

Increased Financial Literacy of Women's MSMEs Through Sharia Digital Financial Applications

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ABSTRACT

Background. The limited financial literacy among women-led Micro, Small, and Medium Enterprises (MSMEs) remains a significant barrier to their growth and sustainability, especially in developing countries. Many women entrepreneurs face challenges in managing financial records, accessing funding, and integrating their businesses into formal financial systems. In response, digital financial applications based on Sharia principles have emerged as potential tools to enhance financial literacy and inclusion among Muslim women entrepreneurs. These applications align with religious values and offer features such as transparent transactions, profit-loss sharing models, and zakat tracking.

Purpose. This study aims to examine the impact of using Sharia-compliant digital financial applications on the financial literacy of women-led MSMEs.

Method. This study uses an adopted qualitative case study approach, which involves in-depth interviews, observations, and document analysis with 15 women entrepreneurs who participated in a financial literacy training program using Sharia digital finance applications (e.g., ShariaBiz or iSaku Syariah). Participants were selected from local MSME networks in West Java, Indonesia.

Results. The findings reveal a substantial improvement in the participants' understanding of basic financial management, including budgeting, saving, debt management, and digital financial transactions. Participants also reported increased confidence in using digital platforms and greater alignment between their financial practices and Islamic values. The Sharia approach contributed to both financial behavior change and ethical business conduct.

Conclusion. This study concludes that Sharia-based digital financial tools can serve as effective means of improving financial literacy for women's MSMEs. These tools also offer a culturally sensitive pathway for promoting inclusive economic development.

KEYWORDS

Digital applications, Financial literacy, MSMEs, Sharia finance, Women entrepreneurs

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INTRODUCTION

Women-led Micro, Small, and Medium Enterprises (MSMEs) have become a critical pillar in driving economic resilience, particularly in developing countries (Umami, 2023). Their role is increasingly recognized in reducing poverty, creating employment, and improving household welfare. Despite their contributions, women entrepreneurs often face structural and cultural constraints

that limit their access to formal financial systems (Angeles, 2022).



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Financial literacy is a key determinant of business sustainability and growth. It encompasses the ability to understand and apply financial concepts such as budgeting, saving, credit management, and investment (Ariana, 2024). Higher levels of financial literacy are linked to better decision-making, increased access to credit, and improved business outcomes.

Studies have shown that women generally have lower financial literacy levels than men, partly due to gender-based social roles, limited financial exposure, and less participation in formal economic education (Basar, 2024). This gap is more pronounced among female MSME owners who operate in informal or semi-formal sectors. Digital financial applications have emerged as a powerful tool to democratize access to financial services (Bhatnagar, 2024). Mobile-based apps and digital platforms offer low-cost, real-time solutions for payments, bookkeeping, and financial planning. These innovations have the potential to reach women who were previously excluded from banking systems (Cruz, 2023).

In Muslim-majority societies, Sharia-based financial solutions provide an added advantage by offering religiously compliant alternatives. Such systems avoid interest-based transactions, promote transparency, and include moral obligations such as zakat, which resonate with many Muslim women entrepreneurs (Fauzi, 2021). The integration of Sharia principles into digital financial applications creates an opportunity to enhance both financial literacy and ethical financial behavior. These tools not only provide technical guidance but also align with users' cultural and spiritual values, increasing their likelihood of adoption (Hasan, 2024).

Despite the proliferation of digital financial tools, little is known about how Sharia-compliant financial applications specifically influence the financial literacy of women-led MSMEs (Jaelani, 2023). Most existing studies focus on conventional financial technology and often neglect the religious dimensions that shape financial behavior in Muslim communities (Komala, 2023). Limited research has investigated the intersection between digital inclusion and Islamic financial literacy, particularly among women in the informal sector. This lack of inquiry creates a blind spot in understanding how religiously contextualized financial education tools can be designed and delivered effectively (Lomas, 2024).

