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The Threat of Online Scams to Older Adults

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Digital Marketing Risks for Aging Populations: The Threat of Online Scams to Older Adults

Abstract

This study provides a systematic concept of how digital marketing practices intersect with the older adults´ vulnerability to financial digital scams and misleading online advertisements. Although digital platforms offer convenience, they are also used to deliver deceptive content that exploits the cognitive, emotional, and technological limitations. Following the PRISMA methodology, over 230 article**s** from Web of Science database in 2000-2025 period were initially screened. After applying inclusion and exclusion criteria based on relevance, language (English), peer-review status, and topical focus, 87 studies were included in the analysis. The majority of the selected studies originated from the United States (41%), China (14%), and Japan (8%). Interest in the examined topic has gradually increased over time, with a notable peak in 2024. The results suggest that older adults face growing threats from deceptive digital marketing, worsened by low digital literacy, cognitive decline, and limited awareness of online risks. Although financial and educational digital scams remain common, emotional manipulation has become more frequent through personalized targeting. The findings highlight the need for stronger policy frameworks, improved digital education, and ethical standards in online advertising to better protect vulnerable consumers.

Key Words: Digital Marketing Risks, Older Adults, Deceptive Digital Marketing, Vulnerable, Financial Digital Scams

JEL Classification: M31, O33

Introduction

Digital marketing has transformed how goods and services are promoted and consumed, using data-driven personalized targeting, algorithms, and data tracking. However, these innovations have also brought new risks – especially for older adults who may lack the digital skills or cognitive agility to spot fraudulent or misleading content (Burnes, 2017; DeLiema, 2018). Older adults are increasingly online, often using platforms like Facebook, YouTube, and Google to stay informed and connected. This makes them frequent targets

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for digital fraud, phishing, and manipulative ads (Hanoch et al., 2017). Unlike younger, digitally native consumers, many older individuals struggle to interpret online messages, recognize deception, or manage digital security tools (Watanabe, 2016). According to a report by the U.S. Consumer Financial Protection Bureau (CFPB, 2019), seniors lose billions of dollars annually to financial digital scams – much of happening online. Yet most cases go unreported, ofted due to fear, stigma, or shame. Research by Lichtenberg et al. (2016) shows that even small financial losses can hit older adults hard, given their fixed incomes and limited ability to recover. This review looks at why and how older people are more vulnerable to online scams, both financial and consumer-related. It integrates a systematic literature review with bibliometric analysis to understand the scale, focus, and direction of research in this area.

1. Methods of Research

The objective of this systematic review is to uncover the extent, patterns, and implications of deceptive digital marketing risks affecting aging population. A systematic review was conducted in accordance with PRISMA guidelines, utilizing the Web of Science (WoS) database recognized for its comprehensive and peer-reviewed academic content across various disciplines. The search strategy focused on two key thematic areas: (1) the visual representation of deceptive digital marketing risks affecting the elderly, and (2) the research trends and patterns observed over the review period. To capture studies relevant to both themes, the search query incorporated a combination of keywords drawn from each domain, namely::

("deceptive digital marketing" OR "online advertising" OR "social media marketing") AND ("elderly" OR "older adults" OR "senior citizens") AND ("financial scams" OR "fraud" OR "deceptive ads").

The final search was completed on 25 June 2025. To maintain the rigor and relevance of this systematic review, a comprehensive and structured search strategy was implemented. The search produced an initial dataset of 1,057 records. These entries encompassed a broad range of publications related to deceptive digital marketing, digital scams risk, and the older adults population. A keyword filtering phase was first applied to refine the dataset based on topic relevance. This process reduced the total number of records to 232 by excluding studies that were clearly unrelated based on title and indexed keywords. Subsequently, a detailed inclusion and exclusion screening was conducted. To be eligible for inclusion, studies had to meet several predefined criteria: they must have been published between the year 2000 and the first quarter of 2025, be written in English, and appear in peer-reviewed journals. Most importantly, the selected studies had to focus on individuals aged 60 and above, and explicitly examine the relationship between digital marketing activities such as social media promotions, email campaigns, or online advertising and exposure to financial digital scams or deceptive digital content.

