E-ISSN : 2963-4946
Vol. 4 No. 10 July 2026
https://ajosh.org/

Asian Journal of Social and Humanities

The Influence of Financial Education on Financial Literacy and Behavior of the Elderly: A Systematic Review

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Keywords:
Financial Education; Financial Literacy; Financial Behavior; Elderly; Resilience Financial.

Abstract

Global population aging poses significant economic risks for older adults. Amid the rapid transition toward technology-based financial systems, older adults face challenges related to digital exclusion, age-related cognitive decline, socioeconomic disparities among low-income households, gender inequalities, and emerging cyber-financial risks. Financial education programs play a vital role as structural interventions to strengthen financial resilience among elderly populations. This research aims to systematically synthesize the effects of financial education programs on financial literacy levels and changes in actual financial behavior among older adults while considering the dynamics of digital financial resilience. This systematic literature review synthesizes evidence regarding the effects of financial education programs on financial literacy and financial behavior transformation among older adults, with consideration of digital financial resilience factors. Following PRISMA guidelines, articles published between 2021 and 2025 were sourced from the Dimensions, Garuda, and Scopus databases, and methodological quality was assessed using the Risk of Bias 2 (RoB 2) tool. The findings revealed age-related declines in financial knowledge, significant gender-based vulnerabilities among older women, and liquidity constraints among low-income household groups. A community-based, offline education model incorporating an age-friendly curriculum and intergenerational support was identified as the most effective intervention approach. Financial education interventions can enhance inclusive financial behaviors among older adults; however, sustaining their long-term impact requires adaptive educational designs and strengthened cybersecurity resilience to support financial protection.

INTRODUCTION

The shift in global demographics toward an aging population poses significant macro-socioeconomic challenges. Increased life expectancy, when not accompanied by adequate financial preparedness for old age, may increase the risk of elderly poverty, a phenomenon that varies structurally across countries, including European nations (Caminada et al., 2025). In Indonesia, this poverty issue is closely associated with sociodemographic conditions and household financial behaviors. Significant differences exist in economic capacity, with low-income households often exhibiting defensive financial behaviors and prioritizing daily subsistence needs over retirement planning (Pomalingo et al., 2026). Early financial education and the development of healthy financial habits are essential for building financial resilience, as financial literacy in adulthood is strongly influenced by early-life economic socialization processes (Lusardi & Mitchell, 2014). This challenge is further intensified by the transformation of the modern financial services sector, which has increasingly adopted digital-first approaches. Innovations in digital payment technologies and electronic banking platforms are designed to improve efficiency but may also create new forms of age-related inequality among older adults with limited technological adaptability (Panetta et al., 2025).

The financial capabilities of older adults are influenced by two primary factors: cumulative life-course experiences and cognitive aging processes. Life course theory suggests that multidimensional factors, including childhood socioeconomic conditions and family background, have long-term effects that shape successful aging outcomes (Yu, 2025). In later life, these capabilities may be affected by cognitive decline, which contributes to reductions in financial and health literacy with advancing age (Boyle et al., 2025). This gap is further reinforced by gender disparities. Older women often demonstrate lower levels of financial literacy than men due to historically unequal access to formal economic resources and financial decision-making opportunities (Wibowo et al., 2026). This condition increases the vulnerability of older women to economic shocks, particularly following the loss of a spouse or transition out of the productive workforce (Boyle et al., 2025). From a broader economic perspective, limited financial literacy may also restrict participation in long-term investment instruments designed to support financial security in later life (Remund, 2010).

This literacy gap extends beyond conventional financial risk management instruments, such as personal insurance literacy (Kadoya et al., 2022), and increasingly affects participation in the expanding digital financial ecosystem. Limited digital financial resilience may contribute to emerging risks, including online debt traps associated with illegal digital lending platforms and the misuse of deferred payment (paylater) services (Sondakh et al., 2026). Without adequate digital financial knowledge, increased access to technology may unintentionally worsen financial vulnerability among older adults and pre-elderly populations living near or below the poverty line (Mahmud et al., 2026). Concerns about online fraud and limited operational skills may generate psychological anxiety that prevents older adults from accessing inclusive and essential digital banking services (Nga, 2023). Therefore, structured financial education interventions that integrate basic financial management skills and cybersecurity awareness are urgently needed (Yang et al., 2023).