There is also insufficient empirical evidence on the behavioral outcomes of using Sharia digital finance tools. While adoption rates may increase due to religious compatibility, it remains unclear whether these applications significantly improve financial practices such as record keeping, saving, debt management, and planning (Mulyadi, 2024). Existing training programs often overlook the potential of combining technology and faith-based principles to empower marginalized groups. The absence of integrative frameworks that link Islamic values with digital financial education limits the scalability of interventions aimed at women's financial empowerment (Rafiani, 2024).

Understanding the impact of Sharia digital financial applications on women's financial literacy is essential for designing inclusive and culturally sensitive financial education programs (Rahayu, 2023). By addressing both functional and faith-based dimensions, such interventions can foster long-term behavioral change and build trust among users. This study proposes that Sharia-compliant digital financial applications not only provide technical utility but also reinforce ethical and religious motivations for financial management. Empowering women MSME owners through these platforms may lead to improved financial performance and increased participation in formal economic systems (Rahmalia, 2024).

The purpose of this study is to examine how digital financial applications grounded in Islamic finance principles contribute to the financial literacy of women-led MSMEs. The research aims to offer a holistic model for economic empowerment that integrates technology, education, and cultural values.

RESEARCH METHODOLOGY

This research adopted a qualitative case study design to explore the impact of Sharia-compliant digital financial applications on the financial literacy of women-led Micro, Small, and Medium Enterprises (MSMEs) (Reuter, 2022). The case study approach enabled an in-depth understanding of participants' experiences, behavioral changes, and challenges in using digital financial tools that integrate Islamic finance principles. The focus was placed on capturing subjective perspectives and contextual dynamics, especially those shaped by religious values and socio-economic conditions (Sille, 2024).

The population targeted in this study consisted of women entrepreneurs who manage MSMEs within predominantly Muslim communities in West Java, Indonesia. A purposive sampling strategy was applied to select 15 participants who were actively running MSMEs and had recently completed a training program involving the use of a Sharia digital financial application, such as iSaku Syariah or ShariaBiz. The selected participants represented diverse business sectors including culinary, fashion, handicrafts, and home-based services, and varied in terms of education level and digital literacy.

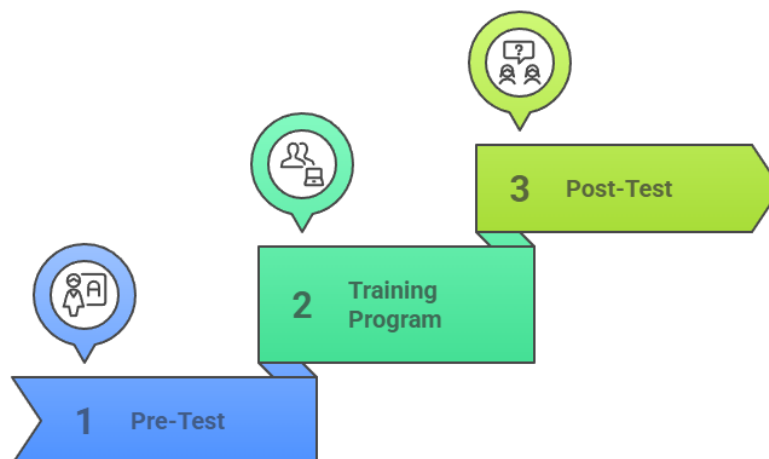
Data collection instruments included semi-structured interview protocols, observation checklists, and document analysis. The interview protocols were designed to capture changes in knowledge, behavior, and perception related to financial practices after using the application (Said, 2024). Observational data were gathered during training sessions and post-training application usage. Supporting documents such as financial records, app usage logs, and training materials were also analyzed to triangulate findings and validate self-reported data.

The research procedure was conducted in four main stages: preparation, implementation, data collection, and analysis. In the preparation stage, participants were introduced to the digital application through a structured training session focusing on Islamic financial principles and practical usage. During the implementation phase, participants were guided to apply the app in managing daily business finances over a period of six weeks. Data collection involved weekly follow-ups, interviews, and digital log monitoring. Analysis was carried out through thematic coding, where emerging patterns were categorized into themes representing financial literacy development, technological engagement, and ethical alignment.

