

Assessing Scam Victimization Risk Factors among Retired Adults

Rhem Rick N. Corpuz¹; Ramces V. Minaves²; Ashley M. De Jesus³;
Paul Yanie G. Guevarra⁴; Jan Lenard L. Pineda⁵

^{1,2,3,4,5} Angeles University Foundation

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Abstract: The increasing prevalence of online fraud and scams disproportionately affects vulnerable groups, particularly retired adults. This study examines the multifaceted factors contributing to scam susceptibility within this demographic, including financial instability, digital literacy, social isolation, and life transitions. Utilizing a mixed-method approach, the research incorporates quantitative analyses, such as correlation and regression, alongside qualitative thematic exploration to identify both risk and protective factors. The study identifies several risk factors contributing to increased scam victimization among retired adults, including limited digital literacy, lack of scam awareness, and cognitive decline. It notes that access to retirement funds also poses a risk but is less concerning to participants compared to other factors. The research underscores the importance of digital skills, awareness of common scams, and strong social support networks in mitigating these risks. To combat these vulnerabilities, the study advocates for targeted educational campaigns and the development of enhanced social support systems specifically tailored to the needs of older adults. It highlights the crucial role of social guardians, such as family members and financial advisors, in providing regular engagement and financial guidance to prevent scams. The study recommends a multifaceted approach to address the unique needs of retired individuals, focusing on improving digital literacy, fostering community connections, and implementing accessible programs that support online transactions. Efforts to reduce social isolation through community engagement are seen as vital to mitigating risks associated with limited social support. Moreover, the research calls for continued exploration into how demographic factors influence scam susceptibility and the development of inclusive, effective intervention strategies.

Keywords: Scam Victimization, Retired Adults, Risk Factors, Protective Factors, Targeted Interventions, Prevention Strategies, Decision-Making Vulnerabilities.

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I. INTRODUCTION

The global aging population is expanding rapidly, leading to a growing number of retired adults who are particularly vulnerable to various forms of scam victimization (Burnes et al., 2017). Scams targeting older adults, ranging from financial fraud and identity theft to phishing schemes and online fraud, have become increasingly prevalent (DeLiema et al., 2017). These scams often exploit the unique vulnerabilities associated with aging, such as cognitive decline, social isolation, reduced technological literacy, and concerns about financial security (Judges et al., 2017). Understanding the specific risk factors that make retired adults susceptible to scams is crucial for developing effective prevention strategies and protecting their financial and emotional well-being.

Retired adults are often perceived as easy targets due to a combination of factors, including accumulated wealth, diminished cognitive capabilities, and a general lack of familiarity with rapidly evolving technological threats (Ueno

et al., 2021). Scammers frequently use manipulative tactics designed to exploit these weaknesses, leading to significant financial losses and emotional distress among victims (Lichtenberg et al., 2016). Despite the growing concern over scam victimization in this population, existing research often lacks a comprehensive analysis of the specific demographic, psychological, and socio-environmental factors that contribute to this vulnerability.

Previous studies have identified several risk factors, such as cognitive impairment, social isolation, and limited digital literacy, which increase the likelihood of scam victimization among older adults (Judges et al., 2017). Psychological factors, including high levels of trust, fear, loneliness, and susceptibility to social influence, further compound these risks (Sur et al., 2021).

However, there remains a gap in the literature regarding the complex interactions between these factors and how they collectively influence the overall risk profile of retired adults. This research seeks to fill this gap by systematically assessing

the risk factors associated with scam victimization among retired adults. By examining both individual characteristics and broader contextual elements, the study aims to identify the patterns and predictors of scam susceptibility in this demographic. The insights gained will be invaluable for stakeholders such as policymakers, social workers, caregivers, and community organizations in developing targeted interventions to reduce the risk of scam victimization and enhance the quality of life for retired adults.

II. BACKGROUND OR CONTEXT

Scam victimization, particularly among retirees, has become a major societal concern as the global elderly population continues to grow. Recent research indicates that many older adults, even those without cognitive decline, are particularly vulnerable to scams, including government impersonation and financial fraud (National Institute on Aging, 2024; Ramakrishnan et al., 2023). The transition to retirement often results in changes in financial management and social connections, making retirees more prone to falling victim to scams.

Research also shows that older adults are often targeted by scammers due to the wealth and assets they have accumulated over time, which makes them appealing targets. Financial instability, particularly when individuals face challenges in maintaining financial security, increases the risk of being scammed, especially during economic downturns (FINRA Foundation, 2020).

Moreover, a 2023 survey revealed that 75% of adults aged 50-80 experienced a scam attempt in the past two years, with 30% falling victim to fraud (National Poll on Healthy Aging, 2023). Some of the main risk factors for scam victimization in retirees include cognitive decline, poor digital literacy, isolation, and overconfidence in financial decision-making (Ramakrishnan et al., 2023; National Institute on Aging, 2024). Psychological factors, like a higher susceptibility to persuasion and reduced skepticism, further exacerbate the issue. Additionally, as more retirees engage in financial and social activities online, the threat of sophisticated scams grows.

In response to these concerns, studies focusing on scam victimization among retired adults aim to identify the specific risk factors involved and propose strategies for mitigating the risk. By understanding the dynamics of scam victimization, this research seeks to influence public policy, support law enforcement, and guide public awareness efforts to reduce scam rates in this vulnerable group.

A. Research Question or Problem Statement

Online fraud and scam victimization present serious threats, especially for vulnerable groups like retired adults, who encounter specific challenges in the digital landscape. While existing studies have highlighted general risk factors, such as financial stress, technological familiarity, and social isolation, there is a lack of in-depth understanding of how these factors uniquely affect retirees. Additionally, protective elements like the presence of social guardians and help-

seeking behaviors may differ within this demographic, further impacting their susceptibility to scams.

This research sought to bridge this knowledge gap by examining how risk and protective factors influence scam victimization specifically among retired adults. It focuses on the roles of financial stressors, technological familiarity, social isolation, and protective factors such as social guardianship, impulsivity, educational level, and self-control. The objective is to identify the unique characteristics that contribute to scam vulnerability in this population, ultimately providing insights that can guide targeted interventions and prevention strategies to safeguard retired adults from online fraud.

B. Purpose/Objectives

➤ General Objective:

To investigate the factors influencing scam victimization among retired adults, by identifying primary risk factors, examining the role of protective social guardians, analyzing the impact of technological familiarity and usage patterns, and investigating how financial stressors and recent life events affect susceptibility to scams.

➤ Specific Objectives:

- To identify the primary risk factors contributing to scam victimization among retired adults.
- To examine the protective factors, such as the presence of social guardians (e.g., family members or partners), that mitigate the risk of scam victimization among retired individuals.
- To analyze how technological familiarity and computer usage patterns affect vulnerability to online scams among retired adults.
- To investigate the role of financial stressors and recent life events (e.g., retirement, financial loss) in increasing scam susceptibility among retired individuals.

C. Scope of the Study

This study aimed to assess scam victimization and identify key risk factors among retired adults. It investigates how demographic, psychological, and behavioral factors such as, gender, socio-economic status, cognitive decline, social isolation, and digital literacy affect scam vulnerability. The research also considers protective influences, including the support of family members or partners, and examines how financial stress and significant life events, like retirement or financial loss, increase susceptibility.

Data was gathered through surveys with retired adults in urban and suburban areas, focusing on scams from the last five years. The study excludes younger, non-retired individuals and scams not specifically targeting older adults, aiming to provide insights that guide prevention strategies for this at-risk group.

D. Significance of the Study

This study sought to provide valuable insights into community perceptions of scam victimization within this demographic, which is crucial for developing effective prevention policies. By understanding these community views, policymakers can create a more accurate reflection of public values and concerns, guiding the formulation of targeted interventions and educational programs. Incorporating public opinion into policy development ensures that measures are both legally sound and relevant to the community. Additionally, community perspectives play a significant role in shaping public safety strategies, particularly regarding issues like financial fraud, emotional distress, and overall well-being. When policy initiatives respond directly to community concerns about scam risks, the effectiveness of strategies aimed at reducing victimization among retired adults is likely to improve, thereby enhancing safety and quality of life for this vulnerable group. Furthermore, the conversation surrounding scam victimization touches on broader social issues related to rights, responsibilities, and security, reflecting the cultural and political dynamics of society. Consequently, this study not only aids in crafting effective preventive measures but also deepens the understanding of the societal context in which these challenges arise.

III. THEORETICAL FRAMEWORK

In our present study, we hypothesized that the routine activities of retirees significantly influence their risk of scam victimization, with differing patterns of daily behavior and technological engagement affecting their susceptibility to fraud. We used Routine Activities Theory (RAT), introduced by Cohen and Felson (1979), as the foundational framework for this research. According to RAT, crime occurs when three key elements converge: a motivated offender, a suitable target, and the absence of a capable guardian. This theory suggests that victimization is not solely driven by offenders' motivations or social structures, but also by individuals' daily activities and routines, which can expose them to crime risks. By linking our variables with this theory, we investigate how the routines and behaviors of among retired adults impact their risk of scam victimization. This allows us to explore how specific lifestyle patterns and levels of engagement with

technology increase or decrease the presence of capable guardianship, which serves as a protective factor against scams. In applying RAT to this study, we suggest that older retirees, who may be less technologically proficient and more socially isolated, are more likely to fall victim to traditional fraud schemes, such as phone scams or investment fraud. Conversely, retirees, who are more digitally active, may face a higher risk of online fraud such as phishing or identity theft. The absence of capable guardianship, whether through a lack of knowledge about online safety or reduced social support networks, plays a crucial role in this framework. If retirees, regardless of age, perceive themselves as lacking the tools or awareness to protect against scams, they become more vulnerable. To support our hypothesis, we reviewed relevant studies on the relationship between routine activities and scam victimization. For instance, Cross et al. (2016) found that digital literacy plays a significant role in individuals' ability to avoid fraud, while Button, Lewis, and Tapley (2014) highlighted how social isolation increases vulnerability among older adults. Our study aims to clarify the relationship between routine activities, technological engagement, and scam victimization risk based on Routine Activities Theory. By analyzing how differences in age-related routines contribute to victimization, we aim to make significant contributions to the fields of crime prevention and digital safety, offering insights into targeted prevention strategies for retired adults.

A. Conceptual Framework Hypothesis:

- H1: There is no relationship between identified risk factors (such as lack of awareness, cognitive biases, etc.) and scam victimization among retired adults.
- H2: The presence of social guardians (family members, partners, etc.) does not reduce the risk of scam victimization among retired adults.
- H3: Technological familiarity and computer usage patterns have no effect on the vulnerability to online scams among retired adults.
- H4: Financial stressors and recent life events do not increase the susceptibility to scams among retired adults.