Various community-based initiatives have been implemented to address these challenges, including family financial management education (Sova et al., 2023), training on preparing simple financial reports and budget proposals for organizations supporting older adults (Wulandari & Jamain, 2022), and outreach programs on the use of secure digital financial platforms and personal data protection (Agustin et al., 2025). Although these studies have reported positive local outcomes, a broader systematic synthesis is required to objectively evaluate the effectiveness of different intervention models. Using a Systematic Literature Review (SLR) approach, this study examined relevant literature from national and international databases, including Dimensions, Garuda, and Scopus, to analyze the influence of financial education on financial literacy and financial behaviors among older adults and to assess potential methodological biases in studies published between 2021 and 2025.

This research synthesizes fragmented evidence regarding the effectiveness of financial education among older adults across diverse methodological approaches and geographical contexts. It integrates perspectives from life course theory, cognitive aging, and digital financial resilience into a comprehensive analytical framework while enhancing understanding of age-related financial literacy decline, the moderating roles of gender and household economic conditions, and the distinct importance of digital financial literacy beyond conventional financial literacy. The findings provide actionable insights for policymakers in developing age-friendly financial literacy programs that prioritize community-based education and intergenerational support. They also offer guidance for financial educators in designing effective interventions incorporating age-appropriate curricula and cybersecurity resilience training, while supporting advocacy groups in addressing gender disparities and financial vulnerabilities among low-income households. This study further identifies critical research gaps, including the need for longitudinal studies examining changes in financial literacy over time, rigorous evaluations of digital financial education interventions, and standardized measurement instruments to support future meta-analytic synthesis.

METHOD

This study employed a Systematic Literature Review (SLR) method following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The protocol ensured transparency throughout the data collection, study selection, and critical analysis processes while minimizing potential researcher.

Literature and Database Search Strategy

A comprehensive search of scientific article databases was conducted using a combination of three main databases: Dimensions, Garuda (Digital Reference Index), and Scopus, representing global, multidimensional, and Indonesian national indexes. Publication year range limited to 2021–2025 for catch. Contemporary digital financial dynamics include the phenomena of online loans and Paylater. Search strategies are optimized using structured keyword combinations through Boolean operators as follows: ("financial education" OR "financial literacy education" OR "financial intervention") AND ("elderly" OR "older adults" OR "aging population" OR "senior citizens") AND ("financial behavior" OR "financial literacy" OR "financial decision")

Identification and screening process

Through a comprehensive search on Scopus, Dimensions, and Garuda databases, we found as many as **367 articles (n=367). Next, before screening,** there is data that is not eligible, and with other reasons, such as 100, resulting in 267. **Screening was** performed on the title and abstract, resulting in 14 records in the Scopus (n=7), Garuda (n=4), and Dimensions (n=3) databases. Records excluded are as follows: Scopus (n=186), Garuda (n=45), and Dimensions (n=36), for a total of 267.

Eligibility Assessment

Full text articles excluded, with reasons : wrong population not older adults (n=86), wrong intervention/concept : not financial education/financial literacy (n=24), wrong comparison (n=24), wrong outcome : no financial literacy/economic outcome (n=21), wrong study design (n=23), wrong publication type (n=24), full text unavailable (n=5), so a total of full text articles excluded (n=207) and full text articles included for inclusion (n=14).

Criteria Selection (Inclusion & Exclusion Criteria)

Articles collected from Dimensions, Garuda, and Scopus are strictly filtered through criteria inclusion specific : (1) Publication journal between 2021 to by 2025 (2) Articles original from peer-reviewed scientific journals; (3) Focus on financial interventions, evaluation of literacy determinants, digital resilience, or economic behavior of the elderly/pre-elderly; (4) Research subjects are pre-elderly or elderly groups (age >= 60 years) or family clusters vulnerable ; (5) Provide Measurable quantitative or qualitative data output . Exclusion criteria included publications in the form of books, conference abstracts, policy opinions, popular reports, and articles written in languages other than Indonesian or English.

Data Quality Assessment Procedure (Risk of Bias)

The internal validity of studies that passed the final selection was evaluated using a modified Risk of Bias (RoB 2) methodology. Considering that the draft inclusion literature was not only sourced from randomized controlled trials (RCTs) but was dominated by observational studies, macro secondary data, and community service action research (of which many are found in the Garuda database), the risk of bias assessment was narratively adjusted to five main domains: participant selection bias, intervention deviation bias, missing outcome data bias, measurement tool bias, and reporting bias. selective results end.

RESULTS AND DISCUSSION

Based on the PRISMA 2020 diagram, the search process was conducted across three databases: Scopus, Garuda, and Dimensions, with a total of 367 articles successfully identified. After the identification process, filtering is performed to remove irrelevant, duplicate, and non-meeting automatic criteria articles, leaving 267 articles. For the screening stage .

