

DIGITAL FINANCIAL SERVICES AND ITS IMPACT ON WOMEN'S FINANCIAL EMPOWERMENT

G Poornima¹, Dr.Sudha B.S²

¹*Research Scholar, University of Mysore & SJB College of Management Studies, Bengaluru.
Email ID: poornima.2000.g@gmail.com*

²*Research Guide, University of Mysore & SJB College of Management Studies, Bengaluru.
Email ID: sudha.surana19@gmail.com*

Abstract—*Digital financial services (DFS) have changed the way individuals save, borrow, transfer, and manage money. For women, especially in emerging economies, DFS can reduce mobility constraints, improve privacy in transactions, strengthen control over income, and widen access to formal finance. Global evidence shows that digital payments and mobile-enabled finance can expand women's access to accounts, savings, and household bargaining power, though persistent barriers remain in digital access, literacy, trust, and product design. This paper presents an empirical-style study on the impact of digital financial services on women's financial empowerment. The study is structured around three objectives: to assess women's awareness and usage of DFS, to examine the relationship between DFS adoption and financial empowerment, and to analyse the influence of DFS dimensions on women's financial decision-making autonomy. A structured questionnaire is proposed, and a model empirical analysis is presented using a sample of 320 women respondents from Bengaluru. Since no raw field dataset was provided, the statistical analysis below is a model analysis built from the stated questionnaire and methodology. It is suitable as a draft for paper development, but the final journal submission should replace the model tables with actual survey results.*

Keywords: *Digital Financial Services; Women's Financial Empowerment; Financial Inclusion; Digital Literacy; Financial Decision-Making Autonomy.*

INTRODUCTION

Digital financial services include mobile banking, internet banking, Unified Payments Interface (UPI), mobile wallets, digital savings, micro-credit platforms, and digital insurance interfaces. The World Bank defines digital financial inclusion as the use of cost-saving digital means to provide affordable formal financial services to underserved populations. Research and policy literature increasingly argue that DFS can be especially important for women because digital channels may reduce time costs, travel burdens, dependency on intermediaries, and exposure to informal financial control within households.

Women's financial empowerment refers to the ability to access financial resources, use them confidently, make independent financial decisions, control income and savings, and participate meaningfully in household and economic choices. Evidence briefs from the World Bank and the Gates Foundation indicate that digital payments and mobile money can strengthen women's privacy, autonomy, control over money, and wider engagement with formal finance, particularly when accounts are in women's own names and accompanied by usability support.

At the same time, empowerment is not produced by technology alone. Gender gaps in phone ownership, mobile internet access, identity documentation, financial literacy, and confidence continue to restrict women's effective use of DFS. GSMA and Women's World Banking both point to major adoption barriers tied to trust, digital capability, affordability, and social norms, even where digital payment rails are expanding quickly.

In India, the rapid growth of digital payments, especially through UPI, has created new opportunities for women's participation in formal finance. Yet adoption does not automatically translate into empowerment unless women actually control accounts, understand digital tools, and use them for savings, payments, and financial planning. This makes it necessary to empirically study how DFS affects women's financial empowerment at the user level.

REVIEW OF LITERATURE

The literature on digital financial services and women's empowerment spans financial inclusion, mobile money, digital literacy, bargaining power, autonomy, and household decision-making.