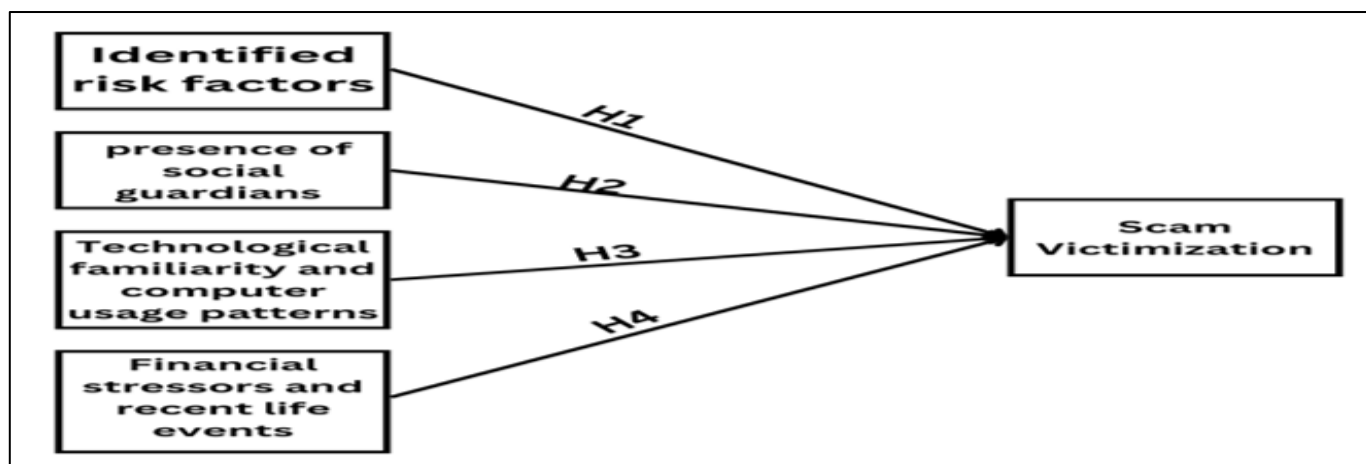


Fig 1: Paradigm of the Study

IV. METHODS

A. Study Design

This study utilized a cross-sectional research design to analyze risk and protective factors associated with scam victimization among retired adults in Angeles City. By capturing a snapshot of their experiences, the research examined how factors like risk factors, presence of social guardians, technological familiarity, computer usage patterns, and financial stressors and recent life events influenced scam victimization. This efficient data collection method allowed for a larger, diverse sample, enhancing the robustness of the findings. While it identified correlations rather than causal relationships, the study was grounded in existing literature on victimization among retired adults. Ultimately, the goal was to pinpoint specific factors to inform targeted interventions, such as community awareness programs, to help reduce scam victimization among retirees.

B. Locale of the Study

This study was conducted in Angeles City, Pampanga, Philippines, which had a total population of 462,928 based on the May 1, 2020 census. Of this population, 31,588 were senior citizens aged 56 to 65 years and above. The city has five police stations, each responsible for overseeing four to seven barangays. Angeles City has a significant population of retired individuals, making it an ideal location to study the specific vulnerabilities faced by this demographic. Additionally, the city had experienced various economic and social changes, including shifts related to retirement and life transitions. These recent life events may have contributed to increased vulnerability, and studying this context allowed for a comprehensive understanding of how such factors influenced susceptibility to scams.

C. Research Participants

The research involved retired adults aged 56 to 65 years and above, selected due to their unique life transitions and potential susceptibility to scams. The recruitment process began with outreach to retirement communities, social organizations, and online platforms that cater to older adults. Flyers, online advertisements, and collaboration with community leaders were used to reach this demographic. Eligibility criteria included being within the specified age range, retired, and willing to participate in a study on financial and digital safety. Interested individuals were screened through a brief questionnaire to confirm their suitability for the research.

To accommodate physical impairments like vision or hearing difficulties, survey materials were designed with accessibility in mind. Printed materials used large, high-contrast fonts, and audio versions of the survey were created for participants with visual impairments. For those with hearing difficulties, written instructions and captions accompanied any audio or video content. In-person assistance was offered for individuals who might struggle with written or digital formats, such as those unfamiliar with technology or experiencing cognitive challenges. The survey was crafted to minimize cognitive strain and improve comprehension. Questions were short, jargon-free, and written in plain language. Multiple-choice and scaled questions were used

alongside a few open-ended ones to ensure clarity and maintain participant engagement. The survey was divided into short sections, with prompts for breaks after each section. Participants had the option to complete the survey over multiple sessions to reduce fatigue. Before launching the full survey, a pilot test was conducted with a small group of participants from the target demographic. Feedback from this pilot was used to refine the survey's wording, structure, and overall flow. Additionally, participants were provided with instructions and examples to help them understand how to answer the questions accurately. The survey was translated into relevant languages spoken by the target demographic. Culturally sensitive language was used to ensure inclusivity and prevent misunderstandings. Researchers had undergone training in cultural competence and inclusivity to foster respectful interactions. For participants with limited formal education, the survey avoided overly complex sentence structures or abstract concepts. Visual aids, such as diagrams or images, were included to enhance understanding. To address ethical concerns, participants were given detailed information about the study's purpose, procedures, and voluntary nature in both written and verbal formats. Consent forms were designed to be clear and easy to read, with researchers available to answer any questions. Participants had sufficient time to review and sign these forms. They were also informed that they could withdraw from the study at any time without consequences. An ethics advisory panel, including experts familiar with older adults' vulnerabilities, had reviewed the research protocols to ensure ethical standards were met. Data confidentiality was emphasized, with all personal information anonymized during analysis. Participants were informed about how their data would be stored and used, ensuring transparency throughout the study. A help desk was established to assist participants with any questions or concerns during the study. This support included troubleshooting technical issues, clarifying survey questions, or providing additional assistance as needed. After completing the survey, participants received a summary of the study's goals and preliminary findings to acknowledge their contribution and foster a sense of involvement.

D. Sample Size and Sampling

The target sample size for this study was 300 participants. This sample size was determined based on a power analysis, assuming a medium effect size (Cohen's $d = 0.5$), an alpha level of 0.05, and a desired power of 0.80 (Cohen, 1988; Faul et al., 2007). A convenience sampling is a qualitative research sampling strategy that involves selecting participants based on their accessibility and availability to the researcher. Rather than being drawn at random from a bigger population, participants in this strategy were picked because they were easily available to the researcher (Fleetwood, D., 2023, September 4).

V. INCLUSION AND EXCLUSION CRITERIA

A. Inclusion Criteria

The inclusion criteria for this study were carefully crafted to select participants who could offer valuable insights into the factors affecting scam victimization among retired adults. Eligible participants had to be 56 to 65 years old and older. Participants should be either fully or semi-

retired, ensuring that the study reflected the experiences of those no longer engaged in full-time employment, but who were still managing their personal finances and adjusting to post-retirement life. All participants had to agree to take part voluntarily and provide informed consent, following the standards approved by the Institutional Review Board (IRB). This process ensured that participants were fully informed about the study's purpose, procedures, and their rights, including the option to withdraw from the study at any point, in line with ethical guidelines from the American Psychological Association (APA, 2020). In addition, participants had to reside within Angeles City Pampanga, allowing the research to account for any local factors that may influence scam exposure. They had to have regular internet access and be familiar with basic technological devices such as smartphones or computers. This requirement was essential because the study aimed to investigate how technological proficiency influenced susceptibility to online scams. Furthermore, participants had to have control over their financial decisions, which enabled the study to assess the impact of financial stressors on their vulnerability to scams. Lastly, participants were required to be willing to answer questions in a survey related to recent life events or financial difficulties, such as retirement or financial losses, as these circumstances were crucial to understanding how life changes might heighten their risk of falling victim to scams.

B. Exclusion Criteria

The exclusion criteria for this study were thoughtfully established with ethical considerations to protect participants' well-being and uphold the integrity of the research. Participants with severe cognitive impairments, such as advanced dementia or significant memory loss, were not included. This exclusion was essential, as individuals with cognitive challenges might not fully grasp the study's procedures or be capable of giving informed consent, which was crucial for ethical and voluntary participation. Additionally, individuals with serious or untreated mental health conditions like severe depression or schizophrenia that could hinder their judgment or meaningful engagement in the study were excluded. This aligned with ethical guidelines aimed at preventing harm or undue distress to vulnerable groups, as these individuals might face higher risks in research settings. To ensure fairness and inclusivity, participants with major language barriers were excluded if their lack of proficiency prevented them from understanding the informed consent process and study materials. Comprehension of their role in the research was a fundamental ethical principle; if participants could not grasp the language used, they might be unable to provide true informed consent or participate effectively, compromising both their rights and the quality of the data. Participants with serious medical conditions or those receiving intensive treatments were excluded to avoid any negative effects on their health and well-being. Including individuals whose physical conditions might be adversely impacted by participation would pose unnecessary risks and potential harm, which must be avoided. Ethical research practices required prioritizing participants' safety, ensuring their involvement did not worsen their health. These exclusion criteria reflected ethical principles related to informed consent, participant safety, and protection from harm,

ensuring that the research complied with institutional guidelines and regulatory standards while safeguarding participants' rights and well-being.

C. Research Instrument

This research instrument was a structured survey designed to identify and analyze factors contributing to scam victimization among retired adults. The survey comprised four sections, each focusing on specific risk and protective factors relevant to this population. In the first section, respondents indicated their agreement with statements about primary risk factors, such as financial instability, limited digital literacy, loneliness, and cognitive decline—each of which might increase susceptibility to scams. The second section examined protective factors, emphasizing the role of social support, including family and trusted friends, in reducing the likelihood of being targeted by scammers. The third section addressed technological familiarity, assessing whether digital literacy, internet usage, and cybersecurity knowledge could decrease scam vulnerability or, conversely, increase exposure to potential scams. Finally, the survey explored financial stressors and recent life events, such as retirement, financial loss, or significant life transitions, which might heighten emotional vulnerability and financial risk, increasing susceptibility to scams. The survey used a four-point Likert scale (1-4) to capture respondents' beliefs and experiences, enabling quantifiable data analysis of trends in scam victimization. This structured format provided insights into various dimensions of risk and resilience, supporting targeted intervention strategies to protect retired adults from financial exploitation.