At the screening stage, the article is selected based on the title and abstract. A total of 267 articles were identified for the research topic, and only 14 underwent full-text assessment (eligibility). Next, an in-depth evaluation of the article's content is carried out.

At the eligibility stage, several articles were returned for various reasons, including population studies, no elderly, interventions not related to education or financial outcomes, design studies, no appropriate publication type, and full text not available. After the entire selection process is complete, no studies meet the requirements for entry into quantitative synthesis or meta-analysis (n = 0).

This diagram shows that the selection process was conducted systematically and rigorously in accordance with the PRISMA 2020 guidelines, ensuring that only the most relevant and high-quality research was included in the systematic review.

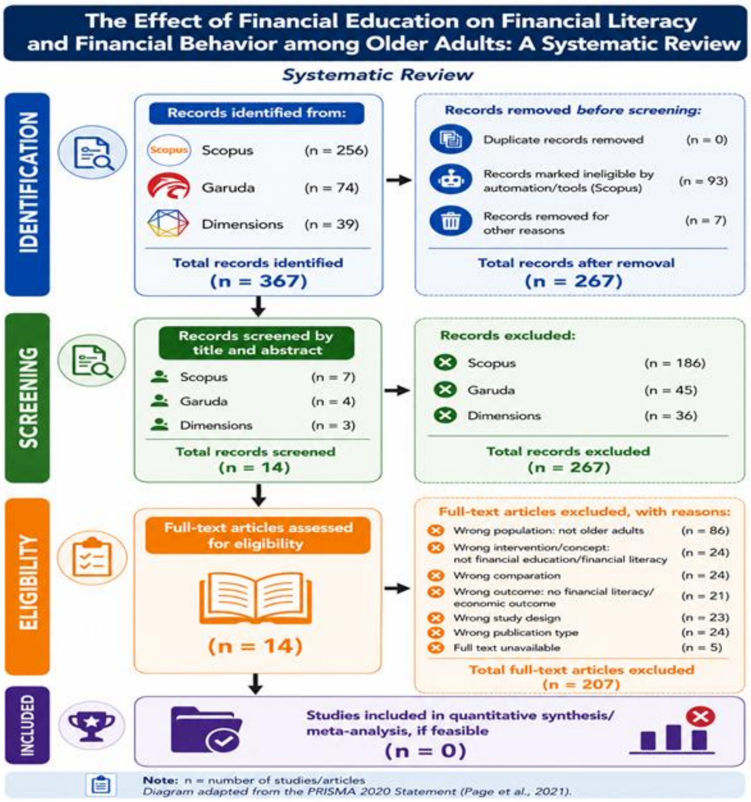

Figure 1. Flowchart Protocol Election PRISMA Articles
Source: Adapted from PRISMA 2020 flow diagram for systematic reviews

Selection Results and Characteristics of Inclusion Studies

Based on systematic screening of the Dimensions, Garuda, and Scopus indexes, 14 articles were selected as the core data for the study. The included studies reflect a rich methodological heterogeneity, encompassing national-scale survey-based microeconometric analyses (such as CHFS in China, CHARLS, Susenas, or LIS in Europe), sectoral policy quasi-natural experiments, online marketing experiments, and nationally indexed community service action research models in Indonesia. The fundamental characteristics of the 14 articles are presented in depth in Table 1.

Table 1. Characteristics of Included Studies

No	Article	Country	Study Design	Sample (n)	Intervention	Comparator	Main Output
1	Yang et al., 2023	China	Empirical Study (CHFS Survey)	19,788 RT	None (Observational)	There isn't any	Financial literacy fuels the adoption of complex digital finance.
2	Ma & Xing, 2024	China	Online Experiments	640 elderly	Marketing generativity signals	Self-signaling / personal consumption	Social cues increase sustainable consumption