Studies that failed to meet these requirements were excluded. Opinion based works (e.g., editorials, commentaries, and opinion pieces) were removed, as were studies that did not directly focus on the elderly demographic. Additionally, any literature that addressed general

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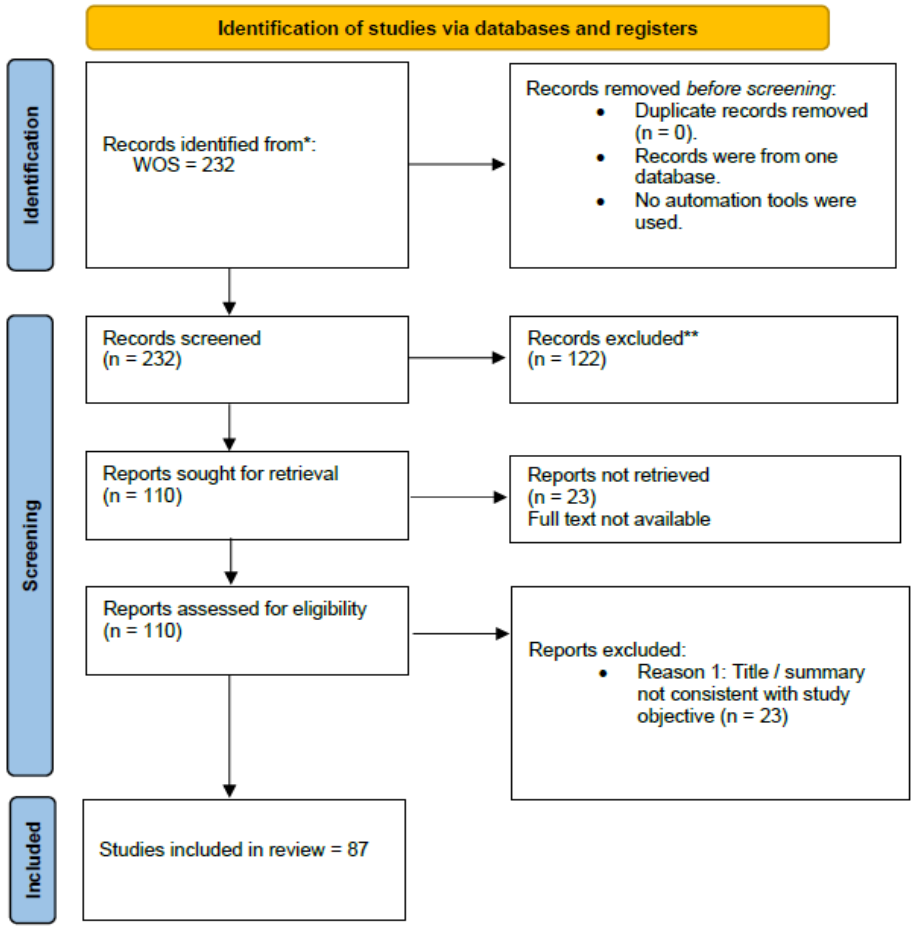
digital literacy without linking it to risk or deception, as well as non-peer-reviewed or duplicate publications, was excluded from further consideration. From the original amount of 1,057 record we specifically excluded: in the stage of identification 97 duplicates (identical conference or journal publication), in the stage of screening 728 studies (214 not focused on older adults, 186 not directly addressing digital marketing risks, 328 non-empirical studies as opinions, news reports and policy briefs), in the stage of retrieval 122 studies as not available in full-text, and in the stage of eligibility 23 studies (7 due to lack of methodological detail, 4 due to unsufficient relevance to research objectives, 10 due to focus on general fraud without age-specific analysis, 2 due to in-accessible translation).

Fig 1: PRISMA flow diagram



Source: Authors own processing based on PRISMA template (Prisma, 2021)

After the application of these stringent criteria, a total of 87 studies were deemed eligible and retained for full-text review and systematic analysis. This final dataset forms the foundation for the current investigation into the digital vulnerabilities of aging populations and the systemic responses to deceptive digital market risks. The entire process of study identification, filtering, and selection is documented in accordance with

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the PRISMA guidelines (Page et al., 2021). A corresponding flow diagram (Figure 1) visually represents each phase of the selection process.