To identify the primary risk factors contributing to scam victimization among retired adults: This survey utilized a Likert Scale questionnaire to gauge participants' agreement with statements identifying risk factors linked to scam victimization. This tool is widely used in quantitative research to measure attitudes, perceptions, and beliefs. The questionnaire consisted of 10 items, each addressing a potential risk factor, such as financial instability, digital literacy, social isolation, or cognitive decline, believed to influence scam victimization among retired adults. The survey employed a 4-point Likert Scale for responses, with options ranging from: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, and 4 – Strongly Agree. This scale encouraged respondents to express a clear opinion by avoiding a neutral midpoint, thus providing more decisive insights into each risk factor. The items were grounded in risk factors commonly cited in literature on elderly victimization, specifically among retired adults. This evidence-based approach enhanced the content validity of the items. Each item received a score based on the chosen Likert response, with 1 point for "Strongly Disagree" up to 4 points for "Strongly Agree". Summing scores for all items provided a total score indicating the overall risk level perceived by the participant. Risk Assessment: Low Perceived Risk: Total scores between 10 and 20, indicating low agreement with most risk factors. Moderate Perceived Risk: Scores between 21 and 30, showing moderate agreement. High Perceived Risk: Scores between 31 and 40, reflecting strong agreement with most risk factors.

To examine the protective factors, such as the presence of social guardians (e.g., family members or partners), that mitigate the risk of scam victimization among retired individuals: The survey tool designed to examine protective factors against scam victimization among retired individuals consisted of 10 items, each assessed on a four-point scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). This tool was based on the premise that social support and involvement play a crucial role in mitigating the risk of scams, with statements reflecting various aspects of social guardianship, such as family involvement, financial decision-making, and communication about scams. Each item was scored according to the participant's response, with higher scores indicating a stronger belief in the effectiveness of these protective factors. The total score for all items could range from 10 to 40, where higher scores suggested a greater perceived effectiveness of social support in reducing scam victimization risk. Specifically, scores between 10 and 20 indicated low perceived protective factors, scores from 21 to 30 suggested moderate protection, and scores between 31 and 40 reflected a strong belief in the effectiveness of social guardianship. Additionally, individual item analysis allowed for the identification of specific areas needing support or education, with items scoring below 2.5 signaling potential vulnerabilities. This structured approach enabled researchers to gain valuable insights into how protective factors contribute to reducing scam victimization among retired individuals.

To analyze how technological familiarity and computer usage patterns affect vulnerability to online scams among retired adults: The survey tool designed to analyze how technological familiarity and computer usage patterns affect vulnerability to online scams among retired adults consisted of 10 items. Each item was assessed using a four-point scale: 1 (Strongly Disagree), 2 (Disagree), 3 (Agree), and 4 (Strongly Agree). The basis for this tool lay in the premise that familiarity with technology and consistent internet usage can influence awareness and recognition of online scams. In terms of scoring, each item was rated according to the participant's response, with higher scores indicating a stronger belief in the protective effects of technological familiarity. The total score for all items could range from 10 to 40, where higher total scores suggested a greater perceived effectiveness of technology in reducing vulnerability to online scams. Specifically, scores between 10 and 20 indicated a low perceived protective effect, scores from 21 to 30 suggested moderate protection, and scores between 31 and 40 reflected a strong belief in the importance of technological proficiency in avoiding online scams.

To investigate the role of financial stressors and recent life events (e.g., retirement, financial loss) in increasing scam susceptibility among retired individuals: The survey tool created to explore the impact of financial stressors and recent life events on scam susceptibility among retired individuals included 10 items. Each item was evaluated using a four-point scale: 1 (Strongly Disagree), 2 (Disagree), 3 (Agree), and 4 (Strongly Agree). The foundation of this tool was the idea that financial pressures and significant life changes can increase the vulnerability of retirees to scams. For scoring, each participant's response determined the rating for each

item, with higher scores reflecting a stronger belief in the influence of financial stressors and life events on susceptibility to scams. The total score could range from 10 to 40, where higher scores indicated a greater perceived effect of these factors on vulnerability. Specifically, scores between 10 and 20 suggested a low perceived impact, scores from 21 to 30 indicated a moderate impact, and scores between 31 and 40 demonstrated a strong belief in the relationship between financial stressors, life events, and increased risk of scams. Furthermore, analyzing individual items helped researchers pinpoint specific areas where retirees may require additional education or support, particularly if any items scored below 2.5. By utilizing this structured method, the study sought to deliver valuable insights into how financial stressors and recent life changes contributed to the risk of scam victimization among retired adults.

D. Validity and Reliability

In studying scam victimization among retired adults, it was crucial to establish both validity and reliability in the research design. Validity involved several dimensions, starting with content validity, which ensured the research tool covered all key aspects of scam victimization that retirees might experience. Consulting with experts in areas such as elder care, criminology, and psychology helped refine survey questions to address the specific types of scams (like online, phone, or face-to-face fraud) and their effects on retirees.

Construct validity was essential to confirm that the tool accurately reflected theoretical concepts related to scam victimization, such as feelings of vulnerability, levels of trust, financial knowledge, and scam awareness, rather than capturing irrelevant information. This might involve ensuring that the tool measured retirees' awareness and emotional responses to scams without overlapping with unrelated topics.

Criterion validity measured how well the tool aligned with established standards, which might involve comparing it to existing scales on scam perception or financial abuse to ensure it fit within recognized frameworks in the field.

Reliability addressed consistency. Inter-rater reliability ensured that different researchers interpreted qualitative responses consistently, especially in open-ended questions. Test-retest reliability ensured that retirees' responses were stable over time by administering the tool at different intervals. Internal consistency reliability examined whether the survey items effectively measured a single construct, such as susceptibility to scams or knowledge of scams. Lastly, parallel forms reliability could be evaluated by comparing responses on different versions of the tool to ensure consistent outcomes.

E. Specific Procedures Based on Study Objectives

The researchers decided to use face-to-face data collection to ensure that protocols were followed. To achieve the study's objectives, a quantitative approach was employed to examine key aspects of scam victimization, allowing for a thorough analysis of the risk and protective factors affecting retired adults. Surveys were the main tool for gathering quantitative data, with participants answering structured

questions that focused on essential areas such as risk factors (e.g., financial stress, social isolation), protective factors (e.g., help-seeking behaviors, cybersecurity practices), and patterns of technology usage. This approach enabled systematic data collection for statistical analysis, facilitating the identification of trends and relationships across different age groups while assessing the frequency, awareness, and susceptibility to scams.

The researchers provided simple snacks and drinks to the participants as a token of appreciation. During the pilot survey, the entire survey was tested to observe how participants would respond, noting any confusion, discomfort, or reluctance. Attention was paid to whether the questions elicited useful responses and whether the questionnaire was appropriately paced. After each session, the researchers gathered feedback from participants about the clarity and comfort of the questions and the data collection flow and length. Researchers also shared observations about any challenges during the process. They used this feedback to refine the survey by clarifying questions, improving the flow, and addressing potential emotional triggers. Follow-up updates of protocols and training as needed, and if major changes were made, the researchers conducted another round of pilot testing to confirm the improvements.

Data collection used surveys distributed face-to-face for participants' convenience while respecting the participants' time and privacy. The distribution of surveys was done through the coordination of barangays with their list of senior citizens. Before handing out the surveys, researchers explained and briefly discussed the purpose of the study, the nature of the questions, and any potential risks or benefits. This ensured participants fully understood their involvement. The informed consent form was given to participants in person and explained clearly. Researchers provided time for participants to read the form and ask any questions, answering them thoroughly to ensure understanding. Once participants were satisfied, they signed the consent form to confirm their voluntary agreement to take part. This face-to-face approach helped clarify any concerns, built trust, and ensured participants were comfortable with their decision to participate. It reflected the study's commitment to transparency, respect, and open communication. No collection of data using social media or any other online means.

To address the ethics committee's suggestion and ensure robust data security, a comprehensive plan for safeguarding respondent information was implemented. All collected data was anonymized at the point of collection. Identifying details were removed or coded, with a separate encrypted key maintained for decoding, accessible only to the lead researcher. This process ensured that individual respondents could not be identified, preserving confidentiality.

For physical data security, hard copies of collected information were placed in sealed envelopes and stored in a locked, fireproof filing cabinet located in a secure, access-controlled room. Only authorized personnel, specifically researchers directly involved in the project, had access to the

cabinet key. These measures ensured that the physical data remained secure from unauthorized access.

During data analysis, all information was transferred to a dedicated, password-protected computer with updated antivirus and firewall protections. This computer was not connected to external networks, minimizing the risk of breaches or unauthorized access. Only members of the research team had access to this computer through individual user credentials. To further safeguard digital data, an encrypted backup was stored on an external hard drive, which was also kept in the locked cabinet for additional security.

Access to the data was strictly limited to the principal investigator and authorized research team members. These individuals signed confidentiality agreements to affirm their commitment to data security and the protection of respondent privacy. Additionally, regular audits were conducted to ensure compliance with the established protocols and to monitor access logs.

Finally, upon the conclusion of the study, all data was securely disposed of in accordance with institutional and legal guidelines. Hard copies were shredded, and digital files were permanently deleted using industry-standard data-wiping software. This approach ensured that data security was maintained throughout the research lifecycle and aligned with ethical standards, fostering trust in the research process.

The data was deleted after the study was finished. Quality assurance measures involved training data collectors and continuously monitoring data collection activities to maintain consistency and accuracy. Ongoing oversight helped uphold research integrity, with regular meetings to address any emerging issues. Data validation included checking for inconsistencies, and thorough documentation of data collection procedures enhanced transparency and reproducibility, ultimately strengthening the study's credibility and providing a solid framework for future research.

F. Ethical Consideration

The study adhered to stringent ethical protocols to safeguard participants. Informed consent was secured from all individuals through a comprehensive written information sheet that detailed the research purpose, methods, risks, and benefits of participation. This process ensured that participants' agreement to partake was documented voluntarily before their involvement in the study. Participants were granted the autonomy to withdraw from the study at any time without any repercussions, such as requesting the removal and destruction of their data. Reasons for withdrawal could range from discomfort with the study to changes in availability, personal circumstances, or concerns over data confidentiality.

The research team provided explicit instructions on how to withdraw, supporting participants in their decision-making process. Such guidance ensured that withdrawal did not impact the participants' relationship with the researchers or any benefits they might receive, thereby prioritizing

participants' rights and ensuring their comfort throughout the study.