No	Article	Country	Study Design	Sample (n)	Intervention	Comparator	Main Output
							in older adults.
3	Zhang et al., 2025	China	Quasi-Natural Experiment	27,537 obs	Rural e-commerce policy	Non-demonstration area	E-commerce & literacy strengthen pension security for the elderly.
4	Nguyen et al., 2024	Vietnamese	Empirical Analysis of the Survey	527 people	None (Observational)	There isn't any	Determinants of financial knowledge & attitude levels.
5	Yu, 2025	China	Empirical Study (CHARLS)	18,939 samples	None (Observational)	There isn't any	Childhood SES influences successful aging in old age.
6	Panetta et al., 2025	Global	Systematic Review	66 articles	There isn't any	There isn't any	Identifying barriers to digital payment adoption among the elderly.
7	Boyle et al., 2025	America Ser.	Longitudinal Cohort Study.	1,075 elderly	None (Observational)	There isn't any	Financial & health literacy declines steadily with age.
8	Agustin et al., 2025	Indonesia	Masyr's devotion.	30 elderly	Digital financial education	Group pre-test	Increased awareness of cyber & e-payment fraud.
9	Wulandari & Jamain, 2022	Indonesia	Masyr's devotion.	16 administrators	Financial reporting training	Group pre-test	Cadres are able to prepare budgets & financial reports.
10	Rahmadani, 2024	Indonesia	Scoping Review	Qualitative	There isn't any	There isn't any	Analysis of Reverse Mortgage regulations & opportunities in Indonesia.

No	Article	Country	Study Design	Sample (n)	Intervention	Comparator	Main Output
11	Sova et al., 2023	Indonesia	Masyr's devotion.	54 participants	Financial management education	Group pre-test	Increased capacity to manage daily expenses.
12	Caminada et al., 2025	16 European Countries	Empirical Study (LIS Data)	Micro data	None (Observational)	There isn't any	The dynamics of elderly poverty are influenced by retirement performance.
13	Kadoya et al., 2022	Japan	Empirical Study (SESJE)	1,411 obs	None (Observational)	There isn't any	Insurance literacy of the elderly is influenced by assets & education.
14	Nga, 2023	Vietnamese	Case Study (TAM/SEM)	350 responses	None (Observational)	There isn't any	Perceptions of convenience & risk influence digital banking intentions.

Source: Compiled by the authors based on the systematic literature review

Assessment Results Methodological Quality (Risk of Bias)

To measure the validity of research conclusions, articles undergo a rigorous internal quality review. Table 2 summarizes the results of the Risk of Bias assessment across five key domains.

Table 2. Quality Assessment / Risk of Bias (RoB 2)

Article	Randomization Process	Intervention Deviation	Data Lost	Output Measurement	Selective Reporting	Global Risk
Yang et al., 2023	High risk (Survey)	Some concerns	Low risk	Some concerns	Low risk	High risk
Ma & Xing, 2024	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Zhang et al., 2025	Some concerns	Low risk	Low risk	Low risk	Low risk	Some concerns
Nguyen et al., 2024	High risk (Survey)	Some concerns	Low risk	Some concerns	Low risk	High risk
Yu, 2025	High risk	Some concerns	Low risk	Low risk	Low risk	High risk
Panetta et al., 2025	High risk (Review)	Low risk	Low risk	Low risk	Low risk	Some concerns

Article	Randomization Process	Intervention Deviation	Data Lost	Output Measurement	Selective Reporting	Global Risk
Boyle et al., 2025	High risk	Low risk	Some concerns	Low risk	Low risk	Some concerns
Agustin et al., 2025	High risk (Purposive)	High risk	Low risk	Some concerns	Low risk	High risk
Wulandari & Jamain , 2022	High risk	High risk	Low risk	Some concerns	Low risk	High risk
Rahmadani , 2024	High risk (Review)	Low risk	Low risk	Low risk	Low risk	Some concerns
Sova et al., 2023	High risk	High risk	Low risk	Some concerns	Low risk	High risk
Caminada et al., 2025	High risk	Low risk	Low risk	Low risk	Low risk	Some concerns
Kadoya et al., 2022	High risk (Survey)	Some concerns	Low risk	Some concerns	Low risk	High risk
Nga, 2023	High risk (Case)	Some concerns	Low risk	Some concerns	Low risk	High risk

Source: Adapted from the Risk of Bias 2 (RoB 2) assessment framework

The Influence of Education on the Dimensions of Financial Literacy in the Elderly

The analysis empirically demonstrates that financial education interventions can improve macro- and microeconomic understanding in the elderly. Key components of basic literacy—such as the impact of inflation on the real value of savings, compound interest calculations, and risk portfolio diversification—scores increased post-training (Sova et al., 2023). Furthermore, targeted financial education can expand financial literacy, such as by helping people understand the role of insurance as an instrument for transferring health risks in old age (Kadoya et al., 2022). In the contemporary era, the addition of cyber curriculum content has been shown to transform conventional financial literacy into digital financial literacy, increase awareness of personal data, and provide an effective shield against online fraud (Agustin et al., 2025).

