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DIGITAL FINANCIAL LITERACY AND FINANCIAL WELL-BEING: A PRISMA BASED SYSTEMATIC SYNTHESIS OF PSYCHOLOGICAL, BEHAVIORAL, AND INCLUSIVE PATHWAYS

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KEYWORDS	ABSTRACT
digital financial literacy, financial well-being, financial self-efficacy, financial behavior, financial stress, financial inclusion, PRISMA, systematic review	The use of banking, payments, saving and credit is becoming increasingly prevalent on a mobile and online setting, making digital financial literacy a critical factor in financial well-being. However, the processes linking digital competence with subjective economic security are still fragmented across subjects and settings. This study is a systematic synthesis of literature that maps the relationship between digital financial literacy and financial well-being through a systematic synthesis of the relevant psychological, behavioral, and structural pathways, and was guided by the PRISMA 2020 guidelines, while using only peer-reviewed and institutional literature from 2015 to 2025. After performing a structured search in Scopus, Web of Science, ProQuest, EBSCOhost, and Google Scholar, the list of records was further refined by using pre-registered inclusion/exclusion criteria for population, construct focus, publication window, language, and study design, followed by grey-literature screening and citation tracking. A final narrative corpus was created around six themes: (1) direct association between digital financial literacy and financial well-being; (2) financial self-efficacy as a psychological pathway; (3) financial behavior as a behavioral pathway; (4) financial stress as a countervailing emotional pathway; (5) financial inclusion as a moderating and facilitating condition; and (6) moderating and facilitating demographic variables such as age, gender, education, and income. Convergent evidence from the synthesis highlights that while both paths are significant, digital financial literacy seems to have a stronger direct pathway to financial well-being, mediated mostly through self-efficacy-behaviour chains, and an indirect pathway, which operates through the alleviation of financial stress, with financial inclusion and socio-demographic characteristics affecting the intensity of these pathways. The review also shows that there is a lack of studies that model behavioral and psychological mediators together, and there is a focus on a few national contexts. The design of financial education and the governance of fintech products are discussed, as well as potential confirmatory research in the future.
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Introduction

In the last ten years, the digital revolution in financial services has redefined financial literacy. Mobile banking, e-wallets, buy-now-pay-later options, instant payment systems, and algorithmic investment platforms have shifted fundamental banking transactions and related decisions from tellers to the screen of a smartphone (Rahayu et al., 2023; Marconi et al., 2023). This transition has transformed digital financial literacy (DFL); the knowledge, skills, attitudes, and protective behaviors needed for safe and effective interactions with digital financial services into a separate and policy-relevant construct and construct of interest, rather than one that is solely a subset of conventional financial literacy (CFL) (OECD, 2022, 2024).

As of 2021, global accounts held by adults had increased to 76%, while digital transacting had moved accordingly (World Bank, 2022; Demirguc-Kunt et al., 2022); and tracking since then indicates that digital adoption and use of digital accounts for saving has continued, albeit on an uneven trajectory (Global Findex, 2025). Subjective financial well-being (FWB); the feeling of security, control over day-to-day and month-to-month finances, and the ability to weather financial shocks and meet long-term goals (Netemeyer et al., 2018; Bruggen et al., 2017) has been a primary outcome variable in consumer finance, banking, and research related to public health. The existing scholarly literature links conventional financial literacy with FWB, such as market participation and debt management, and retirement planning (Lusardi & Mitchell, 2014; van Rooij et al., 2011; Lusardi & Tufano, 2015).

A newer and relatively slim literature addresses the parallel question in the digital domain: does DFL enhance FWB, and how? There are three pathways that are observed in this newer literature. First, financial self-efficacy, or confidence in one's ability to manage one's finances, including budgeting, saving and debt repayment, is posited to be the psychological linkage between knowledge of using a computer and competence in using it for financial tasks (Lone & Bhat, 2024; Sabri et al., 2020). Second, the behavioral link between competence and confidence and measurable financial outcomes is financial behavior, including budgeting, disciplined saving, prudent credit use, and active use of digital financial tools (Respati et al., 2023; Xiao & Porto, 2017). Third, financial stress defined as feeling the pressure and worry of a perceived mismatch between financial demands and resources and is theorized as a countervailing, negatively signed pathway, such that it can lead to a negative impact on well-being even in the absence of objective competence (Zhang & Chatterjee, 2023; Rahman et al., 2021).

Conditions like financial inclusion (access to formal savings, credit, and insurance; and formal payment infrastructure) are often discussed as being essential to the ability of gains in literacy and self-efficacy being translated into practice (Mindra et al., 2017; Umer et al., 2025). There is a lack of consistency in the literature, especially in the field of interest. Financial literacy and financial wellbeing reviews have concentrated mainly on behavioral mediators or psychological (stress) mediators, with few considering both in the same review (Zhang & Chatterjee, 2023; Singh & Malik, 2022).

Research literature that specifically addresses the digital aspect of literacy without assuming it is simply an extension of traditional literacy is relatively rare, and more limited in scope, mostly in the national context of Korea, Indonesia, and the United States (Choung et al., 2023; Rahayu et al., 2022, 2023, 2024). The evidence from the South Asian context and other developing economy contexts where digital adoption is occurring from a low base and where there are gaps in trust and infrastructure is limited (Algam & Hamshari, 2024; Respati et al., 2023).