1. **Hendriks (2019)** discussed the role of financial inclusion in driving women's economic empowerment and established a strong conceptual link between access to finance and women's agency.
2. **Allen, Demirgüç-Kunt, Klapper, and Peria (2016)** examined the foundations of financial inclusion and explained how ownership and use of formal accounts shape inclusion outcomes.
3. **Demirgüç-Kunt and Singer (2017)** reviewed empirical evidence on financial inclusion and inclusive growth, highlighting the developmental value of broad-based access to financial services.
4. **Demirgüç-Kunt, Klapper, Singer, and Ansar (2018)** documented major changes in financial inclusion and the fintech revolution through the Global Findex database, which has been widely used to track gender gaps in account ownership and usage.
5. **Suri and Jack (2016)** showed the long-run poverty and gender impacts of mobile money, demonstrating that digital finance can improve welfare and economic resilience, particularly for women.
6. **Ouma, Odongo, and Were (2017)** found that mobile financial services support financial inclusion and savings mobilisation, suggesting that digital channels can improve money management behaviour.
7. **Aker, Boumrijel, McClelland, and Tierney (2016)** provided evidence from a mobile money cash transfer experiment in Niger, showing that digital payment mechanisms can improve the effectiveness of anti-poverty interventions.
8. **Lee, Morduch, Ravindran, Shonchoy, and Zaman (2021)** produced experimental evidence from Bangladesh on mobile banking and poverty-related outcomes, indicating that digital finance can alter household-level financial behaviour.
9. **Bachas, Gertler, Higgins, and Seira (2021)** showed that debit cards can enable low-income households to save more, reinforcing the argument that digitised finance affects behavioural outcomes, not just transactional convenience.
10. **Showkat (2024)** examined whether digital financial services can enhance women's financial independence and reported evidence from 426 women in North India using PLS-SEM, grounding the relationship in technology acceptance and gender theory.
11. **Mabrouk, Ftiti, and co-authors (2023)** analysed women's digital financial inclusion before and after COVID-19 and situated DFS within broader financial inclusion debates, including gendered outcomes of digital payments.
12. **Dorfleitner and Nguyen (2024)** found supportive evidence that mobile money adoption contributes to women's economic empowerment, with financial management practices partly mediating this relationship; the effect was especially pronounced in rural subsamples.
13. **Han (2023)** found that digital finance improves women's bargaining power within households by encouraging labour market participation, entrepreneurship, and financial market engagement.
14. **Heath and Riley (2024)** used a randomized controlled trial in Tanzania with 750 female microfinance clients and showed that increased use of DFS can improve financial control and decision-making power.
15. **Adera and Abdisa (2023)** examined the Ethiopian context and concluded that financial inclusion is significantly associated with women's economic empowerment.
16. **Loaba (2025)** analysed 9,001 women in Burkina Faso and found that digital finance services improve women's empowerment through higher labour market participation.
17. **Ojo (2022)** linked digital financial inclusion for women with progress toward Sustainable Development Goal 5, emphasising gender equality implications.
18. **Kim (2022)** assessed the impact of mobile money on the financial inclusion of Nairobi women, adding city-level evidence on gendered access and use.
19. **Mishra (2024)** examined digital financial literacy and women's financial decision-making in India and highlighted the role of literacy and government support in fintech adoption among women.

20. Arora (2026) showed that community norms and peer influence significantly shape women's adoption of DFS in India, and that restrictive gender norms reduce adoption likelihood.

LITERATURE GAP

The literature strongly supports a positive relationship between digital finance and women's empowerment, but three gaps remain. First, many studies focus on access rather than actual empowerment outcomes such as control over spending, saving autonomy, and financial decision-making. Second, several studies are based on African contexts, while Indian urban and semi-urban evidence remains comparatively thinner. Third, digital literacy, trust, and frequency of use are often discussed separately, whereas a combined empirical model of women's financial empowerment is still needed.

STATEMENT OF THE PROBLEM

Digital financial services are expanding rapidly, but women do not benefit equally from this expansion. Many women have nominal access to bank accounts or payment apps without having real control, confidence, or sustained usage. In many cases, digital finance remains mediated by husbands, agents, or family members. Thus, access without capability does not guarantee empowerment. The problem addressed in this study is whether and to what extent the use of digital financial services actually enhances women's financial empowerment in terms of autonomy, savings behaviour, decision-making, and financial confidence.

OBJECTIVES OF THE STUDY

1. To assess the level of awareness and usage of digital financial services among women.
2. To examine the relationship between digital financial services usage and women's financial empowerment.
3. To analyse the influence of key DFS dimensions such as accessibility, frequency of use, digital literacy, and perceived security on women's financial decision-making autonomy.

SCOPE OF THE STUDY

The study focuses on women users of digital financial services in Bengaluru city. It covers women aged 18 years and above who use or have access to at least one formal financial channel such as bank accounts, mobile banking, UPI, wallets, or online payments. The study concentrates on financial empowerment dimensions including control over money, savings behaviour, confidence in digital transactions, independent payment ability, and household financial participation. It does not cover broader political or social empowerment in full detail.

RESEARCH METHODOLOGY

Research Design

The study adopts a descriptive and analytical empirical research design. It is descriptive because it identifies the level of awareness and usage of DFS among women. It is analytical because it examines the relationship between DFS variables and financial empowerment.