➤ *Risk Mitigation Measures were Carefully Implemented:*

- **Emotional Distress:** Recognizing that sharing experiences of scam victimization might trigger anxiety, shame, or trauma, participants were given the option to skip questions. The environment was structured to be supportive, and information on counseling services was readily available.
- **Privacy Concerns:** To prevent potential misuse of personal information, responses were anonymized, identifiable details were omitted, and secure data collection methods were employed.
- **Re-victimization:** To avoid exposing participants or making them feel targeted, encrypted survey tools were used, access to data was restricted, and strict adherence to data protection laws and policies was maintained.
- **Cognitive Strain:** To assist participants who might struggle to recall details or express their experiences, questions were made simple and direct. Open-ended responses were permitted, and adequate time was provided for answering.
- **Unintentional Bias:** To counteract potential bias where respondents might exaggerate or minimize their experiences, survey questions were framed neutrally, leading language was avoided, and survey administrators were trained to remain objective.

Confidentiality was paramount; all survey responses were kept anonymous and securely stored, with identifying details removed from the data. Pseudonyms were used in any publications or presentations to protect participants' anonymity. Following the completion of the study, all data was deleted after one year. An overview of the study results was made available to participants upon request, enhancing transparency while maintaining anonymity.

After their participation, individuals were offered a simple snack as a token of appreciation for their contribution. The study was conducted with a commitment to objectivity, treating all participants equally regardless of their demographics. These measures were designed to uphold the rights and well-being of the participants, ensuring a respectful and ethical research process.

G. Statistical Analysis of Data

The quantitative data gathered through the survey was analyzed using various statistical methods to meet the research goals. Descriptive statistics were employed to summarize the demographic details of participants, including age, gender, education level, and marital status. Relevant variables were reported using frequencies, percentages, means, and standard deviations. Independent sample t-tests were performed to compare key variables among retired adults, aiming to identify any significant differences in risk factors (such as impulsivity, self-control, and technological familiarity) and protective factors (such as social support and digital literacy) within the group.

Chi-square tests of independence were also used to assess the relationships between categorical variables, like the types of scams encountered and the participants' age. To explore predictive relationships between risk and protective factors (independent variables) and scam victimization (dependent variable), multiple linear regression analysis was conducted. This helped pinpoint significant factors contributing to scam vulnerability among retired adults. The regression model assumptions—linearity, normality, homoscedasticity, and absence of multicollinearity—were evaluated and ensured. Standardized beta coefficients and p-values were reported to determine the importance and significance of each predictor.

VI. RESULT AND DISCUSSION

A. Age of the Respondents

The table shows the age distribution of a sample consisting of 300 participants. The majority of the respondents, 52.7%, fall within the 56-60 age group, making it the largest age category. This is followed by the 61-65 age group, which accounts for 31.3% of the sample. Combined, these two age groups represent 84% of the total participants, indicating that most individuals in the sample are between 56 and 65 years old. The 66-70 age group comprises a smaller proportion at 9.3%, while the 70+ age group is the smallest, accounting for only 6.7%. Overall, the data reveals that the majority of participants are on the younger end of the surveyed age range, with fewer individuals represented in the older age brackets.

Table 1: Age of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
56-60	158	52.7	52.7	52.7
61-65	94	31.3	31.3	84
66-70	28	9.3	9.3	93.3
70+	20	6.7	6.7	100
Total	300	100	100	

The age distribution of the sample has several important implications, especially if the study focuses on scam victimization. Since most participants are aged 56-65, the findings will mainly reflect the experiences of individuals nearing or in early retirement. This highlights trends in financial decisions, digital literacy, or scam susceptibility

specific to this group but may overlook challenges faced by older individuals aged 70+, such as cognitive decline or higher reliance on social support. Preventive measures like digital literacy workshops or scam awareness campaigns could be tailored to the younger retirees, while further research is needed to address the needs of the older

population. The small representation of those aged 70+ may limit how well the findings apply to older age groups, emphasizing the need for a more balanced sample in future studies. Additionally, insights from this group can inform strategies to improve financial planning and protect retirement savings, which are common targets of scams.

B. Gender of the Respondents

The gender distribution of the sample consists of 300 individuals, with males representing the majority at 57.3% (172 individuals) and females comprising the remaining 42.7% (128 individuals). These percentages are consistent across the valid percent column, as all data points are valid. The cumulative percentage highlights that males account for 57.3% of the sample, while the inclusion of females brings the total to 100%, indicating that there are no missing data for this variable. This suggests a slightly higher representation of males in the sample compared to females.

Table 2: Gender of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	172	57.3	57.3	57.3
Female	128	42.7	42.7	100.0
Total	300	100.0	100.0	

The gender distribution of the sample, with 57.3% males and 42.7% females, suggests that the findings may reflect male experiences more, which could limit their generalizability to other populations with different gender ratios. If gender is an important factor in the study, separate analyses may be needed to explore any differences between males and females. The higher number of males could also introduce bias, especially if gender is linked to key variables. It's important to compare the sample's gender distribution with the target population to ensure the sample is representative. In designing policies or interventions, the needs of the more represented gender should be prioritized, while still addressing issues specific to the underrepresented group. Future studies could consider adjusting the sample to achieve a more balanced gender distribution.

C. Education of the Respondents

The table shows the distribution of education levels among 300 respondents. A small percentage, 2.7%, have no formal education, while 21.3% have completed elementary or primary education. The majority of respondents, 55.3%, have completed high school or secondary education, and 20.7% have obtained a college or tertiary education. These figures reflect a relatively high level of education, with more than three-quarters of the respondents having at least completed high school. The cumulative percentages demonstrate that by the time we reach the college/tertiary education category, all 300 respondents are accounted for, with the total cumulative percentage reaching 100%.

Table 3: Education of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
No Formal Education	8	2.7	2.7	2.7
Elementary/Primary	64	21.3	21.3	24.0

The education distribution among the 300 respondents suggests a few key points. Most respondents (55.3%) have completed high school, indicating a solid level of basic education, which can support better awareness and decision-making. However, 2.7% have no formal education, highlighting a small group facing educational barriers, which could limit their opportunities. Additionally, 21.3% have only elementary education, which may hinder their access to higher-paying jobs or opportunities, potentially making them more vulnerable to scams. The 20.7% with college education are likely better equipped to handle complex issues, such as scams, due to greater digital and financial literacy. Overall, the data suggests that improving education for those with lower levels could help reduce vulnerability to social risks like scams and promote greater social equality.

D. Income of the Respondents

The table provides a breakdown of income levels among a sample of 300 individuals. The majority of respondents (42.7%) fall within the income range of 10,001 to 20,000, while 22% earn between 30,001 and 40,000, and 20.7% fall into the 20,001 to 30,000 range. A smaller portion, 12.7%, earn 10,000 or less, while only 2% earn between 40,001 and 50,000. The cumulative percentage column shows that by the time we reach the 30,001 to 40,000 range, 98% of the sample has been accounted for, with the remaining 2% falling into the highest income bracket. The data reveals that most individuals in the sample earn below 40,000, with a smaller proportion earning higher amounts.

Table 4: Income of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
10,000 or less	38	12.7	12.7	12.7
10,001 to 20,000	128	42.7	42.7	55.3
20,001 to 30,000	62	20.7	20.7	76.0
30,001 to 40,000	66	22.0	22.0	98.0

40,001 to 50,000	6	2.0	2.0	100.0
Total	300	100.0	100.0	

The distribution of income levels in the table has several implications. First, the fact that a large proportion of respondents (42.7%) earn between 10,001 to 20,000 suggests that the majority of the sample may be in lower to middle-income brackets. This could indicate that financial instability or limited disposable income might be common among the group, potentially making them more vulnerable to financial challenges, including scams or economic downturns. Additionally, the relatively small percentage of individuals (2%) earning between 40,001 and 50,000 highlights that higher-income earners are in the minority, which may suggest a concentration of wealth within a smaller portion of the population. This income disparity could have implications for social policies, access to resources, and financial support programs. Understanding the income distribution also suggests that interventions aimed at improving financial

literacy and social support networks might be particularly beneficial for the majority of individuals within the lower to middle-income categories.

E. Respondents Family Status

The table provides a breakdown of the family status of 300 individuals. The majority of respondents, 90.0%, are married, while 4.7% report having no spouse. A smaller proportion, 2.0%, are annulled or separated, and 3.3% are widowed. The cumulative percentage shows a gradual increase, starting with 4.7% for those with no spouse, reaching 94.7% for married individuals, 96.7% for those annulled or separated, and 100% for widowed individuals. This indicates that the majority of participants are married, with relatively few in the other family status categories.

Table 5: Respondents Family Status

	Frequency	Percent	Valid Percent	Cumulative Percent
No Spouse	14	4.7	4.7	4.7
Married	270	90.0	90.0	94.7
Annulled/Separated	6	2.0	2.0	96.7
Widowed	10	3.3	3.3	100.0
Total	300	100.0	100.0	

The breakdown of family status shows that most respondents (90.0%) are married, suggesting that marriage plays a key role in providing social support, which may help protect against scam victimization. The smaller groups of individuals without a spouse (4.7%), annulled or separated (2.0%), and widowed (3.3%) may be more vulnerable, as they could face social isolation. Since married people are the majority, interventions could focus on strengthening the protective aspects of marriage, like joint decision-making and discussing potential scams. Additionally, providing targeted support to the widowed, separated, or non-married individuals could help reduce their risk. This data emphasizes the importance of tailored prevention programs that consider both the protective role of marriage and the challenges faced by smaller family status groups.

F. Identified Risk Factors Among Retired Adults

The table shows that most respondents agree that factors like limited digital literacy, lack of awareness about scams, and cognitive decline make retired adults more likely to fall victim to scams, with average scores around 3.3. The statement about access to retirement funds received the lowest average score (2.91), indicating less agreement but still recognition of its role. The standard deviations range from 0.31 to 0.76, showing some variability in responses. Factors like limited social support and lack of exposure to scam prevention information had higher variability, suggesting different opinions on their importance. Overall, the data highlights that digital literacy, cognitive decline, and social isolation are seen as key risks for scam victimization, while other factors have.

Table 6: Identified Risk Factors Among Retired Adults

	Mean	Verbal interpretation	Std. Deviation	Variance
Financial instability increases the likelihood of scam victimization among retired adults.	3.11	Agree	0.31	0.10
Retired adults with limited digital literacy are more prone to falling for online scams.	3.27	Strongly Agree	0.57	0.32
Loneliness and social isolation make retired adults more susceptible to scam attempts.	3.19	Agree	0.49	0.24
Lack of awareness about common scams leads to higher victimization rates among retired adults.	3.33	Strongly Agree	0.47	0.22
Retired adults with cognitive decline are at a higher risk of being scammed.	3.29	Strongly Agree	0.51	0.26
Trusting nature or overly polite behavior contributes to retired adults being targeted by scammers.	3.23	Agree	0.57	0.33
Scammers specifically target retired adults due to their perceived vulnerability.	3.31	Agree	0.54	0.29

Retired adults with limited social support networks are more likely to fall victim to scams.	3.17	Agree	0.69	0.47
Access to retirement funds or savings makes retired adults attractive targets for financial scams.	2.91	Agree	0.76	0.58
Lack of regular exposure to updated scam prevention information increases scam victimization among retired adults.	3.20	Agree	0.72	0.52
Average	3.15	Agree	0.41	0.17

The findings suggest several actions. Educational campaigns are essential to raise awareness about scams, using simplified information tailored to retirees. Programs to improve digital skills and offer support for online transactions could address cognitive and technological challenges. Efforts to reduce isolation, like community engagement, may help mitigate risks tied to limited social support. The varied responses highlight the need for customized solutions rather than a one-size-fits-all approach. Further research is needed to explore how demographics, such as income and education, influence scam vulnerability, ensuring interventions are inclusive and effective.