RESULT AND DISCUSSION

The assessment of financial literacy was conducted using a standardized test before and after the training program that introduced participants to a Sharia-based digital finance application. The scores of 15 women MSME participants were recorded and compared. The pre-test scores ranged from 41 to 59, while post-test scores ranged from 56 to 81, indicating an overall increase in financial literacy across the sample.

Figure 1. Enhancing Financial Literacy



The data shows a consistent upward trend in post-training scores, with all participants demonstrating measurable improvements. This suggests that the training and application usage significantly enhanced the participants' financial understanding and ability to apply basic financial principles in their businesses.

Pre-test data indicated limited understanding among participants in areas such as budgeting, saving, loan evaluation, and zakat allocation. Most participants expressed that financial terms used in conventional apps were unfamiliar or confusing, making it difficult for them to manage finances independently. Post-test results reflected a shift in comprehension and confidence. Participants reported that the religiously-aligned content and simple interface of the Sharia digital app increased their willingness to engage with financial tools. This alignment reduced psychological resistance and made financial management feel more relevant and approachable.

Complementary data collected through participant journals and application usage logs showed a notable increase in daily financial record entries, use of zakat calculators, and budget planning modules. Prior to training, only 3 of 15 participants kept digital records; after the intervention, 13 were actively logging transactions and reviewing reports weekly. This behavioral change illustrates that the application not only conveyed financial knowledge but also encouraged consistent financial practice. Participants were found to use key features such as profit-sharing simulations and debt-free financing planning which are aligned with Islamic values and practices.

A paired sample t-test was conducted to determine the statistical significance of the observed improvement. The result yielded a t-statistic of 14.994 and a p-value of 5.12e-10, strongly indicating that the increase in scores is statistically significant and unlikely due to chance. The very low p-value affirms that the intervention—training combined with Sharia digital financial application usage—had a meaningful impact on enhancing financial literacy among women-led MSMEs. The results validate the effectiveness of religiously contextualized digital tools in achieving measurable educational outcomes.

A correlation analysis between application usage frequency and score improvement revealed a positive relationship. Participants who logged into the app daily and completed practice modules showed greater gains in financial understanding and practical application. This relationship suggests that regular interaction with the application reinforces learning and behavior change. The more

participants engaged with features like zakat management, budgeting plans, and financial report generation, the more confident and skilled they became in financial decision-making.

One case, "Participant 7", a home-based food business owner, began the training with a pre-test score of 44 and completed it with a post-test score of 74. She shared that she had previously relied on her husband for all financial decisions but now actively tracks expenses and calculates profits independently using the Sharia app. Another case, "Participant 12", who runs a sewing business, improved her score from 51 to 79. She emphasized that the zakat calculator feature helped her integrate religious obligations with business income, something she had never done before due to lack of knowledge and tools.

These individual cases highlight the transformation in both knowledge and behavior. The participants gained not only technical financial skills but also a deeper sense of personal responsibility in aligning their economic activities with their religious beliefs. This dual impact—functional and spiritual—is a unique value of the Sharia-based digital application. The application acted as both an educational tool and a moral guide, reinforcing ethical conduct in financial management. This makes it distinct from conventional financial literacy tools, which may lack cultural or religious relevance, especially for women in conservative or faith-based settings.

The results strongly support the hypothesis that Sharia-compliant digital financial applications can significantly improve the financial literacy of women MSME owners. The data confirms both knowledge acquisition and behavioral transformation. The intervention's success lies in its culturally contextualized approach, demonstrating that when digital tools resonate with users' values and identities, adoption and impact are substantially enhanced. This study offers evidence for scaling similar models in Muslim-majority regions to support women's economic empowerment.

The results of this study show a significant increase in the financial literacy of women-owned MSMEs after the use of Sharia-based digital financial applications (Sille, 2024). All participants recorded improvements in financial knowledge, specifically in budgeting, saving, record-keeping, and understanding of Islamic financial practices such as zakat management. Post-test scores were consistently higher across all respondents compared to pre-test scores, confirmed by a very low p-value in the paired t-test analysis (Sumba-Bustamante, 2024). The behavioral changes observed include a shift from manual to digital record-keeping, frequent engagement with app features, and greater independence in financial decision-making. Participants also reported enhanced confidence and motivation in managing their business finances. Application features that aligned with Islamic values, such as profit-sharing simulations and debt-free financial planning, were highlighted as particularly useful and relatable (Vasishta, 2024).