The reviewed studies demonstrate a diverse methodological landscape (Table 1) in addressing digital marketing risks among older adults. Quantitative methods were used in 32 studies, offering statistical insights, while 17 studies adopted qualitative approaches to explore personal experiences and perceptions. A notable 38 studies employed mixed methods, combining both data-driven and narrative analysis to provide a holistic understanding.

In terms of research orientation, 46 studies were empirical, grounding their findings in direct data collection and observation. Theoretical contributions were made by 17 studies, which offered conceptual frameworks for understanding digital scam susceptibility. Case study methods were prominent in 61 studies, showcasing real-world examples of fraud victimization or deceptive digital marketing. Additionally, 26 studies used survey-based techniques to capture behavioral patterns and attitudes. Together, this methodological variety underscores the complexity of risks faced by older adults and the value of integrating multiple research strategies to inform effective interventions.

Tab. 1: Methodologies and Research Approaches in the reviewed studies

Category	Subcategory	Number of Studies
Methodology	Quantitative	32
	Qualitative	17
	Mixed Methods	38
Approach	Case Study	61
	Empirical	46
	Survey-Based	26
	Theoretical	17

Source: Authors' processing

2. Results of the Research

To deepen the understanding of scholarly trends in deceptive digital marketing risks affecting older adults, a keyword co-occurrence analysis was conducted using VOSviewer (Fig 2). This bibliometric tool identifies and visually maps the relationships between frequently occurring terms, offering the conceptual structure in the field. In the resulting visualization, each node represents a keyword extracted from the analyzed publications. The size of the node corresponds to the frequency of the keyword appears, while connecting lines (edges) indicate co-occurence within the same articles. The spatial proximity of nodes reflects the strength of association, with closer terms typically sharing thematic or conceptual overlap. Color-coded clusters group together keywords that from distinct thematic areas, enabling the identification of dominant research directions and subfields. As shown in the figure, the main clusters include fraud victimization (brown and red), older adults and their relationship with technology (green), their involvemnet in the digital economy (pink and orange), digital literacy (purple), and social media (blue).

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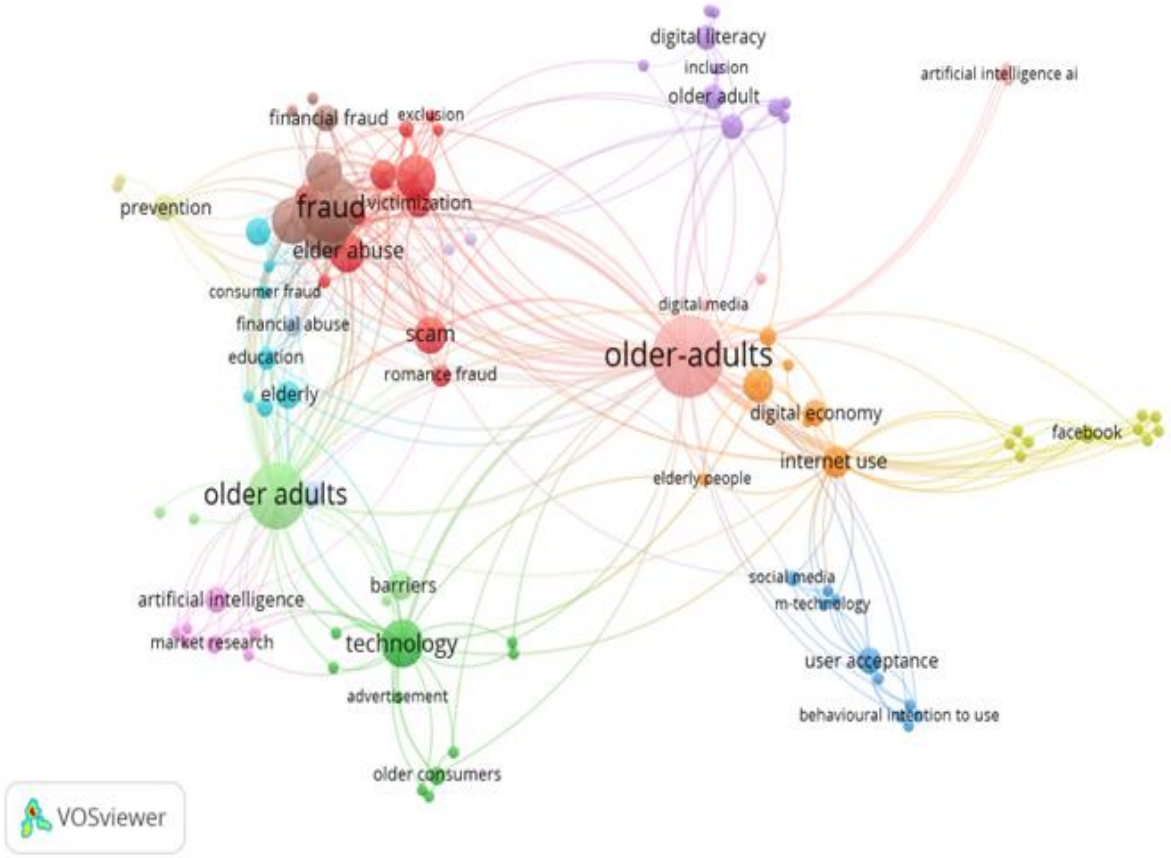
Fraud Victimization as a Core Theme. One of the most prominent clusters, highlighted in red, centers on fraud victimization. This theme reflects the primary academic concern with online scams targeting older adults. Its strong presence in the network indicates growing scholarly attention to financial exploitation and scam vulnerability among aging populations. The intensity and size of this cluster suggest that fraud remains a cornerstone in the literature on deceptive digital marketing risks faced by older adults.

