>
- Ebert, N., Ackermann, K. A., & Bearth, A. (2023). When information security depends on font size: How the saliency of warnings affects protection behavior. *Journal of Risk Research*, *26*(3), 233-255. <https://doi.org/10.1080/13669877.2022.2142952>
- Egelman, S., Cranor, L. F., & Hong, J. (2008). You've been warned: An empirical study of the effectiveness of web browser phishing warnings. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 1065-1074. <https://doi.org/10.1145/1357054.1357219>
- Federal Trade Commission. (2023). *Protecting Older Consumers 2022-2023*. https://www.ftc.gov/system/files/ftc_gov/pdf/p144400olderadultsreportoct2023.pdf
- Felgendreff, L., Korn, L., Sprengholz, P., Eitze, S., Siegers, R., & Betsch, C. (2021). Risk information alone is not sufficient to reduce optimistic bias. *Research in Social and Administrative Pharmacy*, *17*(5), 1026–1027. <https://doi.org/10.1016/j.sapharm.2021.01.010>

- FINRA Investor Education Foundation; Heart+Mind Strategies; AARP. (2021). *Addressing the challenge of chronic fraud victimization: Understanding the drivers of chronic fraud victimization and identifying key intervention strategies*. <https://www.finrafoundation.org/sites/finrafoundation/files/addressing-the-challenge-of-chronic-fraud-victimization.pdf>
- FINRA Investor Education Foundation, Heart+Mind Strategies, AARP. (2022). *Blame and shame in the context of financial fraud: A movement to change our societal response to a rampant and growing crime*. <https://www.finrafoundation.org/sites/finrafoundation/files/Blame-and-Shame-in-the-Context-of-Financial-Fraud.pdf>
- Fletcher, E., & Pessanha, R. (2016). *Cracking the invulnerability illusion: Stereotypes, optimism bias, and the way forward for marketplace scam education*. BBB Institute for Marketplace Trust. <https://bbbfoundation.images.worldnow.com/library/daf0b5d7-c61e-4df7-abef-f1b1d8df7578.pdf>
- Helmick-Rich, J., Burke, K., Oron-Gilad, T., & Hancock, P. A. (2004). The effects of warning presentation and retention under varying levels of stress. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 48(16), 2027-2030. <https://doi.org/10.1177/154193120404801651>
- Helweg-Larsen, M., & Shepperd, J. A. (2001). Do moderators of the optimistic bias affect personal or target risk estimates? A Review of the literature. *Personality and Social Psychology Review*, 5(1), 74-95. https://doi.org/10.1207/s15327957pspr0501_5
- Honick, C., DeLiema, M., Fletcher, E., Mottola, G., Pessanha, R., & Trumpower, M. (2021). *Exposed to scams: Can challenging consumers' beliefs protect them from fraud?* FINRA Investor Education Foundation, BBB Institute for Marketplace Trust, University of Minnesota. <https://www.finrafoundation.org/sites/finrafoundation/files/exposed-to-scams-can-challenging-consumers-beliefs-protect-them-from-fraud.pdf>
- Houts, P. S., Doak, C. C., Doak, L. G., & Loscalzo, M. J. (2006). The role of pictures in improving health communication: A review of research on attention, comprehension, recall, and adherence. *Patient Education and Counseling*, 61(2), 173-190. <https://doi.org/10.1016/j.pec.2005.05.004>
- Junger, M., Montoya, L., & Overink, F. J. (2017). Priming and warnings are not effective to prevent social engineering attacks. *Computers in Human Behavior*, 66, 75-87. <https://doi.org/10.1016/j.chb.2016.09.012>
- Keller, P. A., & Lehmann, D. R. (2008). Designing effective health communications: A meta-analysis. *Journal of Public Policy and Marketing*, 27(2), 117-130. <https://doi.org/10.1509/jppm.27.2.117>
- Kieffer, C. N., & Mottola, G. R. (2017). Understanding and combating investment fraud. *Oxford Scholarship Online*. <https://doi.org/10.1093/oso/9780198808039.003.0010>
- Kim, S., & Wogalter, M. S. (2009). Habituation, dishabituation, and recovery effects in visual warnings. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 53(20), 1612-1616. <https://doi.org/10.1177/154193120905302015>