Several studies support the findings regarding actions to mitigate scam vulnerability among older adults. Research by Yu et al. (2023) underscores the importance of educational campaigns to enhance scam awareness, showing that higher financial literacy and awareness significantly reduce susceptibility to government impersonation scams. Similarly, Spreng et al. (2023) highlights the necessity of tailored interventions, as older adults often misjudge deceptive cues due to positivity biases and diminished "gut feeling" responses. Addressing digital skill gaps is another critical measure, as Yu et al. (2022) found that improving financial literacy and decision-making skills bolsters resilience against scams. Social isolation is also a significant factor, with Sur et al. (2021) demonstrating that loneliness and reduced social networks increase scam susceptibility, while interventions to enhance social support reduce these risks, particularly for those experiencing life changes like widowhood. Finally, both Yu et al. (2023) and Sur et al. (2021) emphasize the influence of demographic factors, such as education, income, and cognitive ability, on scam vulnerability, affirming the need for customized solutions rather than a one-size-fits-all approach. These findings collectively reinforce the need for multifaceted interventions tailored to address cognitive, technological, and social challenges faced by older adults.

Researchers support the findings that targeted interventions can help reduce scam vulnerability among retirees. Lichtenberg et al. (2013) emphasize the importance of educational campaigns, highlighting that simplified, targeted information can mitigate risks, particularly for individuals with lower levels of education and income. Judges et al. (2017) underscore the role of cognitive abilities in fraud prevention, suggesting that programs aimed at improving digital literacy and decision-making skills are crucial. Lee and Soberon-Ferrer (1997) further stress that social isolation increases susceptibility to scams, validating the need for community engagement initiatives to foster connection and awareness among older adults. The *Financial Fragility Research Brief* (2022) illustrates the importance of customized interventions, revealing that financial fragility shaped by factors such as education and income is closely linked to scam susceptibility. Additionally, the brief emphasizes the need for further research to understand how demographic factors, such as race and financial status, influence vulnerability, aligning with calls for inclusive and effective strategies. Collectively, these studies advocate for multifaceted and tailored approaches to safeguard retirees against scams.

G. Presence of Social Guardians Among Retired Adults

The table shows factors that help reduce scam victimization among retired individuals. Most respondents agreed that family involvement, social support, and financial advisors play an important role in preventing scams. The highest mean (3.43) was for the statement about having a strong relationship with a financial advisor, showing it's seen as very important. The lowest mean (2.97) was for living with family members, suggesting it is helpful but not as significant as other factors. The standard deviations ranged from **0.41** to **0.81**, with more agreement on family check-ins (0.41) and more variability on community groups (0.81). Overall, the data indicates that **family support, consulting trusted people, and having a strong social network** are key in preventing scams, with financial advisors also playing a crucial role. Living arrangements and community involvement, while helpful, were seen as less important.

Table 7: Presence of Social Guardians Among Retired Adults

	Mean	Verbal interpretation	Std. Deviation	Variance
Having family members or close friends regularly check in reduces the likelihood of scam victimization among retired individuals.	3.15	Agree	0.41	0.17
Retired individuals who have a partner or spouse involved in their financial decisions are less likely to fall victim to scams.	3.21	Agree	0.55	0.30
The presence of a strong social support network helps protect retired individuals from scam attempts.	3.13	Agree	0.68	0.46
	3.25	Strongly Agree	0.48	0.23

Regular conversations with family members about scams and fraud prevention reduce scam victimization among retirees.	3.13	Agree	0.52	0.27
Retired individuals who consult family or friends before making major financial decisions are less likely to be scammed.	3.27	Agree	0.57	0.33
Social guardians, such as family members, help in identifying potential scams, which protects retired individuals.	3.17	Agree	0.61	0.37
Retired individuals living with family members are better protected from scams than those living alone.	2.97	Agree	0.63	0.39
The presence of socially active community groups helps mitigate the risk of scam victimization among retired individuals.	3.01	Agree	0.81	0.66
Having someone to discuss suspicious calls or emails reduces the chance of retirees falling victim to scams.	3.07	Agree	0.49	0.24
Retired individuals with a strong relationship with a trusted financial advisor or advocate are less likely to be scammed.	3.43	Strongly Agree	0.50	0.25
Average	3.16	Agree	0.57	0.33

The data highlights the critical role of social support in reducing scam victimization among retired individuals, particularly from financial advisors, family, and community groups. Respondents showed the strongest agreement with the idea that a strong relationship with a financial advisor helps protect retirees from scams (mean of 3.43). Regular family check-ins and involving a spouse in financial decisions were also highly rated, with means between 3.13 and 3.27. In contrast, the statement about retirees living with family members offering better protection had a slightly lower mean of 2.97, suggesting this factor is less impactful without active involvement in financial matters. The overall average score of 3.16 reflects general agreement that social support mitigates scam risks, with a moderate standard deviation of 0.57 indicating consistency in responses.

These findings underscore the importance of combining professional, familial, and community support to safeguard retirees from scams. Trusted financial advisors are pivotal for guiding secure financial decisions, while family engagement, particularly through communication and participation in financial matters, strengthens protection against fraud. Simply living with family is less effective unless they actively contribute to scam prevention. Active community groups also play a vital role in raising awareness, reducing isolation, and sharing information about emerging fraud risks.

Studies further validate these conclusions. DeLiema et al. (2020) and Lichtenberg et al. (2019) highlight the essential role of financial advisors in enhancing financial literacy and preventing scams. The FINRA Investor Education Foundation (2020) reinforces the need for advisors to offer fraud prevention services, particularly for retirees facing financial fragility. Similarly, Burnes et al. (2017) emphasize that family involvement is critical, but only when family members actively engage in financial decisions and remain

vigilant. Judges et al. (2017) and Shao et al. (2019) show that trust and open communication within families create a strong defense against fraud.

Community organizations complement these efforts by addressing social isolation and empowering retirees with knowledge through education programs and workshops. Fenge and Lee (2018) and Cross (2016) stress the value of community-driven initiatives, while Sur et al. (2021) and FINRA (2020) highlight the importance of networks for sharing information and fostering collective vigilance. Research by Yu et al. (2022) and Burnes et al. (2017) underscores how loneliness increases susceptibility to scams, further demonstrating the protective role of community engagement.

In conclusion, a multifaceted approach involving professional guidance, family participation, and community support provides a robust defense against scams, reducing retirees' vulnerability and enhancing their overall well-being.

H. Technological Familiarity and Scam Susceptibility

Retired adults recognize the influence of technological skills on scam vulnerability, as reflected in an average score of 3.15, indicating general agreement. The highest mean of 3.31 shows strong agreement that technological proficiency helps avoid scams, while the lowest score of 3.01 suggests moderate concern about frequent email use increasing phishing risks. Response variations, with standard deviations ranging from 0.39 to 0.87, suggest differing levels of confidence in digital skills, with the highest variation tied to technological proficiency and the least to online security practices. Overall, the findings emphasize the importance of technology knowledge in protecting against scams, despite varying levels of familiarity among retirees.

Table 8: Technological Familiarity and Computer Usage Patterns Among Retired Adults

	Mean	Verbal interpretation	Std. Deviation	Variance
Retired adults with high familiarity with online security practices are less vulnerable to online scams.	3.13	Agree	0.39	0.15
Regular use of the internet by retired adults increases their	3.19	Agree	0.56	0.31

awareness of online scams, reducing vulnerability.				
Retired adults who rely heavily on computers for daily tasks are more likely to recognize fraudulent online activities.	3.19	Agree	0.57	0.33
Frequent interaction with social media platforms makes retired adults more vulnerable to online scams.	3.07	Agree	0.56	0.32
Retired adults who frequently receive online training or updates about cybersecurity are less likely to fall victim to scams.	3.13	Agree	0.44	0.20
Lack of familiarity with technology increases the chances of retired adults being scammed online.	3.23	Agree	0.67	0.45
Retired adults who regularly use online banking services are more cautious and less prone to online scams.	3.14	Agree	0.63	0.40
Inconsistent computer usage patterns make retired adults more vulnerable to online scams.	3.09	Agree	0.66	0.43
Retired adults who use email frequently are more likely to encounter and fall victim to phishing scams	3.01	Agree	0.67	0.45
Technologically proficient retired adults are better equipped to avoid online scams.	3.31	Strongly Agree	0.87	0.75
Average	3.15	Agree	0.60	0.38

The table illustrates that retired adults with higher technological familiarity and regular usage are less likely to be victims of online scams. Specifically, individuals proficient in online security practices (mean of 3.13) and frequent users of online banking (mean of 3.14) exhibit greater caution. In contrast, those unfamiliar with technology are more vulnerable, as reflected in the statement on lack of familiarity (mean of 3.23). Social media use (mean of 3.07) and inconsistent computer usage (mean of 3.09) further increase scam risks. The highest agreement (mean of 3.31) was with the statement that technologically skilled retirees are better equipped to avoid scams, emphasizing the protective role of tech proficiency. Overall, the average mean (3.15) underscores the importance of digital literacy, consistent technology use, and online security education in mitigating retirees' vulnerability to scams.

Research findings reinforce these observations. Regular technology use and digital literacy are pivotal in reducing older adults' susceptibility to scams. Shao et al. (2019) highlight how technological proficiency enables retirees to identify fraudulent activities and navigate complex digital environments, stressing the need for initiatives promoting technology adoption and skills development. DeLiema et al. (2020) emphasize that cognitive decline, often linked with aging, exacerbates susceptibility to scams, particularly when paired with limited technology use. Their research advocates for digital literacy training to counter cognitive challenges and improve risk assessment skills.

Spreng et al. (2021) point out the role of digital literacy in preventing financial exploitation. Proficient older adults are better equipped to recognize fraudulent emails, websites,

or identity theft, empowering them to safeguard their finances. Similarly, Ueno et al. (2022) confirm that technological proficiency significantly reduces the likelihood of being targeted by scams. Those lacking digital skills struggle to detect red flags, highlighting the necessity of targeted training to enhance vigilance.