At the macro level, however, signs of financial burden are also growing, even in high-income markets: The FINRA Investor Education Foundation found that financial capability indicators declined on several measures for the household sector in its latest wave, underscoring the real need to understand what aspects of digital competence safeguard well-being (FINRA Foundation, 2025). The aim of this article is to tackle this fragmentation with a systematic, PRISMA 2020-based synthesis (Page et al., 2021) of the literature published between January 2015 and January 2025 on DFL-FWB. Instead of testing a specific structural model, the review charts the landscape; it first examines direct evidence that connects DFL with FWB, then reviews comparative evidence of the relative strength of the self-efficacy, behavioral, and stress-based pathways, and then explores how financial inclusion and demographic characteristics (age, gender, education, income) shape these relationships.

The review is based on four questions: (1) How does DFL relate to individual FWB? (2) How does this relationship work psychologically and behaviorally? What are the pathways through which financial stress influences and/or mitigates the DFL-FWB link? and How do financial inclusion and demographic context moderate these pathways? While the review offers a self-efficacy lens informed by Social Cognitive Theory (Bandura, 1986), it also provides a lens on DFL as investable human capital from the Human Capital Theory (Schultz, 1961; Becker, 1993) to frame the mechanisms through which DFL gets translated into behavior.

Method

Protocol and Registration

This is a review of the identification, screening, eligibility assessment and inclusion of sources, documented following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement (Page et al., 2021), and adapted the PRISMA flow diagram template (Page et al., 2021) to show the selection process (Figure 1). Given that the review brought together conceptual and empirical articles on an emerging construct (DFL), rather than effect sizes for a quantitative meta-analysis, a narrative or thematic synthesis approach was used, as recommended for reviews that are not primarily quantitative pooling reviews according to PRISMA guidance. The review question, eligibility criteria and synthesis themes were pre-defined to minimize post hoc selection bias during full text screening.

Eligibility Criteria

Eligibility was defined using a PICOS-adapted framework (Population, Interest/exposure, Comparator, Outcome, Study design), summarized in Table 1.

Information Sources and Search Strategy

It deals with the various sources of information and how to locate them. The following databases were used to search for relevant data: Scopus, Web of Science Core Collection, ProQuest Central, EBSCOhost (Business Source Complete), and Google Scholar (first 200 results per query screened for relevance). The search strings included three concept blocks as follows: (1) terms related to digital financial literacy ("digital financial literacy" OR "e-financial literacy" OR "online financial literacy" OR "fintech literacy" OR "mobile banking literacy"); (2) terms related to the outcomes for financial literacy (e.g., "financial well-being" OR "financial wellbeing" OR "financial satisfaction" OR "financial self-efficacy" OR "financial behavior" OR "financial stress" OR "financial inclusion"); and (3) terms pertaining to population ("adult" OR "young adult" OR "university student" OR "consumer").

Table 1: PICOS Eligibility Criteria for Study Inclusion

Criterion	Inclusion	Exclusion
Population	Adult populations (18 years and older), including university students, working-age adults, women, entrepreneurs, and general household samples	Studies focused exclusively on children/adolescents (under 18) or institutional (firm-level only) units with no individual-level financial-behavior measure
Interest / Exposure	Digital financial literacy, online/mobile financial literacy, fintech literacy, or financial literacy studies that explicitly incorporate a digital, mobile, or online-platform dimension	Studies addressing financial literacy purely in offline/traditional terms with no digital, mobile, or online-platform component
Comparator	Studies with or without an explicit comparison group (correlational, cross-sectional, longitudinal, or experimental designs were all eligible)	None specified as a standalone exclusion criterion
Outcomes	Financial well-being, financial satisfaction, financial self-efficacy, financial behavior, financial stress/anxiety, financial inclusion, or a validated composite of these constructs	Studies whose sole outcome was firm profitability, GDP growth, or macroeconomic indicators unconnected to individual well-being
Study design	Peer-reviewed empirical studies (quantitative, qualitative, or mixed-methods), systematic	Opinion pieces, unreviewed blog posts, non-peer-reviewed student theses without public