Sample Area

Bengaluru city, including selected urban and peri-urban localities.

Sample Unit

Individual women respondents aged 18 years and above.

Sampling Technique

A **purposive-cum-convenience sampling technique** is proposed for the model study, targeting women who have at least basic exposure to formal financial services. For stronger journal submission, this can later be converted into a stratified sampling design based on age, occupation, and locality.

Sample Size

320 women respondents

Sources of Data

Primary data: Structured questionnaire administered to women respondents.

Secondary data: Journal articles, reports, and policy literature.

Data Collection Method

A structured questionnaire with Likert-scale items, multiple-choice questions, and demographic items.

Statistical Tools Used

Descriptive statistics

Weighted mean score

Chi-square test

Pearson correlation

Multiple regression analysis

Reliability of the Instrument

For the model paper, the proposed scale is assumed to have acceptable internal consistency with an estimated Cronbach's alpha = 0.84, indicating good reliability for the empowerment and DFS usage items.

HYPOTHESES OF THE STUDY

H01: There is no significant association between the level of DFS adoption and women's financial decision-making autonomy.

H02: There is no significant relationship between DFS usage and women's financial empowerment.

H03: Accessibility, frequency of use, digital literacy, and perceived security do not significantly predict women's financial empowerment.

LIMITATIONS OF THE STUDY

The study is limited to women respondents in Bengaluru.

The model analysis is based on a structured hypothetical dataset because actual field data were not supplied. The results reflect self-reported behaviour, which may involve response bias.

Non-probability sampling limits generalisability.

The study focuses mainly on financial empowerment and not all dimensions of women's empowerment.

DATA ANALYSIS AND INTERPRETATION

Table 1. Demographic Profile of Respondents (n = 320)

Variable	Category	Frequency	Percentage
Age	18–25	62	19.4
	26–35	108	33.8
	36–45	86	26.9
	Above 45	64	20.0
Education	Up to PUC	72	22.5
	Graduate	141	44.1
	Postgraduate	107	33.4
Occupation	Homemaker	76	23.8
	Salaried	118	36.9
	Self-employed	79	24.7

	Others	47	14.7
Monthly Income	Below ₹15,000	88	27.5
	₹15,001–30,000	102	31.9
	₹30,001–50,000	79	24.7
	Above ₹50,000	51	15.9

Interpretation

The sample is dominated by women aged 26–35 years, suggesting that the study largely captures economically active women. A high proportion of graduates and salaried respondents indicates moderate educational readiness for DFS adoption. However, a sizeable low-income segment suggests that affordability and usability still matter greatly for inclusive digital financial empowerment.

Table 2. Awareness and Usage of DFS

Item	Yes	No	Percentage Yes
Bank account in own name	292	28	91.3
Uses UPI apps	264	56	82.5
Uses mobile banking	231	89	72.2
Uses digital wallets	176	144	55.0
Received digital finance training	98	222	30.6
Can independently operate DFS	214	106	66.9

Interpretation

The results indicate strong basic inclusion, as most respondents have bank accounts and use UPI. However, formal training is low, and around one-third still cannot operate DFS independently. This suggests that account access is ahead of confidence and capability. This pattern is consistent with broader evidence showing that women often enter digital finance ecosystems but still face literacy, trust, and usability barriers.

Table 3. Mean Scores of Key Study Variables

Variable	No. of Items	Mean	SD	Interpretation
DFS Accessibility	4	3.94	0.68	High
Frequency of DFS Use	3	3.76	0.74	Moderate to High
Digital Literacy	5	3.48	0.81	Moderate
Perceived Security/Trust	3	3.39	0.85	Moderate
Financial Empowerment	8	3.87	0.66	High

Interpretation

Women respondents report relatively high accessibility and empowerment, but digital literacy and perceived security are only moderate. This implies that women may be using digital services functionally while still lacking full confidence in safe and advanced usage. Prior literature similarly shows that empowerment effects are stronger when DFS use is accompanied by financial capability and trust.

Hypothesis Testing

Objective 1

To assess the level of awareness and usage of digital financial services among women.

Descriptive statistics and weighted mean analysis were used for this objective. The findings show high awareness of bank accounts and UPI, moderate use of mobile banking and wallets, and relatively low training exposure. This objective is descriptive and therefore does not require hypothesis testing.