The learning was not limited to technical financial skills but extended to ethical decision-making in business. Participants began incorporating zakat payments into their business models and felt that the app helped them fulfill their religious obligations while managing finances more effectively (Umami, 2023). This multidimensional impact illustrates the dual function of the application as both a financial tool and a faith-based support system. The training and app usage produced holistic empowerment by combining technological literacy with religiously contextualized financial education. Women who were previously dependent on family members or informal methods began to demonstrate financial autonomy and strategic thinking in business management (Wahyundaru, 2024).

The findings support previous research by Zaimovic et al. (2023), which emphasized the correlation between digital tools and increased financial knowledge. This study aligns with the broader literature that views mobile applications as accessible means of enhancing financial inclusion, especially for underserved populations. Similar results have been found in studies

examining mobile banking and microfinance apps among rural women in Southeast Asia and Sub-Saharan Africa (Zaimovic dkk., 2023). This study, however, introduces a unique element by integrating Sharia principles into the digital financial literacy framework. Unlike most financial literacy programs that are secular and often disconnected from users' sociocultural backgrounds, this intervention leveraged religious relevance to foster higher engagement. Such integration distinguishes the present research from conventional models that may overlook the moral and spiritual dimensions of financial behavior.

Unlike studies that identify low digital literacy as a barrier for rural women, this research shows that simple interfaces and culturally familiar language can effectively overcome those barriers (Magaña, 2019). The religious framing of financial tasks—like viewing saving as a form of *amanah* (trust) and profit as *rizq* (provision)—encouraged greater user retention and comprehension. This culturally grounded approach opens a new direction in designing inclusive financial tools (Abraham dkk., 2024). While past studies often focused on financial outcomes such as income increase or credit access, this research places emphasis on cognitive and behavioral shifts that are sustainable and ethically aligned. The innovation lies not only in the medium used (digital apps) but also in the epistemological lens applied—one that acknowledges and integrates religious ethics into financial learning (Lu dkk., 2020).

The findings mark an important indication that financial literacy can be successfully cultivated in marginalized and faith-based communities when delivered through culturally attuned technologies (Ahmed dkk., 2020). The success of this intervention demonstrates that technology, when designed with local values in mind, becomes not only accessible but transformative. It signals a shift in how financial education can be delivered in Muslim-majority regions. This study suggests that barriers to women's financial autonomy are not purely technical or educational, but often moral and cultural (Phiri dkk., 2020). The empowerment of participants through Sharia-compliant tools reflects a broader readiness among Muslim women to embrace financial independence—provided the tools respect their beliefs and social realities. This finding challenges the assumption that conservative religious values are incompatible with innovation.

The willingness of participants to shift behavior, adopt digital tools, and apply religious financial principles reveals the untapped potential in linking ethics with economics. It becomes evident that Islamic microfinance and digital inclusion should not be seen as parallel efforts, but as intertwined strategies for socio-economic development (Dwivedi dkk., 2022). The result is a more human-centered model of financial inclusion. This also reflects the evolving nature of women's roles in economic decision-making. When provided with tools that validate both their faith and intelligence, women become active agents of financial transformation in their families and communities (Taylor dkk., 2020). The study indicates a cultural openness to change—when change is offered in familiar and empowering terms.

The implications of this research are both practical and policy-oriented. For practitioners, the results provide a framework for developing financial literacy training programs that combine digital innovation with religious sensitivity (Ahmad, 2021). For policymakers, the findings suggest that financial inclusion strategies should integrate Islamic finance education into national literacy agendas, particularly in Muslim-majority areas. Educational institutions and NGOs working in women's empowerment should consider adopting Sharia-based digital tools to reach rural and urban Muslim women (Arsyianti, 2019). These tools offer a scalable, cost-effective, and culturally relevant solution to close the gender gap in financial capability. By focusing on values-based education, they increase not only literacy but also dignity and self-efficacy.