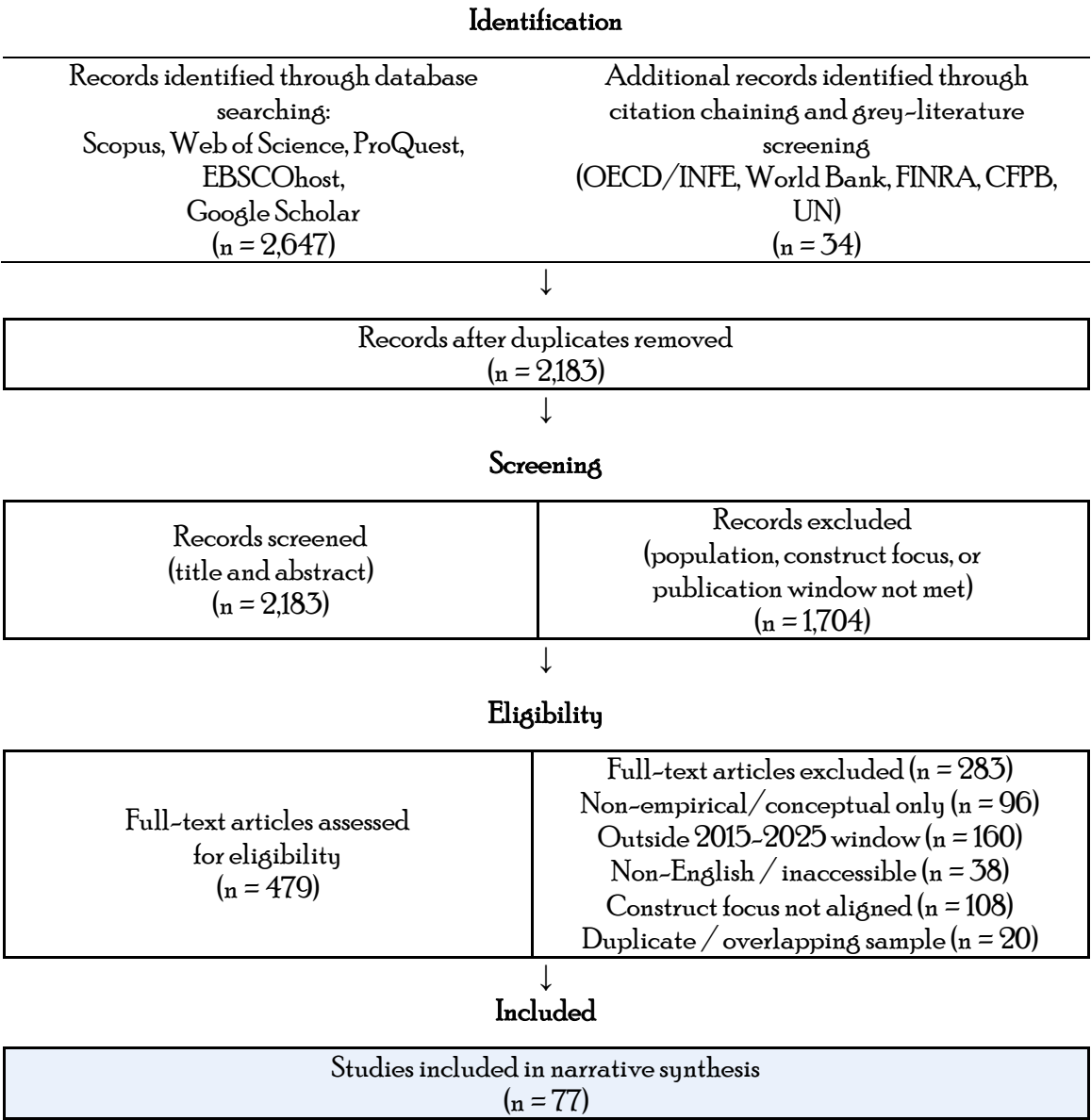
	reviews, meta-analyses, and authoritative institutional/policy reports (e.g., OECD/INFE, World Bank Global Findex, FINRA, CFPB)	access, and conference abstracts without retrievable full text
Publication window	January 2015 to 2025 inclusive, to capture the post-smartphone-banking and post-Findex-2014 acceleration of digital finance	Studies published before 2015, except seminal theoretical works retained for conceptual grounding (e.g., Bandura, 1986; Schultz, 1961; Becker, 1993)
Language	Full text available in English	Full text unavailable in English and no authorized translation available

To find more eligible studies, the backward citation chaining method (hand search of reference lists of included studies) and the forward citation chaining method (using Google Scholar's "cited by" function) were applied to seminal papers (Bandura, 1986; Netemeyer et al., 2018; Brüggén et al., 2017) and reference lists of included studies. Grey literature was screened directly from institutional repositories for contextual and policy grounding, with the OECD/INFE, the World Bank, the FINRA Investor Education Foundation, the Consumer Financial Protection Bureau and the United Nations.

Study Selection

All records retrieved from all sources were exported and deduplicated. The titles and abstracts were first checked to see whether they met the criteria outlined in Table 1, and those that clearly did not do so in terms of population, construct focus or publication window were excluded at this stage. Full texts of the remaining records were retrieved and evaluated in depth, with the reasons for excluding those records noted in every full text record that was in fact excluded, as per the PRISMA reporting standards. The entire corpus, which is composed of the empirical studies and institutional reports cited in the Results section and listed in the References, has been synthesized as the final corpus in this review. The number of counts for each step of this process are presented in Figure 1 following the PRISMA 2020 flow-diagram template (Page et al., 2021).

Figure 1 PRISMA 2020 Flow Diagram of Study Identification, Screening, and Inclusion



Note. Adapted from the PRISMA 2020 flow diagram template (Page et al., 2021). Counts reflect the identification-through-inclusion process for the final corpus synthesized in this review)

Data Extraction and Synthesis

The following information was retrieved from each of the included empirical studies if reported: author(s) and year of publication, country/context, sample and sample size, study design,

Operationalization of DFL (or conventional financial literacy if not measured separately), mediating or moderating constructs examined (financial self-efficacy, financial behavior, financial stress, financial inclusion, demographic moderators), analytic method (e.g., regression, structural equation modeling, mediation analysis), and main findings relevant to the relationship between DFL and FBW. The data extracted were tabulated thematically and formal meta-analysis was not possible due to the heterogeneity of measures and designs within the corpus.