Objective 2

To examine the relationship between digital financial services usage and women's financial empowerment.

Table 4. Pearson Correlation between DFS Usage and Financial Empowerment

Variables	r value	p value	Result
DFS Usage Score and Financial Empowerment Score	0.684	0.000	Significant

Interpretation

The correlation coefficient of 0.684 indicates a strong positive relationship between DFS usage and women's financial empowerment. As women use digital financial services more actively, their savings behaviour, financial confidence, and financial autonomy improve. This result aligns with prior evidence that mobile money and digital finance can improve women's control over money and decision-making capacity.

Decision on H02: Rejected.

There is a significant positive relationship between DFS usage and women's financial empowerment.

Objective 3

To analyse the influence of DFS dimensions on women's financial decision-making autonomy.

Table 5. Chi-Square Test: DFS Adoption Level and Financial Decision-Making Autonomy

Variable	Chi-square value	df	p value	Result
DFS Adoption Level × Decision-Making Autonomy	42.86	4	0.000	Significant

Interpretation

The chi-square result shows a statistically significant association between DFS adoption level and financial decision-making autonomy. Women with higher DFS adoption levels tend to report greater participation in household financial decisions and stronger independence in making payments and managing savings. This supports the argument that digitised access can translate into agency when women actively use these tools.

Decision on H01: Rejected.

There is a significant association between DFS adoption and women's financial decision-making autonomy.

Table 6. Multiple Regression Analysis: Predictors of Financial Empowerment

Dependent Variable: Financial Empowerment Score

Predictor	B	Std. Error	Beta	t	p value
Constant	0.812	0.214	—	3.79	0.000
DFS Accessibility	0.214	0.051	0.226	4.20	0.000
Frequency of Use	0.287	0.048	0.309	5.98	0.000
Digital Literacy	0.251	0.046	0.281	5.46	0.000
Perceived Security	0.173	0.043	0.191	4.02	0.000

Model Summary:

R = 0.750

R² = 0.562

Adjusted R² = 0.556

F = 67.41

p = 0.000

Interpretation

The regression model explains 56.2% of the variation in women's financial empowerment, indicating substantial explanatory power. All four predictors are statistically significant. Frequency of DFS use has the strongest effect, followed by digital literacy, accessibility, and perceived security. This means empowerment is not driven merely by service availability; repeated use and capability matter most. The result is consistent with studies showing that digital finance has stronger empowerment effects when women have the skills and confidence to use it independently.

Decision on H03: Rejected.

Accessibility, frequency of use, digital literacy, and perceived security significantly predict women's financial empowerment.

MAJOR FINDINGS

Women show high formal access to digital financial services, especially bank accounts and UPI usage. Digital literacy and training remain lower than account ownership and basic usage.

DFS usage is positively and significantly related to women's financial empowerment.

Higher DFS adoption is associated with stronger financial decision-making autonomy.

Frequency of use and digital literacy are the most powerful predictors of financial empowerment.

Perceived security also matters, indicating that trust and fraud awareness are essential for sustainable DFS adoption.

SUGGESTIONS

Digital finance programmes should move beyond account opening and focus on meaningful usage among women.

Banks, fintech firms, SHGs, and government agencies should provide women-centred digital financial literacy training.

Apps should be designed with simple interfaces, local language support, and fraud-protection education. More women banking correspondents and community-level digital agents should be deployed to improve trust and peer learning.

Special policy attention should be given to low-income women, homemakers, and first-time users to ensure that digital finance leads to actual empowerment rather than symbolic inclusion. These recommendations are broadly aligned with recent evidence from World Bank, GSMA, and Women's World Banking on women-focused DFS design and adoption support.

CONCLUSION

Digital financial services have significant potential to improve women's financial empowerment by increasing convenience, independence, savings behaviour, and participation in financial decision-making. The model empirical analysis in this paper shows that DFS usage is strongly associated with women's empowerment, and that digital literacy, trust, accessibility, and regular usage are critical enablers. The study therefore concludes that digital financial services can be a meaningful instrument of women's financial empowerment, but only when supported by literacy, usability, and gender-sensitive delivery systems. Access alone is not enough; empowered use is the real outcome that matters.

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