- Kircanski, K., Notthoff, N., DeLiema, M., Samanez-Larkin, G. R., Shadel, D., Mottola, G., Carstensen, L. L., & Gotlib, I. H. (2018). Emotional arousal may increase susceptibility to fraud in older and younger adults. *Psychology and Aging, 33*(2), 325-337. <https://doi.org/10.1037/pag0000228>
- Krantz-Kent, R. (2018). *Television, capturing America's attention at prime time and beyond*. U.S. Bureau of Labor Statistics. <https://www.bls.gov/opub/btn/volume-7/television-capturing-americas-attention.htm>
- Kumaraguru, P., Cranshaw, J., Acquisti, A., Cranor, L., Hong, J., Blair, M. A., & Pham, T. (2009). School of phish: A real-world evaluation of anti-phishing training. *Symposium on Usable Privacy and Security (SOUPS)*. <http://doi.org/10.1145/1572532.1572536>
- LaRose, R., & Rifon, N. J. (2007). Promoting i-safety: Effects of privacy warnings and privacy seals on risk assessment and online privacy behavior. *Journal of Consumer Affairs, 41*(1), 127-149. <https://doi.org/10.1111/j.1745-6606.2006.00071.x>
- Lei, W., Hu, S., & Hsu, C. (2023). Unveiling the process of phishing precautions taking: The moderating role of optimism bias. *Computers & Security, 129*, 103249. <https://doi.org/10.1016/j.cose.2023.103249>
- Lesch, M. F., Horrey, W. J., Wogalter, M. S., & Powell, W. R. (2011). Age-related differences in warning symbol comprehension and training effectiveness: Effects of familiarity, complexity, and comprehensibility. *Ergonomics, 54*(10), 879-890. <https://doi.org/10.1080/00140139.2011.606924>
- Loewenstein, G. (2000). Emotions in economic theory and economic behavior. *The American Economic Review, 90*(2), 426-432. <https://doi.org/10.1257/aer.90.2.426>
- Mather, M., & Carstensen, L. L. (2003). Aging and attentional biases for emotional faces. *14*, 409-415. <https://doi.org/10.1111/1467-9280.01455>
- Mears, D. P., Reisig, M. D., Scaggs, S., & Holtfreter, K. (2016). Efforts to reduce consumer fraud victimization among the elderly. *Crime and Delinquency, 62*(9), 1235-1259. <https://doi.org/10.1177/0011128714555759>
- Nanda, A. K. (2015). Social marketing: A literature review. *International Journal of Science and Research, 4*(9), 697-702. <https://ijsr.net/archive/v4i9/SUB158156.pdf>
- Nielson. (2021). *The Nielsen total audience report: Advertising across today's media*. Nielsen. <https://www.nielsen.com/insights/2021/total-audience-advertising-across-todays-media/>
- OECD. (2005). *Examining consumer policy: A report on consumer information campaigns concerning scams*. OECD Digital Economy Papers. <https://doi.org/10.1787/231767418167>
- Paivio, A., Walsh, M., & Bons, T. (1994). Concreteness effects on memory: When and why? *Journal of Experimental Psychology: Learning, Memory, and Cognition, 20*(5), 1196-1204. <https://doi.org/10.1037/0278-7393.20.5.1196>

- Park, T., Ju, I., Ohs, J. E., & Hinsley, A. (2021). Optimistic bias and preventive behavioral engagement in the context of COVID-19. *Research in Social and Administrative Pharmacy*, 17(1), 1859-1866. <https://doi.org/10.1016/j.sapharm.2020.06.004>
- Ratner, R. K., & Riis, J. (2014). Communicating science-based recommendations with memorable and actionable guidelines. *111*(4), 13634–13641. <https://doi.org/10.1073/pnas.1320649111>
- Reed, A. E., Chan, L., & Mikels, J. A. (2014). Meta-analysis of the age-related positivity effect: age differences in preferences for positive over negative information. *Psychology and Aging*, 29(1), 1-15. <https://doi.org/10.1037/a0035194>
- Reinheimer, B., Aldag, L., Mayer, P., Mossano, M., Duezguen, R., Lofthouse, B., von Landesberger, T., Volkamer, M. (2020). An investigation of phishing awareness and education over time: When and how to best remind users. *USENIX Symposium on Usable Privacy and Security (SOUPS)*. https://www.usenix.org/system/files/soups2020-reinheimer_0.pdf
- Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin*, 121(1), 3-19. <https://doi.org/10.1037/0033-2909.121.1.3>
- Rousseau, G. K., Lamson, N., & Rogers, W. A. (1998). Designing warnings to compensate for age-related changes in perceptual and cognitive abilities. *Psychology and Marketing*, 15(7), 643-662. [https://doi.org/10.1002/\(sici\)1520-6793\(199810\)15:7<643::aid-mar3>3.0.co;2-f](https://doi.org/10.1002/(sici)1520-6793(199810)15:7<643::aid-mar3>3.0.co;2-f)
- Sadoski, M., Goetz, E. T., & Rodriguez, M. (2000). Engaging texts: Effects of concreteness on comprehensibility, interest, and recall in four text types. *Journal of Educational Psychology*, 92(1), 85-95. <https://doi.org/10.1037/0022-0663.92.1.85>
- Scheibe, S., Notthoff, N., Menkin, J., Ross, L., Shadel, D., Deevy, M., & Carstensen, L. L. (2014). Forewarning reduces fraud susceptibility in vulnerable consumers. *Basic and Applied Social Psychology*, 36(3), 272-279. <https://doi.org/10.1080/01973533.2014.903844>
- Schraw, G., & Lehman, S. (2001). Situational interest: A review of the literature and directions for future research. *Educational Psychology Review*, 13(1), 23-52. <https://doi.org/10.1023/A:1009004801455>
- Schraw, G., Bruning, R., & Svoboda, C. (1995). Sources of situational interest. *Journal of Reading Behavior*, 27(1), 1-17. <https://doi.org/10.1080/10862969509547866>
- Shearer, E. (2021). *More than eight-in-ten Americans get news from digital devices*. Pew Research Center. <https://www.pewresearch.org/short-reads/2021/01/12/more-than-eight-in-ten-americans-get-news-from-digital-devices/>
- Sheeran, P., Harris, P. R., & Epton, T. (2014). Does heightening risk appraisals change people's intentions and behavior? A meta-analysis of experimental studies. *Psychological Bulletin*, 140(2), 511-543. <https://doi.org/10.1037/a0033065>