Older Adults and Technology. A major cluster represented in green is associated older adults and technology use. This area explores how digital platforms serve as a channel for marketing to seniors. While digital engagement can support inclusion and access, it also introduces risks due to the absence of adequate digital safeguards. The frequent co-occurence of these terms illustrates sustained research interest in how technological interaction may increase vulnerability among older adults.

Fig 2: VOSviewer visualization



Source: Authors own processing based on VOSviwer

Older Adults Participation in the Digital Economy. Pink and orange clusters emphasize terms like digital media and digital economy, reflecting the growing role of older adults in online economic environments. As seniors engage more with digital marketplaces, they are increasingly exposed to targeted marketing tactics – some of which may be

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manipulative or deceptive. The prominence of these terms signals a critical area of inquiry: the economic impact of digital inclusion on aging population.

Digital Literacy as a Protective Factor. The purple cluster focuses on digital literacy, underscoring the widely acknowledged link between limited digital skills and increased fraud vulnerability. Research consistently shows that improving digital competence among older adults is essential for reducing susceptibility and supporting safer online behaviour.

Social Media With Dual Function. Finally, the blue cluster highlights social media usage among older adults. This theme reflects the complex role of social platforms: they enable connection, information sharing, and active participation in digital spaces. On the other hand, it also acts as a conduit for fraudulent schemes often via deceptive digital advertisements or AI-driven content designed to manipulate emotions or trust. The close relationship between social media and digital scam-related keywords signals that this platform is a critical area for both risk and intervention.

Overall, the keyword map highlights digital scams as a central concern, while also showing how related themes – such as digital literacy, technology and economic participation, and social media use – shape broader landscape of digital vulnerability among older adults. These findings underline the importance of combining protective measures with inclusive digital engagement strategies.

Figure 3 shows a significant concentration of research on digital marketing risks among older adults in the United States, which accounts for over 40% of all studies. China and Japan follow, though with much smaller shares. Most other countries, including several in Europe, Australia, and parts of Asia, contribute minimal proportions. This imbalance suggests a lack of global representation, indicating a research gap in regions like Africa, the Middle East, and South America. Expanding studies in these underrepresented areas is crucial for developing more inclusive and globally relevant insights.

Figure 4 illustrates the temporal development of research on digital marketing risks among older adults between 2000 and 2025. Annual publication counts remained relatively low until around 2015, after which interest began to rise, reaching a current peak. The cumulative number of studies has grown significantly since 2015, approaching 90 publications by 2025.