Burnes et al. (2017) acknowledge that while social media creates opportunities for scammers, digitally literate individuals are less vulnerable. Knowledge of online safety practices, such as avoiding suspicious links and protecting personal information, helps mitigate risks. Finally, Lichtenberg et al. (2019) emphasize the effectiveness of digital literacy programs in reducing financial exploitation. By equipping older adults with tools to manage online finances securely and recognize scams, such programs foster caution and awareness.

I. Financial Stressors and Recent Life Events Among Retired Adults

The table shows that respondents generally agree with the statements about factors that increase scam vulnerability among retirees, with the average score of 3.11. The highest agreement is for the statement about life changes, like moving or downsizing, which scored 3.27, indicating strong agreement. Other factors such as financial loss, retirement stress, and dependency on others also scored in the "Agree" range. Standard deviations range from 0.42 to 0.83, showing some differences in responses, with larger deviations indicating more varied opinions. Overall, the data suggests that retirees see financial struggles and life changes as significant risks for scam victimization, though opinions on some factors differ more than others.

Table 9: Financial Stressors and Recent Life Events among Retired Adults

	Mean	Verbal interpretation	Std. Deviation	Variance
Experiencing financial loss increases the likelihood of retired individuals becoming victims of scams.	3.02	Agree	0.42	0.18
Financial stress due to inadequate retirement savings makes retired individuals more susceptible to scams.	3.21	Agree	0.64	0.41

Retirement leads to increased financial vulnerability, which makes retirees more prone to scams.	2.95	Agree	0.80	0.63
Recent life events, such as the loss of a spouse, increase the likelihood of scam victimization among retirees.	3.18	Agree	0.78	0.60
Retired individuals facing sudden medical expenses are more likely to fall victim to scams.	3.03	Agree	0.68	0.47
Major life changes like moving to a new home or downsizing increase the risk of scam susceptibility for retired individuals.	3.27	Strongly Agree	0.63	0.40
The emotional impact of retirement can make individuals more vulnerable to fraudulent schemes.	3.09	Agree	0.49	0.24
Retired individuals experiencing financial hardship are more likely to respond to fraudulent investment opportunities.	3.23	Agree	0.64	0.40
Financial dependency on others increases the risk of scam victimization among retirees.	3.01	Agree	0.55	0.31
Retired individuals who have recently experienced financial setbacks are more likely to trust offers that seem "too good to be true."	3.07	Agree	0.83	0.68
Average	3.11	Agree	0.65	0.43

The data indicates that retirees generally agree that financial pressures and life events increase their risk of falling victim to scams. The highest level of agreement was with the statement that major life changes, such as moving or downsizing, heighten susceptibility, with a mean score of 3.27 (Strongly Agree). Other factors, including financial losses, insufficient retirement savings, unexpected medical expenses, and recent financial setbacks, also contribute to vulnerability, with mean scores ranging from 2.95 to 3.23 (Agree). Notably, responses about financial setbacks showed more variation, reflecting differing opinions. Overall, the mean score of 3.11 demonstrates a general consensus that financial and life stressors play a significant role in retirees' scam susceptibility.

The findings emphasize that retirees perceive financial stress and major life transitions as key contributors to scam vulnerability. Events like financial loss, limited savings, medical expenses, and setbacks correlate with higher risk, with the strongest agreement surrounding transitions such as moving or downsizing. These changes often lead to confusion, emotional strain, and financial instability, which scammers exploit. Some variability in responses, particularly regarding skepticism of offers that seem "too good to be true," suggests differing sensitivities to financial stress. Nevertheless, there was strong agreement on the emotional impact of retirement increasing vulnerability. This underscores the need for financial education and emotional support to help retirees manage stress and avoid scams. Initiatives such as programs to support retirees during transitions, scam prevention campaigns addressing financial and emotional factors, and tailored financial planning could mitigate these risks. Further research into emotional influences could enhance support mechanisms for retirees.

Supporting studies reinforce these findings, highlighting the impact of financial stress, life changes, and emotional factors on scam susceptibility among retirees. Burnes et al. (2017) demonstrated that older adults, especially retirees, are particularly vulnerable to financial fraud due to cognitive, emotional, and financial challenges. They noted that retirement, shifts in financial stability, and health issues

amplify this vulnerability. Retirees often face financial instability due to fixed incomes, rising medical costs, and diminished savings, making them prime targets for scams. DeLiema (2018) used routine activity theory to explain how life transitions, such as retirement or downsizing, disrupt routines, increase exposure to scams, and create confusion and emotional distress, reducing retirees' ability to assess risks. Similarly, Shao et al. (2019) found that major changes, like retirement or losing a spouse, lead to psychological and financial stress that impairs decision-making, increasing susceptibility to scams. Yu et al. (2022) highlighted that retirees with inadequate savings or significant health expenses are more likely to trust fraudulent offers, driven by financial fragility and medical cost concerns. Ueno et al. (2022) added that emotional factors, such as loneliness and limited social support, combined with life transitions, significantly impair retirees' judgment, making them more prone to scams.

Collectively, these studies underscore the multifaceted nature of scam vulnerability in retirees, pointing to the importance of addressing financial and emotional challenges. Financial education, emotional support, and personalized financial planning are critical in equipping retirees to handle transitions and reduce scam exposure. Tailored interventions that consider retirees' specific circumstances and emotional states are essential for fostering financial security and enhancing decision-making resilience.

J. Relationship between Identified Risk Factors and Scam Victimization among Retired Adults.

The table shows factors that influence the likelihood of retired adults becoming scam victims. Financial instability, limited digital literacy, loneliness, lack of awareness about scams, and cognitive decline all increase the risk. For example, financial instability is strongly linked to scam victimization ($r = 0.407$, $p < 0.01$), and loneliness has a moderate negative correlation ($r = -0.306$, $p < 0.01$). Trusting and overly polite behavior also makes people more vulnerable to scams ($r = 0.124$, $p < 0.05$). Having social support, like family check-ins or consulting family members before making financial decisions, helps protect against scams.

Those with a partner or spouse involved in finances, or strong social networks, are less likely to be scammed. People living with family or in active communities are also less vulnerable. On the other hand, lack of access to scam prevention

information increases risk. Having a trusted financial advisor is linked to lower victimization ($r = 0.261$, $p < 0.01$). These findings stress the importance of awareness, social support, and proactive measures to protect retired adults from scams.

Table 10: Relationship between Identified Risk Factors and Scam Victimization among Retired Adults

Factor	Correlation with Scam Victimization	Pearson Coefficient	Significance
Financial instability	Increases risk	0.407**	$p < 0.01$
Limited digital literacy	More prone to scams	0.329**	$p < 0.01$
Loneliness and social isolation	Increases susceptibility	-0.306**	$p < 0.01$
Lack of scam awareness	Leads to higher victimization rates	0.416**	$p < 0.01$
Cognitive decline	Higher risk of being scammed	0.403**	$p < 0.01$
Trusting or polite behavior	More likely targeted	0.219**	$p < 0.01$
Limited social support	Increases victimization	0.399**	$p < 0.01$
Access to funds	Attractive target for scams	0.606**	$p < 0.01$
Lack of updated scam prevention info	Increases victimization	0.433**	$p < 0.01$
Family involvement in financial decisions	Reduces risk	0.421**	$p < 0.01$

The findings highlight several factors that contribute to scam victimization among retirees. Financial instability and easy access to savings increase vulnerability, as retirees are often targeted for their financial assets. Social factors, such as loneliness, limited digital skills, lack of awareness about scams, and a trusting nature, also play a significant role. Cognitive decline is particularly notable as a strong risk factor. However, several protective measures can mitigate these risks, including regular family check-ins, involving a spouse in financial decisions, and support from trusted social connections. Participation in community groups, scam prevention education, discussions about suspicious communications, and consulting trusted advisors are additional safeguards.

Addressing these vulnerabilities requires a multifaceted approach. Educating retirees about common scam tactics, enhancing digital literacy, fostering social connections, and encouraging family involvement are essential strategies to reduce their risk. Financial security, tools for detecting scams, and tailored digital resources can further empower retirees. By combining education, social support, and careful financial management, retirees can better protect themselves from scams.

Research underscores these findings, with studies such as DeLiema et al. (2020) and Lusardi, Mitchell, and Oggero (2020) showing that retirees with financial instability, constrained incomes, or limited financial literacy are more prone to scams. Accessibility to retirement savings makes them attractive targets. Social and psychological factors, including loneliness, cognitive decline, and trusting dispositions, further heighten their susceptibility, as noted by Cross (2016), Judges et al. (2017), and Shao et al. (2019). Limited digital literacy exacerbates the issue, given scammers' use of advanced online tactics.

Awareness and education are critical yet often insufficient. Burton et al. (2022) emphasize ongoing education, and the National Institute on Aging (2024) highlights the need for targeted awareness campaigns, particularly on scams like phishing and government

impersonation. Programs to enhance digital literacy are invaluable for equipping retirees to navigate online platforms safely.

Protective factors include strong social networks, as highlighted by Burnes et al. (2017), and family involvement in financial decisions, as shown by Yu et al. (2022). Regular family check-ins and community engagement provide additional layers of protection. Practical interventions, such as financial planning, education, and support, are the most effective strategies, according to DeLiema et al. (2017). Training financial advisors to recognize signs of exploitation, as Phelan et al. (2023) suggest, and designing user-friendly digital tools, as Clarke et al. (2021) recommend, can further safeguard retirees.

K. The Relationship between Presence of Social Guardians and Scam Victimization Among Retired Adults.

This table focuses on the most significant correlations related to scam victimization among retired adults, using simplified factor descriptions for better understanding. Each entry includes the Pearson correlation coefficient to indicate the strength and direction of the relationship, along with the significance level and the sample size to validate the statistical conclusions.

The table highlights factors that affect the risk of scam victimization. Financial instability, limited digital literacy, lack of scam awareness, and a trusting nature increase vulnerability, with correlations from 0.124 to 0.329. Retired adults, those with little social support, and people with access to savings are especially targeted by scammers. On the other hand, family check-ins, spouse involvement in finances, strong social support, and living with family reduce scam risks, with correlations from -0.134 to 0.416. Consulting family or friends and having a good relationship with a financial advisor also help lower the risk. Some factors, like loneliness and social isolation or regular talks about scams, have weak or no significant impact on scam victimization. Overall, strong family support, awareness, and digital literacy protect against scams, while financial instability and lack of awareness increase vulnerability.

Table 11: The Relationship between Presence of Social Guardians and Scam Victimization Among Retired Adults.