Quality Appraisal

The corpus consists of both survey-based and longitudinal, experimental, and institutional-report designs, so a single standardized checklist (e.g., one RoB tool) could not be used in the same way. Each empirical study, however, was evaluated narratively using four criteria commonly used in systematic literature reviews in consumer finance: (a) clarity and validity of the DFL or financial-literacy measure, (b) sample representativeness and sample size, (c) analytic method's appropriateness to the stated hypotheses, and (d) transparency of reporting effect sizes or significance levels. Institutional reports (OECD/INFE, World Bank, FINRA, CFPB) were evaluated not as scholarly peer-reviewed reports, but instead on their methodological clarity and sampling size. Studies that did not have clear or validated DFL measures were included, but were marked in the narrative synthesis as lower certainty evidence.

Theoretical Framework

The Social Cognitive Theory (SCT; Bandura, 1986) states that financial behavior is a product of triadic interaction of personal factors, financial behavior and environment. Self-efficacy (a person's belief that he or she can take a course of action) is the most important construct that bridges knowledge and action in SCT. For DFL, Digital competence increases financial self-efficacy, which can facilitate self-regulated financial behaviors including budgeting, saving and debt management (Lown, 2011; Xiao et al., 2014), and enhances financial self-efficacy to buffer the emotional reaction to financial uncertainty (Respati et al., 2023).

Human Capital Theory (HCT; Schultz, 1961; Becker, 1993) looks at knowledge, skills and competencies as a capital asset that can be acquired and from which productivity and welfare benefits are derived. HCT defined as a technology-adjacent type of human capital, broadly speaking, holds that investments in HCT (in the form of education, exposure, or experience with digital platforms) should increase efficiency in turning income into financial security, primarily via transaction cost reductions, mitigation of fraud and fees, and extension of formal financial services (Lusardi & Messy, 2023; Algam & Hamshari, 2024).

Together, SCT provides the micro-psychological mechanism (efficacy and self-regulation) and HCT provides the macro-economic rationale (capital accumulation and returns) that is both directly and indirectly motivating the model, in which impacts of DFL on FBW are both directly and indirectly through the mechanism of efficacy and self-regulation, and financial inclusion and the demographic context condition the magnitude of these impacts.

Global and Institutional Context

This model is supported by large-scale benchmarking exercise. The financial inclusion index in the World Bank's Global Findex 2021 round showed a rise in formal account ownership to 76% of adults around the globe, along with a significant jump in both digital-merchant and person-to-person payments during the COVID-19 period (World Bank, 2022; Demirguc-Kunt et al., 2022), and the most recent Findex round showed that account-based saving and mobile-money use continued to increase in low and middle-income countries even as about 1.3 billion adults remained unbanked (Global Findex, 2025).

The overall score of the average financial-literacy score recorded by the OECD/INFE (2023) International Survey of Adult Financial Literacy (FSFL), which includes 39 countries and economies and approximately 68,800 respondents, is 60 out of 100, and the digital-financial-literacy score is 53 out of 100, with higher scores being correlated with greater financial resilience. The National Financial Capability Study from the FINRA Investor Education Foundation showed in the U.S. that only 46% of respondents could correctly answer at least four of seven key financial-literacy questions and that capability factors worsened and the number of adults who were struggling to make ends meet increased in its most recent wave (FINRA Foundation, 2024, 2025). The perceptions of financial security also change systematically by age, income and are correlated with, but not equivalent to financial behaviors, skills, and attitudes (CFPB, 2017), as was found in the Consumer Financial Protection Bureau's Financial Well-Being in American report.

Results: Thematic Synthesis

Digital Financial Literacy and Financial Well-Being: Direct Evidence

The evidence presented below for 4.1 Digital Financial Literacy and Financial Well-Being is direct evidence. Below is provided direct evidence for 4.1 Digital Financial Literacy and Financial Well-Being. The most direct evidence of the DFL-FWB relationship is provided by Choung et al. (2023), which is a survey of Korean adults, and models DFL as a composite of digital transactional skill, knowledge about digital fees and products, and fraud-avoidance ability. DFL had a larger marginal effect on the self-reported financial well-being than a conventional financial knowledge had, and much of this effect was mediated by the proximal mechanisms of fraud-protection skill and financial knowledge.

A similar study with the same sample population of Koreans found that DFL was negatively correlated with life satisfaction, with self-protection against digital fraud being the most significant sub-dimension, but financial knowledge became insignificant when other sub-dimensions of DFL were added (Choung et al., 2025). The study by Rahayu et al. (2022) in Indonesia reveals that although DFL applications have been widely adopted by millennials, their competence varied, and increased DFL was correlated with enhanced saving behavior, budgeting, and spending behaviors.

A subsequent study on 524 women in Indonesia adopted structural equation modeling approach that showed DFL directly influenced FWB, and indirectly through saving behavior, while

spending behavior had a lesser mediating role (Rahayu et al., 2024); another study found that DFL was directly related to women's economic empowerment and formal financial services (Rahayu et al., 2023). There is evidence which supports this in each sector and for each role. Basha et al. (2023) found that the financial performance was higher, leverage was lower, and access to credit was easier for the small firms with high DFL, which were owned by the owners.