Similarly to previous trends, also Figure 5 representing the number of publications adn citations shows that the field of marketing risk on aging population has matured significantly over the past decade. From a relatively obscure topic, it has transformed into a highly active and impactful research area, especially since 2015. The high number of citations demonstrates the significant contribution and relevance of this research to understanding and addressing the vulnerabilities faced by older adults in marketing contexts. The current year's data (2025) should not be seen as a decline but rather as an ongoing accumulation of research output and impact

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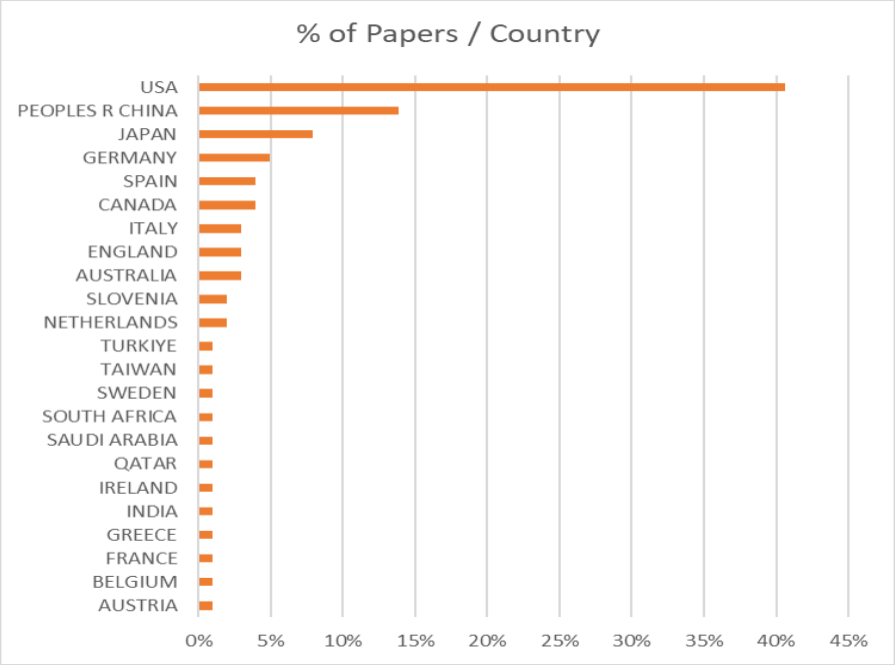
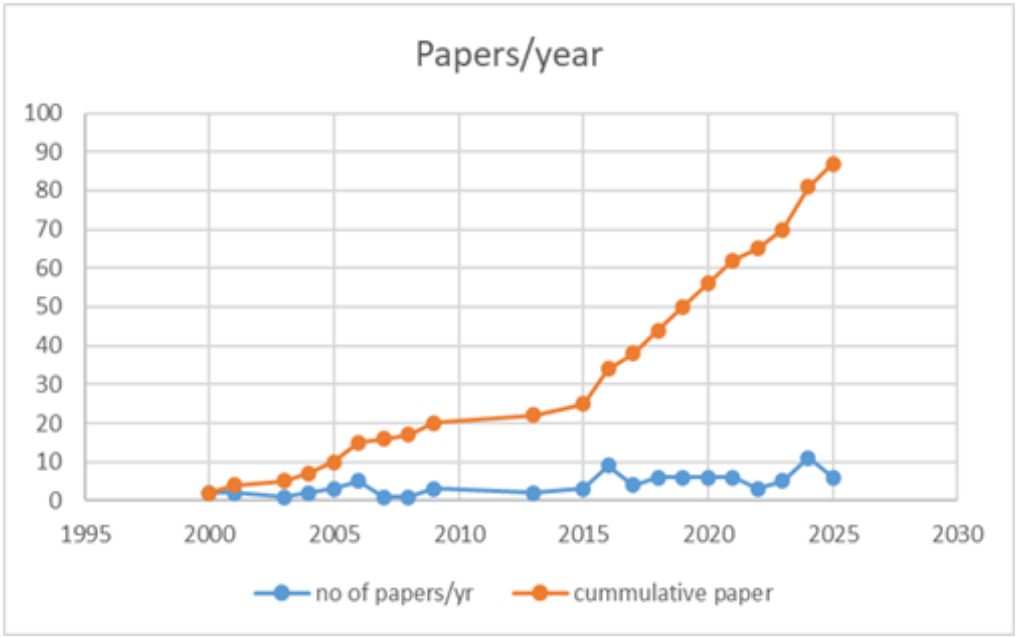
Fig 3: Percentage of publication per country



Source: Authors own processing using MS Excel

Fig 4: Number and cumulative count of publications (2000–2025)