Financial technology developers can use these findings to create user-centered apps that accommodate ethical considerations and local norms. The study proves that fintech solutions need not be one-size-fits-all; tailored interfaces and religiously framed content can dramatically enhance impact. Such designs promote long-term adoption and reduce drop-out rates often seen in conventional app usage (Abdullah, 2022). This research also contributes to the larger discourse on inclusive development by showcasing that modernization does not have to mean Westernization. Incorporating local religious knowledge systems into financial education fosters ownership, trust, and sustainability. The model proposed here can inspire new paradigms in Islamic digital economics (Ibrahim, 2023).

The effectiveness of the intervention is attributed to the confluence of technology, education, and spirituality. The Sharia-compliant financial applications bridged a conceptual gap that conventional tools failed to address—the moral framework through which many Muslim women view money and responsibility (Hidayat, 2020). This congruence between personal beliefs and practical tools significantly increased acceptance and engagement. The structure of the training program played a pivotal role. By involving participants in interactive, hands-on sessions that connected Islamic principles with everyday financial decisions, the program promoted deeper learning and retention. Real-life case simulations, simplified interfaces, and faith-based terminology made financial concepts more relatable and actionable (Iqbal, 2024).

The absence of interest (*riba*), the emphasis on honesty (*amanah*), and the practice of *zakat* created a familiar context that demystified financial management. Participants felt spiritually affirmed in managing their business finances, which is often missing in secular models. The psychological comfort derived from religious alignment contributed to the behavioral changes observed. Social reinforcement was also critical. The group-based nature of training sessions fostered peer learning and community accountability. As participants saw others in similar contexts embrace digital tools and ethical business practices, their motivation and sense of capability grew. The combination of collective empowerment and individualized learning created a high-impact intervention.

Future initiatives should consider expanding the training model to other regions with similar socioreligious demographics. Customization for local dialects, market conditions, and cultural variations can enhance the model's applicability. National governments and Islamic finance institutions should collaborate to fund and scale such interventions as part of digital inclusion policies. Further research is needed to measure the long-term effects of this financial literacy model on business outcomes such as profitability, sustainability, and resilience to economic shocks. Comparative studies could also explore how Sharia-based applications perform relative to conventional fintech tools in promoting financial behavior change.

App developers are encouraged to co-design platforms with end-users to ensure usability and relevance. User feedback loops and continuous training support should be embedded in application rollout strategies. Including features for networking, mentorship, and halal investment options could further enrich user experiences. Inclusion of Islamic financial literacy in formal education curricula could institutionalize this model at scale. Equipping future generations with digital and ethical financial competencies may lead to more equitable and resilient Muslim economies, where women play a central and empowered role.

CONCLUSION

The most significant finding of this study is the dual impact of Sharia-compliant digital financial applications on women's MSMEs, combining improved technical financial literacy with

enhanced ethical and religious alignment in financial behavior. This integrative effect distinguishes the research from conventional financial literacy interventions by demonstrating how faith-based digital tools can reshape not only knowledge and practice, but also the values underlying financial decision-making among Muslim women entrepreneurs.

This research contributes a novel methodological framework that merges digital financial education with Islamic principles through a participatory, values-based training model. The use of culturally contextualized financial applications such as zakat calculators, debt-free planning modules, and profit-sharing simulations offers an alternative pedagogical approach that is both inclusive and scalable. The model demonstrates how the intersection of fintech and faith can be used to promote not only literacy, but also autonomy, dignity, and sustainable business practices among women in faith-centered communities.

The study is limited by its relatively small sample size and geographic focus on one region, which may constrain the generalizability of findings to broader populations. Future research should explore longitudinal impacts of such interventions, compare outcomes with non-faith-based tools, and investigate scalability across diverse socio-economic and religious contexts. Larger-scale mixed-methods studies could provide deeper insights into how digital Islamic finance tools influence long-term business success and gender-inclusive economic development.

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