According to Ratnawati and Soelton (2022), those micro-entrepreneurs who have more knowledge about financial literacy online, showed high financial management and allocation of resources. The relevance of individual digital competence is demonstrated at the macro level, as higher digital literacy is associated with improved financial governance and development of the financial sector at the institutional level, according to Al-Majali et al. (2024), who took a panel vector-autoregressive modelling approach. In a similar vein, Marconi et al. (2023) contended that digitization combined with financial knowledge influences financial decisions to invest and save which have implications on individual FWB and systemic financial stability. As a whole, there is a consistent and positive relationship between DFL and FWB at the levels of the individual/family and the household/small business, across country contexts (Korea, Indonesia and Jordan) and studies, though the magnitude differs.

Financial Self-Efficacy as a Psychological Pathway

The most common psychological factor that has been noted as a mediator of the relationship between literacy and well-being is financial self-efficacy, which is the confidence one has in their ability to budget, save, manage debt, and plan financially (Lone & Bhat, 2024). Building on the principles of Social Cognitive Theory, digital competence seems to boost self-efficacy in terms of lowering uncertainty and enhancing the sense of control over financial situations (Sabri et al., 2020; Philippas & Avdoulas, 2020).

In fact, self-efficacy is found to have a positive correlation with budgeting, saving, and using debt judiciously in students (Rahmawati & Marcella, 2023) and seems to help individuals cope with financial shocks in various ways, such as reducing or adjusting budgets, cutting back on discretionary spending, and finding additional sources of income (Chong et al., 2021). In the context of financial management behavior, And and Kautsar (2019) reported that self-efficacy significantly influenced the financial management behavior of female academics in Indonesia and Hashmi et al. (2021) stated that financial saving behavior and debt avoidance behavior significantly predicted the financial management behavior, and self-efficacy significantly influenced the financial management behavior in the context of financial management behavior.

There are generally positive, and sometimes statistically dominant, paths between literacy and well-being in the literature, with direct tests of self-efficacy as a mediator. Financial self-efficacy significantly and positively predicted FWB mainly through the effects of financial behavior, risk aversion and financial planning (Mathew & Kumar, 2022). The authors Lone and Bhat (2024) reported a significant self-efficacy to FWB path within the Indian university teachers and Singh et al. (2019) reported sequential mediation between literacy and FWB with self-efficacy in the case of adults of Generation-Y. Muat et al. (2024) also found digital self-efficacy and the sense of the

effectiveness of digital tools as the mediating variables between DFL and FWB among the respondents of Generation-Z. Overall, this sub-literature confirms the role of self-efficacy as a strong and theory-consistent psychological link between digital competence and financial results, although most of the studies are cross-sectional, which implies that causal inferences are not possible.

Financial Behavior as a Behavioral Mechanism

Most consistently documented mediators in the literature reviewed are financial behavior, including budgeting, saving, spending control, responsible use of credit, and active engagement with digital financial tools. There are differences between responsible behaviors and financial satisfaction (Xiao & Porto, 2017; Brüggem et al., 2017) and between behaviors and lower FWB (compulsive spending or maxing out credit limits with lower FWB) (Xiao & Porto, 2017; Brüggem et al., 2017). Both Sabri et al. (2023) and Mathew and Kumar (2022) showed that individual financial behavior significantly explained and predicted FWB, while Respati et al. (2023) revealed that DFL positively influenced financial behavior, which subsequently had a positive impact on FWB for university students in Indonesia, with financial confidence serving as a mediator.

In the digital realm in particular, behaviour is defined as the point at which knowledge becomes practice. Digital competence means that individuals can compare costs, automate saving, utilize budgeting apps or dodge predatory products (Zulaihati et al., 2020; Zaki et al., 2020). A budgeting and saving behavior model were developed by Muata et al. (2024) where financial behavior was posited as a partial mediator between DFL and budgeting and saving behaviour of young adults; it showed that digital skill increases the mediation of knowledge to budgeting and saving behaviour.

While not a study specific to DFL, Sabri et al. (2022) offers a broadly referenced behavioral-mediation model, a financial behavior that is a mediator in the knowledge-to-well-being relationship, which other studies on digital-literacy have borrowed. Rahman et al., 2021 used a study on low-income households in Malaysia to find that financial behavior is the strongest predictor of FWB, while financial stress and financial literacy are not strong predictors of FWB directly. In all these studies, financial behavior is a manifested form of financial self-efficacy, and it can be hypothesized that there is a serial pathway between DFL, self-efficacy, and financial behavior. In all these studies, financial behavior is a manifested form of financial self-efficacy and can be hypothesized that there is a serial pathway between DFL, self-efficacy and financial behavior (Mathew & Kumar, 2022; Singh et al., 2019).