Source: Authors own processing using MS Excel

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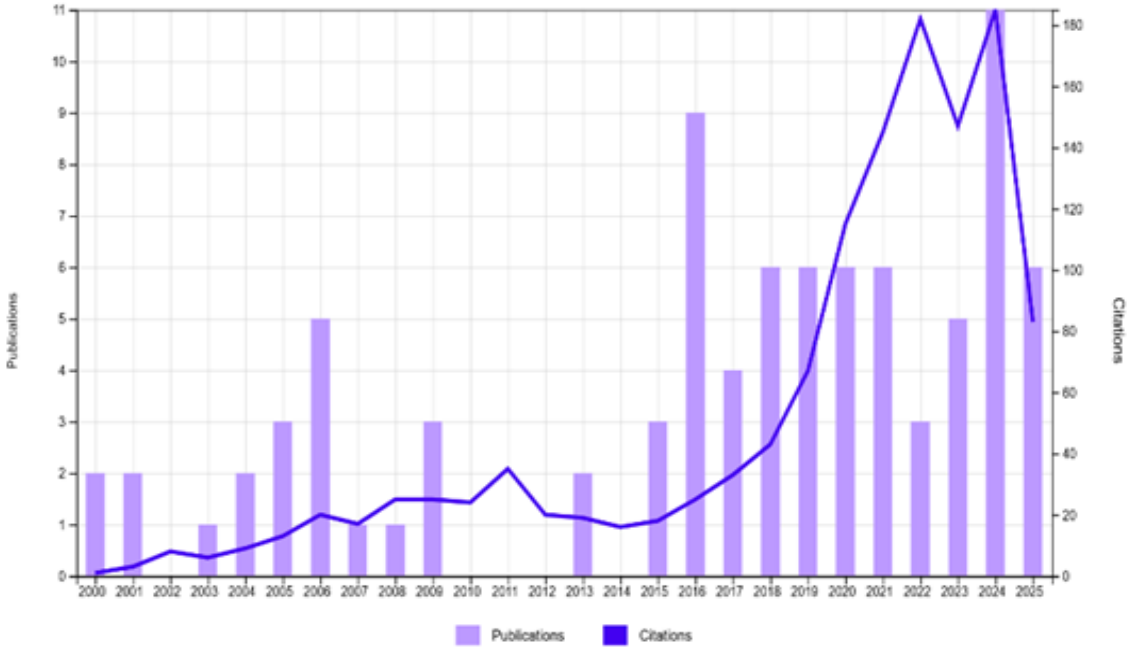
Fig 5: Publication / citations by year (2000–2025)



Source: Web of Science

3. Discussion

This review highlights a growing public health concern: older adults face significant risks from deceptive digital marketing. These ones are compounded by low awareness of online fraud, limited digital skills, and cognitive decline. While educational and financial digital scams remain widespread, emotionally manipulative schemes – such as romance scams – are becoming increasingly common due to personalized targeting and algorithmic content delivery. AI and social media further complicate detection and response. As the global population ages, older adults are becoming more active in digital spaces, where they encounter both opportunities and risks. Our review of currents research literature brings several following important domains which should be carefully addressed in future.

Psychological and Cognitive Vulnerabilities. Older adults are often targeted by scammers due to a factors such as low technological awareness, cognitive decline, social isolation, emotional vulnerability, and high levels of social trust (Hanoch 2007; Ueno, 2016). These make them more susceptible to digital scams tactics like persona targeting and social engineering, where scammers impersonate trusted institutions or individuals.

Cognitive decline, particularly dementia, impairs financial judgement and increases vulnerability (Ueno et al., 2021; Watanabe, 2016). Tools such as the Alzheimer's Disease Assessment Scale – Japanese Cognitive version (ADAS-Jcog) and psychological profiling methods have been proposed to identify high-risk individuals. Emotional factors including loneliness, fear of aging, and low self-efficacy further reduce critical thinking and can lead to risky online behaviour in search of emotional comfort (Moschis 2003).

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Educational and Technological Interventions. Digital literacy and financial education are effective in reducing scam vulnerability, particularly in rural and low-income communities with limited access to support (Miller 2024; Alwanain 2020). Broader strategies include digital education programs and technology-based tools such as AI-driven scam detectors, phishing awareness campaigns, and interactive games. Emotion-focused and trust-based interventions help older adults build emotional resilience and confidence, enabling them to better recognize and resist manipulation.