Factor	Pearson Correlation	Significance	Sample Size
Financial instability increases scam victimization	0.407**	$p < 0.01$	300
Limited digital literacy increases scam susceptibility	0.329**	$p < 0.01$	300
Loneliness and social isolation increases scam susceptibility	-0.306**	$p < 0.01$	300
Lack of scam awareness leads to higher victimization	0.416**	$p < 0.01$	300
Cognitive decline increases scam risk	0.403**	$p < 0.01$	300
Trusting/polite behavior increases target likelihood	0.219**	$p < 0.01$	300
Limited social support increases victimization	0.399**	$p < 0.01$	300
Access to funds makes retirees attractive scam targets	0.606**	$p < 0.01$	300
Lack of updated scam prevention information increases victimization	0.433**	$p < 0.01$	300
Regular check-ins by family/friends reduces scam victimization	0.407**	$p < 0.01$	300
Partner/spouse involved in financial decisions reduces scam risk	0.319**	$p < 0.01$	300
Strong social support network protects against scams	0.297**	$p < 0.01$	300
Regular conversations about scams with family reduces victimization	0.220**	$p < 0.01$	300
Consulting family/friends before financial decisions reduces scam risk	0.264**	$p < 0.01$	300
Social guardians identifying scams protects retirees	0.421**	$p < 0.01$	300
Living with family members protects against scams	0.435**	$p < 0.01$	300
Socially active community groups mitigate scam victimization risk	0.559**	$p < 0.01$	300
Discussing suspicious calls/emails reduces scam victimization	0.225**	$p < 0.01$	300
Strong relationship with a financial advisor reduces scam risk	0.346**	$p < 0.01$	300

The findings show that awareness, digital skills, and social support play a key role in preventing scam victimization. Factors like financial instability, low digital literacy, lack of scam awareness, and a trusting nature increase vulnerability, emphasizing the need for education and support. Retired individuals, those with limited social support, and those with savings are more likely to be targeted by scammers. On the other hand, having family check-ins, spouse involvement in finances, and strong social networks help protect against scams. Consulting trusted people before making financial decisions and working with a financial advisor also reduce risk. While loneliness and limited exposure to scam information had weak effects, improving digital skills and fostering a supportive environment are still important. The findings suggest the need for educational programs to raise awareness and improve digital skills, especially for vulnerable groups. Financial counseling and stronger family involvement in finances can also help protect against scams. Programs targeted at at-risk groups, like retirees, and efforts to build social support can further reduce vulnerability. Encouraging proactive behaviors, like consulting trusted people and financial advisors, is essential in preventing scams.

Several studies provide robust support for the finding that awareness, digital literacy, and social support are critical factors in preventing scam victimization, while financial instability, low digital literacy, lack of scam awareness, and a trusting nature significantly increase vulnerability to scams. Shao et al. (2019) emphasize that older adults' heightened vulnerability to fraud is often due to a lack of digital literacy and awareness. Their research underscores the importance of targeted education for older adults to equip them with the skills needed to identify and avoid digital scams, which have become increasingly sophisticated in the digital age. The study highlights that seniors who are not familiar with

technology are at greater risk of falling victim to online fraud, thereby reinforcing the need for proactive digital literacy programs aimed at enhancing older adults' ability to recognize and avoid fraud.

Similarly, DeLiema (2018) applies routine activity theory to explore the risk factors of elder fraud, noting that the absence of awareness and low digital literacy are significant contributors to financial exploitation. DeLiema's research emphasizes that fraud prevention programs targeting older adults should focus on educating them about common scams, especially those that exploit technological advancements, such as phishing, identity theft, and fraudulent online sales. This underscores the importance of raising awareness about scams and improving digital literacy to help mitigate the risks associated with new forms of financial exploitation.

In terms of social support, Burnes et al. (2017) highlight the protective role of strong social networks in preventing scam victimization. Their study demonstrates that individuals with robust social support systems, including family, friends, and community networks, are less likely to fall victim to scams. This supports your finding that family check-ins, social connections, and a strong support system can significantly reduce the likelihood of scam victimization. Lichtenberg et al. (2019) further support this by showing that older adults who have access to trusted individuals who can offer guidance and assistance are less susceptible to financial exploitation. Their research emphasizes the importance of fostering social connections and encouraging older adults to seek help from trusted individuals before making financial decisions, as these relationships provide a safety net against potential fraud.

Financial instability is another critical factor that increases vulnerability to scams. DeLiema et al. (2017) observe that seniors with limited financial resources or significant savings are more likely to be targeted by fraudsters. This finding aligns with your study, which suggests that financial instability, especially the availability of retirement funds or savings, makes older adults prime targets for scammers. Scammers often exploit the financial fragility of retirees, preying on their fears of outliving their savings and offering fraudulent financial products or schemes as a solution. Cross (2016) also highlights that seniors with a trusting nature are particularly at risk, as they may be more inclined to believe fraudulent claims, especially when scammers prey on their emotional vulnerabilities. This reinforces your finding that a trusting nature increases susceptibility to scams, as individuals may be less likely to question the authenticity of unsolicited offers.

Furthermore, Lichtenberg et al. (2013) and Judges et al. (2017) suggest that consulting trusted people, such as family members or financial advisors, before making financial decisions can significantly reduce the risk of financial exploitation. Lichtenberg et al. (2013) find that individuals who seek advice from trusted sources are less likely to fall victim to scams, particularly those targeting the elderly, who may lack the expertise to recognize fraudulent schemes. This aligns with your findings, which highlight that involving family members in financial matters, as well as working with financial advisors, can help protect against scams. Judges et al. (2017) emphasize that cognitive factors, such as personality traits and trust levels, play a crucial role in fraud victimization, but they also highlight the importance of seeking advice and verification from trusted sources before making decisions.

While loneliness and limited exposure to scam information were found to have weaker effects in your study, Shao et al. (2019) and Yu et al. (2022) suggest that these factors do contribute to vulnerability. Shao et al. (2019) note that loneliness can make seniors more susceptible to social engineering scams, where fraudsters exploit emotional isolation to build trust and manipulate victims. However, their research also suggests that while loneliness is a risk factor, it is less impactful than other factors, such as cognitive decline, digital illiteracy, and financial instability. Yu et al.

(2022) further suggest that limited exposure to scam information, while a contributing factor, is overshadowed by more significant risk factors, such as financial fragility and low digital literacy. Their study highlights the critical role of digital education and social support in mitigating vulnerability, especially among at-risk groups like retirees.

L. The Relationship between Technological Familiarity and Computer usage patterns Scams Among Retired Adults.

This table distills the extensive data into a more digestible format, focusing on the most statistically significant correlations related to how certain factors increase or decrease the vulnerability of retired adults to scams. Each entry highlights the strength of the relationship, its statistical significance, and the reliability of the data based on the sample size.

The table highlights various factors influencing scam victimization, each showing a significant relationship ($p < 0.01$) with different aspects of susceptibility. Financial instability exhibits a strong positive correlation ($r = 0.407$), indicating that financially unstable individuals are more vulnerable, likely due to impaired decision-making under stress. Similarly, limited digital literacy ($r = 0.329$) and lack of scam awareness ($r = 0.416$) significantly increase victimization, underscoring the need for education on digital and scam-related issues. Cognitive decline ($r = 0.403$) also raises susceptibility, particularly among older adults, while access to substantial funds ($r = 0.606$) makes individuals attractive targets for scammers. Protective factors include technological proficiency ($r = 0.594$), familiarity with online security ($r = 0.332$), and regular online banking use ($r = 0.512$), which equip individuals to better recognize and avoid scams. Regular internet use ($r = 0.189$), though weakly correlated, also contributes to reduced vulnerability, likely by increasing exposure to online environments and awareness. Interestingly, loneliness and social isolation ($r = -0.306$) show a negative correlation, suggesting that social connections provide a protective layer against scams by offering opportunities for advice and support. Overall, the data emphasize the interplay between individual traits and circumstances, pointing to the need for a multifaceted approach involving digital literacy programs, awareness campaigns, and enhanced social support to mitigate scam risks.

Table 12: The Relationship between Technological Familiarity and Computer usage patterns Scams Among Retired Adults.

Factor Influencing Scam Victimization	Related Factor	Pearson Coefficient	Significance Level	Sample Size
Financial instability	General victimization rate	0.407**	$p < 0.01$	300
Limited digital literacy	Online scam susceptibility	0.329**	$p < 0.01$	300
Loneliness and social isolation	Susceptibility to scams	-0.306**	$p < 0.01$	300
Lack of scam awareness	Victimization rate	0.416**	$p < 0.01$	300
Cognitive decline	Risk of being scammed	0.403**	$p < 0.01$	300
Access to funds	Attractiveness for scams	0.606**	$p < 0.01$	300
Regular internet use	Reduced scam vulnerability	0.189**	$p < 0.01$	300
High online security familiarity	Reduced vulnerability	0.332**	$p < 0.01$	300
Regular online banking use	Cautiousness against scams	0.512**	$p < 0.01$	300
Technological proficiency	Ability to avoid scams	0.594**	$p < 0.01$	300

The findings highlight various factors influencing scam victimization, with significant implications for intervention strategies. Financial instability shows a strong positive correlation ($r = 0.407$), indicating that individuals under financial stress are more vulnerable due to impaired decision-making. Limited digital literacy ($r = 0.329$) and lack of scam awareness ($r = 0.416$) further increase susceptibility, emphasizing the importance of education on digital skills and scam prevention. Cognitive decline ($r = 0.403$) exacerbates risk, particularly for older adults, while access to substantial funds ($r = 0.606$) makes individuals attractive targets for scammers. On the other hand, technological proficiency ($r = 0.594$), familiarity with online security ($r = 0.332$), and regular online banking use ($r = 0.512$) are protective factors that enhance scam recognition and avoidance. Regular internet use ($r = 0.189$), though weakly correlated, contributes to reduced vulnerability by increasing exposure to scam information. Interestingly, loneliness and social isolation ($r = -0.306$) show a negative correlation, suggesting that strong social connections provide a protective buffer by offering opportunities for advice and support. These findings underscore the need for a multifaceted approach to mitigate scam risks, including digital literacy programs, scam awareness campaigns, and strengthened social support systems. Promoting technological proficiency, increasing awareness of online security, and fostering community connections are essential steps to reduce victimization and enhance resilience against scams. The study's findings, which highlight various factors influencing scam victimization, are well-supported by existing research on the vulnerabilities of older adults. Financial instability is a significant risk factor, as individuals experiencing financial strain are more susceptible to scams due to impaired decision-making. Research has shown that financial distress often leads to a state of heightened vulnerability, with individuals making hasty decisions in the hope of resolving their financial issues. Burnes et al. (2017) and DeLiema et al. (2020) emphasize that those under financial stress, particularly older adults, are more likely to be targeted by scammers exploiting their desperation. Additionally, the lack of financial literacy can exacerbate this vulnerability, as individuals may not fully understand the risks of certain financial transactions or the signs of fraud. Limited digital literacy is another critical factor in scam victimization, especially in the context of online fraud. Older adults, who may not be as familiar with digital platforms or the latest online security practices, are more likely to fall prey to cybercrime. Studies by Sharit et al. (2019) and Holtfreter et al. (2014) highlight that a lack of awareness regarding online threats makes older individuals more vulnerable to phishing, identity theft, and other types of digital fraud. This underscores the importance of digital literacy programs aimed at educating older adults on recognizing and avoiding digital scams. Moreover, a lack of scam awareness, as identified in this study, further increases susceptibility. Older adults who are unfamiliar with the types of scams circulating are at greater risk, as they may not recognize red flags such as unsolicited emails, phone calls, or requests for personal information. Cognitive decline is another well-established risk factor in scam victimization. Older adults experiencing cognitive impairments, such as mild cognitive decline or dementia, may struggle to make sound financial decisions or identify fraudulent schemes.