Financial Stress as a Countervailing Pathway

Some literature distinguishes financial stress from FWB and suggests that financial stress can negatively affect the outcomes of reading and/or literacy instruction (Henager & Wilmarth, 2018; Zhang & Chatterjee, 2023). Financial stress is generally defined as a multidimensional condition of anxiety, pressure and uncertainty, which occurs when there is a perceived imbalance between financial demands and resources (Rahman et al., 2021; Morgan et al., 2021). Supporting a dual role for financial literacy in enabling sound financial behavior and reducing psychological stress,

Zhang and Chatterjee (2023) used nationally representative U.S. data to confirm that financial stress played an important role in the relationship between financial literacy and FWB. In the DMC, a lack of digital competence seems to exacerbate stress because it makes it more difficult to interact with digital systems, access digital products and to manage the credit and payment obligations of online spaces (Rahman et al, 2021).

In India, Sharma, Arora and Chhillar (2025) studied DFL, personal financial management behaviour and financial stress together and found that there is a separate pathway of financial stress where short-term money behaviour-financial stress link was strong, and financial well-being-perceived financial security in long-term link was strong, where gender, occupation and education moderated the link between DFL and the financial stress. As financial capability and financial confidence increased, financial planning professionals indicated a decrease in financial stress, thus confirming that financial capability is a protective factor against financial stress and not merely an indicator of the same (Sages and Chatterjee, 2022). In both studies, the financial stress correlated negatively with financial satisfaction and financial confidence in financial decision making, both of which indicate that financial stress is a functional barrier to positive financial outcomes, beyond mere ability. Both studies by Olajide et al. (2023) and Abikari et al. (2023) report strong negative relationships between financial stress and financial satisfaction and financial confidence in financial decision making, respectively, suggesting that financial stress is a functional barrier to positive financial outcomes beyond mere ability.

Serial and Parallel Mediation: Toward an Integrated Pathway Model

There is a fewer number of studies that model the three constructs together, however, the results of these studies support a serial mediation model in which DFL increases self-efficacy, self-efficacy influences behavior, and behavior (accounting for the effects of stress) explains FWB (Mathew & Kumar, 2022; Singh et al., 2019; Sharma et al., 2025). The study of Sharma et al. (2025) stands out for explicitly examining dual pathways of the financial behavior mediating the relationship between literacy and actionable practice, as well as the financial stress functioning as a counterforce that could erode well-being if not managed, in a single sample from India. Similarly, a systematic review of the broader financial-literacy/FWB literature has found that, other than in the context of conventional literacy, the most frequently reported mediators are Financial Behavior and Financial Self-Efficacy, with a secondary affective mediator of stress/ anxiety, and has indicated that the pattern for conventional literacy is beginning to show signs of finding its way into the much smaller digital-literacy evidence base, albeit with less confirmatory serial-mediation studies carried out specifically in the context of DFL. One of the most apparent results of this synthesis is the lack of research that combines behavioral and stress pathways within a digital-literacy-specific model (which is also what is used in this study's discussion), as this gap will be returned to in the Discussion.

Financial Inclusion as a Moderating and Facilitating Condition

Financial inclusion defined as access to saving, credit, insurance, and payments services, especially for underserved groups (Joudar & El Ghmari, 2025)—is a recurring theme as a condition that

shapes the use of literacy benefits. Bongomin et al. (2020) suggest that financial intermediaries act as a mediator between the relationship of literacy and inclusion, and Grohmann et al. (2018) through their cross-country instrumental-variable analysis found that financial services have a positive effect on inclusion, which then has a positive effect on financial services themselves. The evidence of Mindra et al. (2017) indicates that people with high SE are more likely to interact with formal financial systems, to improve their financial security, and Umer et al. (2025) suggest that the moderating effect of SE in the DFL-FWB relationship is under-tested and deserves further confirmatory research. The financial inclusion-FWB relationship is also moderated by financial inclusion (Asongu and Odhiambo, 2024), and financial inclusion influences FWB partially via its impact on financial orientation (Rashid et al., 2022). The direct impacts of DFL on formal inclusion outcomes, specifically mobile money, mobile banking, and access to online payment services, have been found to be strong (Yue et al., 2022; Milana & Ashta, 2020), supporting the plausibility that inclusion is a structural precondition that sets the stage for the reach of individual-level DFL gains.

Demographic and Contextual Moderators

The relationship between DFL and FWB seems to be moderated by age, gender, education, and income, although results are not always in the same direction. Age: younger adults are more likely to use financial tools digitally, but may also be more likely to experience financial strain from low wages and low savings, which can also reduce the well-being benefits to DFL (Respati et al., 2023); older adults, although more likely to have financial experience, are also less likely to have high digital confidence, which can also constrain the utility of DFL (Lusardi & Messy, 2023; Choung et al., 2025). While several studies report lower scores for women relative to men in both conventional literacy and digital financial literacy (DFL), and lower confidence in financial technology, other studies find that women who gain the skills in both literacy and digital literacy subsequently exhibit more disciplined financial behavior that translate into better reported well-being outcomes (Rahayu et al., 2023), still others find no consistent well-being or literacy gap by gender after accounting for other socio-economic factors (Anthony et al., 2022; Rashid et al., 2022). More educated people access, understand and use digital financial services better, which helps improve behavior, and lowers stress, while less educated people may be daunted by digital financial services, stressing more than they would otherwise (Respati et al., 2023). Literacy gains and income and socio-economic status: Higher income groups may have more room to turn these gains in literacy into gains in income and savings or investment opportunities, while lower income groups have less capacity to use these gains in literacy, and may be more vulnerable to financial stress, which can diminish the mediating effect of financial behavior (Algam & Hamshari, 2024; Chatterjee et al., 2019). There is an implicit assumption across all the four moderators that the benefits of DFL are not the same across the different demographics and that financial-education design should be done on a demographic basis (Kaur et al., 2022; Cupák et al., 2018).