Health-Related Fraud Risks and Detection Tools. Older adults are vulnerable to health fraud, often believing unverified product claims in pursuit of emotional comfort and well-being. Poor judgement in assessing product authenticity frequently leads to exploitation (Alves, 2008).

To address this, researchers have developer analytical pipelines and verification tools for detecting healthcare and food-related digital scams. These improve authentication and reduce likelihood of failing. Advanced AI techniques – such as GANs, neural networks, and supervised learning – have been applied to detect Medicare and healthcare fraud involving older adults (Naidoo & Marivate, 2020; Bauder & Khoshgoftaar, 2018). However, their effectiveness depends on proper model selection and threshold tuning, and progres sis limited by lack of transparency and publicly available datasets. *Social Vulnerability and Support Systems*. Older adults with limited social networks, low education, poor adaptation to aging, or single marital status are more susceptible to fraud (Çelikkanat et al., 2024; Nguyen et al., 2013). Support systems that strengthen community ties and reduce isolation can help, but must be paired with financial literacy training to improve digital financial management. Scammers exploit these vulnerabilities through investment fraud, health scams, phishing, and telemarketing – often using predictable patterns and channels like the darknet or traditional postal systems (Lazarus et al 2025).

Legal Barriers and Policy Challenges. Despite advances in detection, digital scam prevention faces systemic barriers. Low reporting rates, complex legal processes, and frequent misclassification contribute to its persistence (Aplin, 2022; Carey et al., 2018). Mandatory reporting laws exist in some jurisdictions, but with mixed results. There is a clear need for legal frameworks tailored to digital fraud, along with training for healthcare workers, police, ond other frontline professionals to improve identification, reporting, and victim support. *The Role of Trust and Interface Design*. A key factor in digital marketing scams is the exploitation of user trust on service platforms, especially in ecommerce and online healthcare. Older users are particularly at risk when platforms lack transparency or user-friendly design (Chen et al., 2025; Dodd, 2017). Poor UI/UX design can lead to confusion, mistaken clicks, and an inability to distinguish legitimate services from malicious ones. Reducing these risks requires regulation and age-sensitive design, including clear labeling, simplified navigation, and secure authentication.

This study has several limitations. First, it includes only English-language publications indexed in the Web of Science database, which may exclude relevant findings from other regions or sources. Second, older adults were often treated as a homogeneous group, despite differences in age, background, and digital experience. Lastly, the rapidly changing nature of digital marketing and fraud tactics may limit the long-term applicability of the findings. An additional limitation is the geographic imbalance in existing research. Most of the researched studies originates from high-income regions such as North America, Western Europe, and parts of East

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Asia, while Africa, Latin America, and Eastern Europe remain underrepresented. Older adults in these regions may face distinct vulnerabilites shaped by lower digital literacy, uneven internet access, region-specific technologies, and varied cultural and socio-economic context. Moreover, the regulatory protections and reporting practices also differ widely, influencing both scam prevalence and detection.

Conclusion and Implications

Older adults are increasingly targeted by misleading digital advertisements and scams, posing serious threats to their financial and psychological well-being. This systematic review reveals significant associations between low digital literacy, cognitive vulnerability, and susceptibility to online fraud. Protective measures such as policy reform and targeted digital education are essential to safeguarding aging populations in the digital environment. The findings align with previous research showing that older adults often struggle to distinguishe between sponsored content and genuine information (Hanoch et al., 2017). The digital divide – both in access and literacy – plays a central role. Older adults are less likely to use ad blockers, check URLs, or verify the legitimacy of offers (Tamut & Dutta 2024). Moreover, manipulative advertising techniques such as urgency cues, fake testimonials, and visual deception often escape their attention.

There is an pressing need for regulatory bodies to develop and enforce ethical guidelines that limit deceptive digital marketing targeting older consumers. Community-based digital literacy programs, including those run by AARP and local libraries, can play a vital role in equipping with critical digital skills (Perera 2025, Watanabe, 2016). Future research should include longitudinal and intervention-based studies to asess the long-term effects of digital marketing on older consumers. Greater focus is also needed on culturally diverse populations and platform-specific vulnerabilities, including the implications of emerging technologies like AI and virtual reality.

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