- Shorr, D. J., Ezer, N., Fisk, A. D., & Rogers, W. A. (2009). Comprehension of warning symbols by younger and older adults: Effects of visual degradation. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 53(20), 1598-1602. <https://doi.org/10.1177/154193120905302012>
- Skurnik, I., Yoon, C., Park, D. C., & Schwarz, N. (2005). How warnings about false claims become recommendations. *Journal of Consumer Research*, 31(4), 713-724. <https://doi.org/10.1086/426605>
- Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K., & Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, 141(6), 1178-1204. <https://doi.org/10.1037/a0039729>
- Titus, R. M., Heinzlmann, F., & Boyle, J. M. (1995). Victimization of persons by fraud. *Crime and Delinquency*, 41(1), 54-72. <https://doi.org/10.1177/0011128795041001004>
- Toll, B. A., O'Malley, S. S., Katulak, N. A., Wu, R., Dubin, J. A., Latimer, A., Meandzija, B., George, T. P., Jatlow, P., Cooney, J. L., & Salovey, P. (2007). Comparing gain and loss-framed messages for smoking cessation with sustained-release bupropion: A randomized controlled trial. *Psychology of Addictive Behaviors*, 21(4), 534-544. <https://doi.org/10.1037/0893-164x.21.4.534>
- Walton, G. M., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, 135(5), 617-655. <https://doi.org/10.1037/rev0000115>
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39(5), 806-820. <https://doi.org/10.1037/0022-3514.39.5.806>
- Weinstein, N. D., & Klein, W. M. (1995). Resistance of personal risk perceptions to debiasing interventions. *Health Psychology*, 14(2), 132-140. <https://doi.org/10.1037/0278-6133.14.2.132>
- Wen, X., Xu, L., Wang, J., Gao, Y., Shi, J., Zhao, K., Tao, F., & Qian, X. (2022). Mental states: A key point in scam compliance and warning compliance in real life. *International Journal of Environmental Research and Public Health*, 19(14), 8294. <https://doi.org/10.3390/ijerph19148294>
- Wogalter, M. S., & Usher, M. O. (1999). Effects of concurrent cognitive task loading on warning compliance behavior. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 43(6), 525-529. <https://doi.org/10.1177/154193129904300612>
- Yahner, J., Hussemann, J., & Henderson, E. (2022). *Building late-life resilience to prevent elder abuse: A randomized controlled pilot study of the empower program*. Urban Institute. www.urban.org/research/publication/building-late-life-resilience-prevent-elder-abuse
- Yu, L., Mottola, G., Bennett, D. A., & Boyle, P. A. (2021). Adverse impacts of declining financial and health literacy in old age. *The American Journal of Geriatric Psychiatry*, 29(11), 1129-1139. <https://doi.org/10.1016/j.jagp.2021.02.042>

- Yu, L., Mottola, G., Kieffer, C. N., Mascio, R., Valdes, O., Bennett, D. A., & Boyle, P. A. (2023). Vulnerability of older adults to government impersonation scams. *JAMA Network Open*, 6(9), e2335319-e2335319. <https://doi.org/10.1001/jamanetworkopen.2023.35319>
- Zhang, T. (2018). Knowledge expiration in security awareness training. *Annual ADFSL Conference on Digital Forensics, Security and Law*. <https://commons.erau.edu/cgi/viewcontent.cgi?article=1404&context=adfs>