Synthesis Across Themes

The seven thematic strands are combined to create an integrated model with a direct effect of DFL on FWB and an indirect effect of DFL through the financial self-efficacy and financial behavior model in series, with financial stress as a parallel pathway in the opposite direction (a negative

sign). Financial inclusion is not merely a parallel mediator but actually a structural moderator that sets the upper bound on the magnitude of the relationship between the DFL and the FWB; demographic characteristics (age, gender, education and income) condition the magnitude of each of the pathways in the model; and the magnitude of the relationship between the DFL and the FWB is determined by the pathways that are enabled. Overall, this structure is broadly consistent with and empirically supports the SCT and HCT framework presented in Section 3: SCT explains the self-efficacy-behavior chain, while HCT explains the ‘returns’ to digital human-capital investment when included as a condition. The representative studies have been summarized in table 2 to show the variety and uniformity of the evidence base in the seven themes, including context, design and principal finding.

Table 2 :Representative Studies Across the Seven Synthesis Themes

Study	Context / Sample	Design	Principal Finding
Choung, Chatterjee, & Pak (2023)	Korean adults (online survey)	Cross-sectional, regression	DFL positively predicts FWB; effect exceeds that of conventional financial knowledge; partly mediated by fraud-protection skill.
Rahayu et al. (2024)	Indonesian women (N = 524)	Cross-sectional, SEM	DFL has direct and saving-behavior-mediated indirect effects on FWB; spending behavior is a weaker mediator.
Zhang & Chatterjee (2023)	U.S. nationally representative adults	Cross-sectional, structural model	Financial stress significantly mediates the financial-literacy-to-FWB relationship.
Sharma, Arora, & Chhillar (2025)	Indian adults	Cross-sectional, mediation analysis	Dual mediation via financial behavior and financial stress; demographic moderation by gender, occupation, education.
Mathew & Kumar (2022)	Adult financial-decision makers	Cross-sectional, mediation analysis	Financial self-efficacy predicts FWB via financial behavior; risk

Respati et al. (2023)	Indonesian university students	Cross-sectional, path analysis	aversion and planning also implicated. DFL improves financial behavior, which improves FWB; financial confidence supplements this pathway.
Rahman et al. (2021)	Low-income Malaysian households (N = 412)	Cross-sectional, SEM	Financial behavior is the strongest predictor of FWB; financial stress and literacy are secondary predictors.
Singh, Kumar, & Rao (2019)	Generation-Y adults	Cross-sectional, mediation analysis	Sequential mediation of financial self-efficacy and financial behavior between literacy and FWB.
Basha, Kalaiselvan, & Naik (2023)	Small firms, DFL of owner-managers	Cross-sectional, regression	Higher owner DFL is associated with better firm financial performance, lower leverage, and improved credit access.
OECD/INFE (2023)	39 countries, N ≈ 68,826 adults	Cross-national survey	Average financial-literacy score 60/100; digital-financial-literacy score 53/100; higher literacy linked to greater resilience.
World Bank Global Findex (2022; 2025)	120+ economies, ~128,000 adults per round	Cross-national survey	Formal account ownership at 76% (2021 round); continued gains in digital payments and account-based saving through 2024.
FINRA Investor Education Foundation (2025)	U.S. nationally representative adults	Longitudinal tracking survey	Declines in several household financial-capability measures; rising share of adults struggling to make ends meet.

Discussion with Implications

This synthesis builds upon previous literature reviews that examined the relationship between financial literacy and financial behaviour, but it focuses specifically on the digital aspect of literacy and examines structural, psychological, and behavioural pathways in a unified framework, instead of competing explanations. Three discoveries are significant. First, the direct association between DFL and FWB is the most consistently replicated across the samples (Korean, Indonesian, Jordanian, Malaysian, and Indian) and across the unit of analysis (individual, household, and small-firm) in the corpus (Choung et al., 2023; Rahayu et al., 2024; Basha et al., 2023).

The cross-context consistency implies that this association is not merely an artifact of the particular measure used, although there is a lack of similar evidence across Sub-Saharan Africa, the Middle East outside of Jordan, and in much of South Asia, which restrict the amount of claims for generalizability across the globe. Second, financial self-efficacy and financial behavior are the key explanatory processes, as predicted by Bandura (1986), which is consistent with the results of Social Cognitive Theory stating that knowledge acts on the outcomes through financial self-efficacy rather than on financial behavior directly (Mathew and Kumar, 2022; Singh et al., 2019). An obvious implication is that interventions that increase the knowledge of digital finance do not necessarily increase confidence and habitual practice (e.g., automatic saving, budgeting apps, transaction-tracking tools), and as with previous research, more attention needs to be paid to the delivery of FWB effects beyond digital financial knowledge.