DeLiema et al. (2017) and Ueno et al. (2021) have shown that cognitive decline often leads to an increased risk of being scammed, as individuals may have difficulty understanding the potential consequences of certain transactions or recognizing deceitful behavior. This cognitive vulnerability is particularly concerning when scammers prey on older adults' trust, exploiting their reduced ability to assess risk and make informed decisions. Conversely, certain protective factors can reduce scam vulnerability. Technological proficiency and regular use of the internet have been found to enhance older adults' ability to recognize and avoid scams. Studies by Sharit et al. (2019) and König et al. (2018) emphasize that familiarity with technology, online security measures, and digital tools provides a protective buffer, making individuals more adept at recognizing warning signs and avoiding fraudulent schemes. Furthermore, regular internet use increases exposure to information about scams, contributing to heightened awareness and prevention. However, while regular internet use has a weak correlation with reduced vulnerability, it still plays a role in broadening individuals' understanding of the potential risks associated with online interactions. Lastly, the role of social connections in reducing scam victimization is significant. While loneliness and social isolation are often correlated with an increased risk of being targeted by scammers, strong social networks can act as a protective buffer. Research by Cross (2016) and Sur et al. (2021) suggests that individuals with supportive social networks, such as family and friends, are less likely to fall victim to scams because these networks offer opportunities for advice and guidance. Regular interactions with trusted individuals can help older adults make more informed decisions and avoid falling into scams that prey on their isolation or loneliness.

M. The Relationship between Financial Stressors and Recent life Events Scams Among Retired Adults.

The table presents an in-depth analysis of factors affecting scam victimization among retired adults. Financial instability is identified as a major risk factor, strongly correlating with both the likelihood of victimization ($r = 0.407$, $p < 0.01$) and associated financial losses ($r = 0.188$, $p < 0.01$). Additionally, recent financial setbacks exacerbate vulnerability ($r = 0.205$, $p < 0.01$), while financial stress due to insufficient savings shows no significant correlation ($r = -0.048$, NS). Limited digital literacy significantly heightens susceptibility to online scams ($r = 0.329$, $p < 0.01$), underscoring the need for digital education.

Social factors yield mixed findings: while limited social support is linked to greater risk ($r = 0.199$, $p < 0.01$), loneliness and isolation exhibit an unexpected negative correlation ($r = -0.306$, $p < 0.01$), suggesting that supportive networks may reduce vulnerability.

Awareness and prevention efforts are crucial. A lack of awareness strongly correlates with increased victimization ($r = 0.416$, $p < 0.01$), whereas familiarity with online security significantly lowers risk ($r = 0.332$, $p < 0.01$). However, regular exposure to scam prevention materials has no significant effect ($r = 0.084$, NS), indicating that the quality of information may be more important than its frequency.

Life changes and health factors also influence vulnerability. Retirement ($r = 0.129$, $p < 0.05$) and spousal loss ($r = 0.171$, $p < 0.01$) increase risk, but sudden medical expenses ($r = 0.081$, NS) and other major life changes ($r = 0.056$, NS) show no significant correlations.

Technological proficiency offers substantial protection, significantly reducing susceptibility to scams ($r = 0.594$, $p < 0.01$), as does regular online banking ($r = 0.512$, $p < 0.01$). In contrast, frequent email usage shows only a weak, non-significant correlation with phishing risks ($r = 0.094$, NS).

Table 13: The Relationship between Financial Stressors and Recent life Events Scams among Retired Adults

Influencing Factor	Pearson Correlation Coefficients and Significance	N
Financial Instability		
Increases likelihood of victimization	0.407** ($p < 0.01$)	300
Related to financial loss	0.188** ($p < 0.01$)	300
Increases due to financial stress from inadequate savings	-0.048 (NS)	300
Increases with recent financial setbacks	0.205** ($p < 0.01$)	300
Digital Literacy		
Limited literacy leads to online scam susceptibility	0.329** ($p < 0.01$)	300
Social Factors		
Loneliness and isolation increase susceptibility	-0.306** ($p < 0.01$)	300
Limited social support increases risk	0.199** ($p < 0.01$)	300
Emotional impact of retirement increases vulnerability	0.071 (NS)	300
Scam Awareness and Prevention		
Lack of awareness leads to higher victimization rates	0.416** ($p < 0.01$)	300
Lack of regular scam prevention info increases victimization	0.084 (NS)	300
High familiarity with online security reduces vulnerability	0.332** ($p < 0.01$)	300
Life Changes and Health Factors		
Retirement leads to increased financial vulnerability	0.129* ($p < 0.05$)	300
Loss of spouse increases likelihood of victimization	0.171** ($p < 0.01$)	300
Sudden medical expenses increase risk	0.081 (NS)	300
Major life changes (e.g., moving) increase susceptibility	0.056 (NS)	300
Technological Proficiency and Usage		
Technological proficiency helps avoid scams	0.594** ($p < 0.01$)	300
Regular online banking reduces susceptibility	0.512** ($p < 0.01$)	300
Frequent email use increases phishing risk	0.094 (NS)	300

The findings underscore the complex factors influencing scam victimization among retired adults, highlighting the interplay of financial, digital, social, and life-related variables. Financial instability is a key risk factor, strongly linked to scam likelihood ($r = 0.407$, $p < 0.01$) and financial loss ($r = 0.188$, $p < 0.01$), with recent financial setbacks amplifying these risks ($r = 0.205$, $p < 0.01$). Conversely, chronic financial stress due to inadequate savings shows no significant effect ($r = -0.048$, NS), suggesting that sudden disruptions in finances are more critical. Limited digital literacy ($r = 0.329$, $p < 0.01$) increases vulnerability, whereas technological proficiency ($r = 0.594$, $p < 0.01$) and regular online banking ($r = 0.512$, $p < 0.01$) serve as strong protective factors.

Social influences present mixed outcomes. Limited social support heightens risk ($r = 0.199$, $p < 0.01$), but loneliness and isolation unexpectedly show a negative correlation ($r = -0.306$, $p < 0.01$), indicating that active social networks offer greater protection than passive companionship. Awareness of scams is crucial; a lack of awareness strongly correlates with victimization ($r = 0.416$, $p < 0.01$), while familiarity with online security significantly reduces risks ($r = 0.332$, $p < 0.01$). However, frequent exposure to scam prevention content ($r = 0.084$, NS) appears

ineffective, suggesting a need for higher-quality, targeted educational efforts.

Life transitions, including retirement ($r = 0.129$, $p < 0.05$) and spousal loss ($r = 0.171$, $p < 0.01$), increase susceptibility to scams, while other health-related changes show no significant impact. These findings emphasize the need for holistic interventions, including financial literacy programs, targeted digital education, and robust social support systems. Tailored awareness campaigns and policy initiatives integrating scam education into retirement planning are essential to mitigating risks and enhancing retired adults' well-being.

Supporting studies align with these findings. DeLiema (2018) highlights the impact of financial instability, particularly sudden disruptions, on scam susceptibility, corroborating the importance of addressing recent financial changes over chronic stress. Similarly, Shao et al. (2019) demonstrate how technological proficiency protects older adults from fraud, reinforcing the value of digital literacy programs. Burnes et al. (2017) emphasize the role of active social networks in reducing scam risk, while Yu et al. (2022) stress that quality, actionable awareness campaigns are more effective than frequent reminders. Kemp (2022) further validates the increased vulnerability during life transitions,

particularly retirement and spousal loss, due to disruptions in financial routines and social networks. Collectively, these findings highlight the multifaceted strategies needed to protect older adults from scams.

VII. CONCLUSION AND RECOMMENDATION

A. Conclusion

The findings highlight the multifaceted factors influencing scam victimization among retirees, emphasizing the interplay of financial instability, limited digital literacy, social isolation, and life transitions such as retirement or spousal loss. Vulnerabilities stem from emotional and cognitive stress, lack of scam awareness, and low technological proficiency, while protective measures include strong social networks, family involvement in financial decisions, and familiarity with online security. Addressing these risks requires a multifaceted approach: tailored educational programs to improve digital literacy and scam awareness, financial counseling to enhance stability, and social initiatives to reduce isolation and foster community engagement. Targeted support during life transitions, combined with high-quality, personalized education and policies integrating scam prevention into retirement planning, is essential. By combining education, financial planning, and social support, retirees can be better protected against scams, reducing their susceptibility and enhancing their overall resilience.

B. Recommendation

To reduce scam victimization among retirees, a multifaceted approach is essential, combining education, social support, and financial safeguards. Tailored educational campaigns using simplified materials and scenario-based workshops can raise scam awareness, while digital literacy programs focused on secure online transactions and regular technology use can build confidence and resilience. Financial education should be integrated into retirement planning, with emphasis on safeguarding savings and managing life transitions like downsizing or spousal loss through emotional and financial counseling. Families play a critical role by maintaining regular financial check-ins, discussing suspicious messages, and involving trusted members in financial decisions, while community groups can provide both information-sharing networks and social connection to reduce isolation. Trusted financial advisors should offer fraud prevention tools and guidance, encouraging retirees to consult professionals before major decisions. High-quality, customized awareness campaigns should prioritize relevance and engagement, adapting to retirees' diverse needs based on income, education, and technological proficiency. Policymakers should integrate scam education into public retirement programs, support secure financial tools, and fund research on demographic factors influencing scam susceptibility. These combined efforts aim to empower retirees, enhance their resilience, and mitigate risks of scam victimization.

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