However, evidence from longitudinal cohort studies warns of biological limitations and the role of domestic structures. The financial literacy of older adults is not permanent but declines with age, with this decline occurring more rapidly in older women (Boyle et al., 2025). At a micro level, this variation in gender inequality is amplified by women's position in household management. Women who play a central role as domestic financial managers often exhibit a highly prudent financial management style but differ in their levels of formal financial literacy due to structural disconnection from financial institution products (Wibowo et al., 2026). Consequently, when older women retire or become sole heads of households, this degradation in financial literacy results in greater economic vulnerability than among older men. This calls for a more comprehensive conceptualization of financial literacy, encompassing aspects of knowledge, beliefs, and the ability to apply it effectively to economic decision-making (Huston, 2010).

Transformation of Financial Behavior and Modern Cyber Financial Risks

Improving financial literacy acts as a key catalyst for actual changes in the financial behavior of older adults in the field. In terms of domestic management, older adults who receive practical accounting education can prepare budget proposals, conduct regular cash flow reporting, curb impulsive spending, and optimize the utilization of pension funds (Wulandari & Jamain, 2022). In the context of daily consumption, exposure to financial information grounded in societal values (generativity cues) effectively encourages older adults to adopt sustainable consumption behaviors oriented toward the future of their future generations (Ma & Xing, 2024).

In the modern financial landscape, strengthening financial literacy has been shown to reduce psychological barriers and anxiety among older adults regarding digital tools. Financially literate older adults demonstrate a mature intention and decision to adopt complex digital financial platforms such as mobile banking, e-payments, and online investment instruments (Yang et al., 2023; Nga, 2023). Even at the rural level, the penetration of the e-commerce ecosystem has been shown to synergize strongly with financial literacy levels, thereby strengthening pension stability and improving the economic well-being of elderly families (Zhang et al., 2025). Furthermore, to address limited cash liquidity without losing property ownership, educating older adults about alternative financial products, such as reverse mortgages, offers a promising policy platform to increase their financial resilience (Rahmadani, 2024).

However, this digital expansion has given rise to concerning behavioral financial risks in the contemporary era. The ease of financial technology penetration without a strong foundation of digital financial resilience has dragged some pre-elderly and elderly people into a destructive cycle of digital debt (Sondakh et al., 2026). The misuse of delayed payment (paylater) features and the trap of illegal online lending platforms (pinjol) pose a real threat that reduces well-being. The negative impact of this low digital financial literacy is escalating in poor households, where limited absolute income often drives irrational short-term financial decisions (Pomalingo et al., 2026). Failure to manage social financial assistance (such as the Family Hope Program) and the inability to mitigate exponential loan interest rates are destroying family financial governance (Mahmud et al., 2026). An approach focused on individual psychological biases (behavioral finance) is essential to understanding the dynamics of irrational financial management in retirement (Fernandes et al., 2014). Digital financial education interventions must therefore be directed at training cyber protection capabilities, not simply introducing the operational features of financial services platforms.

Synthesis of the Best Financial Education Intervention Models

A combination of data from various articles leads to a single conclusion: community-based offline learning programs are the most reliable information-delivery architecture for older adults (Sova et al., 2023; Wulandari & Jamain, 2022). This strategy should prioritize Age-Friendly Design principles, including large text, infographics, non-technical language, and step-by-step guidance.

Furthermore, the long-term effectiveness of interventions is largely determined by the involvement of intergenerational mentoring. Involving younger family members as cyber mentors at home has been shown to effectively alleviate technology anxiety in older adults and slow the rate of financial memory decline associated with cognitive aging, thereby ensuring the continuation of safe and healthy financial practices.

CONCLUSION

Overall, a systematic review of the included literature from the Dimensions, Garuda, and Scopus databases demonstrated that financial education positively and significantly improved financial literacy levels, including conventional financial literacy, insurance literacy, and digital financial literacy, while also transforming older adults' financial behaviors to become more protective, planned, and inclusive. Financial education encouraged the adoption of digital banking and e-commerce services and helped protect older adults from risks associated with fraud, illegal online lending, and misuse of paylater services. However, the effectiveness of these programs remained challenged by age-related cognitive decline, which may contribute to reductions in knowledge retention over time, with older women and low-income households identified as groups experiencing greater socioeconomic vulnerability.

The Financial Services Authority (OJK), Bank Indonesia, and relevant government institutions should consider developing an age-friendly financial literacy framework. Future financial education policies should move beyond short-term interventions by emphasizing inclusive community-based partnerships, continuous implementation, digital and cyber financial resilience, and integration with intergenerational family support to promote sustainable financial well-being among older adults in the digital era.

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