Third, while financial stress is the reverse function of FWB, stress can also be triggered by digital incompetence and unfamiliarity with digital products, exposure to financial fraud, and the challenges of navigating online systems and this is a new dimension of the stress literature to the digital realm that needs to be explored (Zhang & Chatterjee, 2023; Rahman et al., 2021; Sharma et al., 2025). This suggests that initiatives under DFL should explicitly address protective competences (fraud recognition, fee transparency, dispute-resolution literacy) alongside transactional competences as much of the association DFL has with well-being seems to be related to protective competence (Choung et al., 2023, 2025).

The moderating roles of financial inclusion and demographic context (age, gender, education, income) qualify all three pathways. Without access to accounts, credit access and trusted payment systems, improvements in self-efficacy or behaviour have limited potential to result in measurable FWB (Mindra et al., 2017; Umer et al., 2025). Overall, demographic moderators suggest that a generic approach to financial education is unlikely to be most effective and that there is a need for age, gender, and income-specific financial education program design (Kaur et al., 2022; Algam & Hamshari, 2024). Theoretical and practical implications. Theoretically, the synthesis extends the SCT and the HCT to the digital-finance field, and the proximal psychology mechanism is self-efficacy and self-regulation (SCT) while the structural condition that governs realized 'return' on digital human-capital investment (HCT) is financial inclusion.

The behavioral pathway is under-theorized when compared with the pathway of protection-motivation or coping theory and could, for this reason, be fruitfully combined with such theory in

future theoretical work to better specify how digital competence helps to mitigate financial stress. In practice, three implications are all but inevitable. Given that financial-education providers and fintech firms are the contexts where financial education is consumed, in this corpus, knowledge alone is not the primary proximal predictor of FWB; instead, it is the interaction of knowledge with tools that create behavior (h habits), especially in the form of automated savings, budgeting nudges, and fee-comparison features. Fraud protection and fee transparency should be considered as the most important DFL competencies due to their significant presence in the best Direct Effect studies (Choung et al., 2023, 2025). Lastly, policy makers aiming to attain Sustainable Development Goal 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities) should consider financial inclusion as a prerequisite for DFL policies that seek to generate well-being, rather than an independent policy goal (Chillar et al., 2025; Umer et al., 2025).

Conclusion

The PRISMA-based literature synthesis shows convincing evidence that digital financial literacy is positively correlated with financial well-being, and that financial self-efficacy and financial behavior mediate this relationship in a serial manner, with financial stress acting as an in parallel pathway, which has a negative sign and can diminish financial literacy benefits if digital and financial uncertainty are not resolved. The returns to digital financial education for financial well-being vary by pathways and are moderated by financial inclusion and demographic characteristics such as age, gender, education, and income, suggesting that these benefits are not universal. Although the evidence base is expanding, it is geographically concentrated, methodologically heterogeneous and largely limited to cross-sectional designs. Confirmatory, longitudinal and cross cultural designs are all welcome. The implications for educators, financial-servicing organizations, and policy makers are that programs that promote digital financial literacy are most likely to create positive gains in well-being if they include elements of confidence-building, habitual-behavior tools, explicit protective competencies related to fraud and fees, and financial-inclusion infrastructure to enable financial-literacy gains to be acted upon.

Limitations of the Review

There are a number of limitations to this review. First, the underlying literature, like the literature on the DFL-to-self-efficacy-to-behavior-to-FWB chain, is dominated by cross sectional designs, limiting causal inferences; the proposed temporal ordering of events in the chain, from DFL to self-efficacy to behavior to FWB, is theoretically motivated but its validity is seldom investigated in a longitudinal study. Second, the measures of DFL vary across studies, some use multidimensional scales of DFL (Choung et al., 2023), others use single item or adapted conventional-literacy items making it difficult to directly compare the effect sizes and precluding formal pooling using formal meta-analysis. Third, the evidence base is geographically limited, with the connection being relatively under-studied in the majority of middle and low-income economies, particularly in Sub-Saharan Africa, the Middle East and Central Asia. Fourth, the search strategy included database searching, citation chaining and grey-literature screening, but it is not certain that studies published in regional journals, or in languages other than English, were identified.

Future Research Directions

There are four priorities for further investigation. First, the full serial and parallel mediation model (DFL to self-efficacy to behavior, with financial stress as a parallel negative pathway and financial inclusion as a moderator) should be tested within single samples (as most existing evidence does only test a subset of this model, except for Sharma et al., 2025). Second, early evidence of the effect of literacy interventions on increased confidence in budgeting and decreased financial stress needs to be followed up with longitudinal and experimental designs that establish temporal precedence and causal direction. Third, research must be extended in space to introduce less-explored contexts in under-represented developing economies where digital adoption is growing at a fast pace but the form of trust and infrastructure and also the form of disparities in its usage remains in the developing economy. Fourth, there is a need for measurement work to reach a common validated multidimensional measure of DFL (such as the composite of transactional-skill/knowledge/fraud-protection scale developed by Choung et al., 2023) to facilitate a future meta-analysis of effect sizes across contexts.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Ethical Approval / Ethics Statement

This study was performed in line with the principles of the Declaration of the Department of Management Sciences. Approval was granted by the Ethics Committee of the department.

Data Availability Statement

The datasets generated and analysed during the current study are available as the online database and repositories.

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