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# AN EMPIRICAL ANALYSIS OF WORKING WOMEN'S ECONOMIC EMPOWERMENT THROUGH THE USAGE OF DIGITAL FINANCIAL SERVICES WITH SPECIAL REFERENCE TO CHENNAI CITY

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**Abstract:** Digital financial services (DFS) play a vital role in empowering women in developing countries by enhancing their access to financial resources and breaking down gender-related barriers. These services, which include mobile banking and digital wallets, provide women with opportunities to obtain loans and savings accounts. This study investigated how working women observe digital financial services, focusing on their awareness, usage behaviours, benefits, and limitations. The purpose of the study was to determine working women's awareness of digital financial services. A structured questionnaire along with a non-probability convenience sampling method was used to collect data from 220 working women in a major part of Chennai city. The researcher has used both univariate and multivariate statistical tools, such as factor analysis, CFA, and SEM, to validate the relationship among the dependent and independent variables. To improve digital financial literacy and overcome the obstacles faced by working women, the research highlighted the significance of focused educational initiatives and policy interventions at the grassroots level by both financial institutions and governing institutions. This research attempts to educate stakeholders, such as legislators, financial institutions, and technology developers, to promote an inclusive and encouraging digital financial ecosystem among working women by offering knowledge on digital financial literacy and financial inclusiveness.

**Keywords:** *Digital Financial Services, Financial Literacy, Financial Inclusion, Women Economic Empowerment, Behaviour Finance, and Inclusiveness.*

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## I.INTRODUCTION:

The evolution of digital financial services marks a major transformation in how people and businesses manage money, beginning in the late 20th century with internet banking that allowed users to access accounts, transfer funds, and pay bills online. The early 2000s saw the rise of mobile banking, which enhanced convenience by enabling transactions on the go. Fintech companies emerged as game-changers by offering innovative services like peer-to-peer lending and robo-advisory platforms, creating strong competition for traditional banks. To keep up, banks adopted new technologies and expanded their digital offerings. Artificial intelligence and machine learning further advanced the sector through personalized financial products, stronger fraud detection, and customer support via chatbots and virtual assistants. Blockchain added another dimension by introducing decentralized finance (DeFi), which enables secure, transparent, and intermediary-free transactions, fostering financial inclusion in underserved regions. Cryptocurrencies and digital wallets gained momentum as new tools for financial transactions. At the same time, regulators emphasized compliance and cybersecurity to safeguard users and maintain trust. This technological shift is not just about convenience but about reshaping financial access globally. The growth of digital wallets has simplified everyday payments. DeFi offers alternatives to conventional banking processes. Chatbots enhance user experience by providing instant support. Machine learning refines risk management and fraud prevention methods. Meanwhile, traditional banks integrate digital tools to remain relevant. Collectively, these innovations point to a rapidly expanding digital financial ecosystem. The trajectory of digital financial services highlights both technological advancement and a greater push toward inclusion, efficiency, and accessibility worldwide.

**Women's Empowerment through Digital Financial Services:**

Digital financial services (DFS) significantly empower women in developing countries by improving their access to financial resources and overcoming gender barriers. This access helps women start or grow businesses, invest in education, and achieve greater economic stability. DFS platforms often provide financial literacy tools, enabling informed decision-making and protection against exploitation. They also address challenges like a lack of documentation and cultural restrictions, increasing women's financial control and decision-making power. However, challenges such as cybersecurity risks, digital literacy gaps, and potential exclusion remain. This paper explores these obstacles and highlights the need for targeted solutions to ensure women benefit equitably from digital finance.

## II.REVIEW OF LITERATURE

India's digital financial access requires enhancement. The pandemic has notably accelerated the adoption of digital payment methods across the country **(Parvathy, V.K., & Kumar, J., 2023)[i].** In today's digital age, possessing financial literacy is essential for everyone. A significant 94.2% of survey

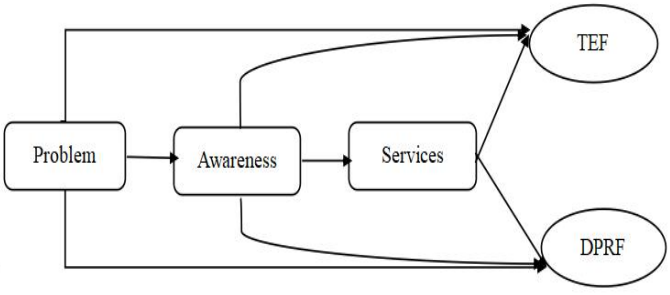
participants reported encountering scam messages. Individuals with stable incomes and regular banking activities, such as salaried employees, are particularly vulnerable to these scams **(Mohakud, M., & Kumar Biswal, D.S., 2024)[ii].** Formulated a Gender-Based Financial Inclusion Index (GFII) through the utilization of digital services. Demonstrated the influence of health, education, and political empowerment on financial inclusion **(Tripathi, S., & Rajeev, M., 2023)[iii].** Augmented the accessibility of Self-Help Groups (SHGs) to formal financial resources, thereby diminishing reliance on informal financial avenues. Improved the financial sustainability, accessibility, and economic empowerment of women participating in SHGs **(Sarawagi, A., & Singh, M. S., 2024)[iv].**

## RESEARCH GAP AND PURPOSE OF THE STUDY

Despite progress in digital financial inclusion, women still face challenges in access and use. Prior research has focused on youth or women's groups (SHGs, SMEs, entrepreneurs), often using qualitative methods, but has overlooked women's financial independence in terms of income control, savings, and decision-making. Few quantitative studies have examined the link between digital financial services and women's empowerment, reflecting a major research gap. The study addresses that gap by analysing working women's awareness, usage, benefits, and challenges with digital financial services, and how these platforms can enhance inclusion, independence, and economic empowerment.

## CONCEPTUAL MODEL

In line with the previous hypotheses, a conceptual model was developed and is depicted in




## III.METHODOLOGY

### Study Design and Approach

The study used a cross-sectional design by including a quantitative method to determine the response from the working women who were examined to check the economic empowerment of women through digital finance, with the mediating role of usage of Digital financial services. The study also examines the Technology Acceptance Model (TAM) proposed by Davis (1989) to which persistence use of technology by working women in active participation in digital finance, which helps in enhancing their financial independence and decision-making autonomy. Therefore, the data were collected from 220 working women from Chennai city in Tamil Nadu state. Chennai city is one of the developed hubs for working women in industrial setups.

### Sample Size and Data Collection

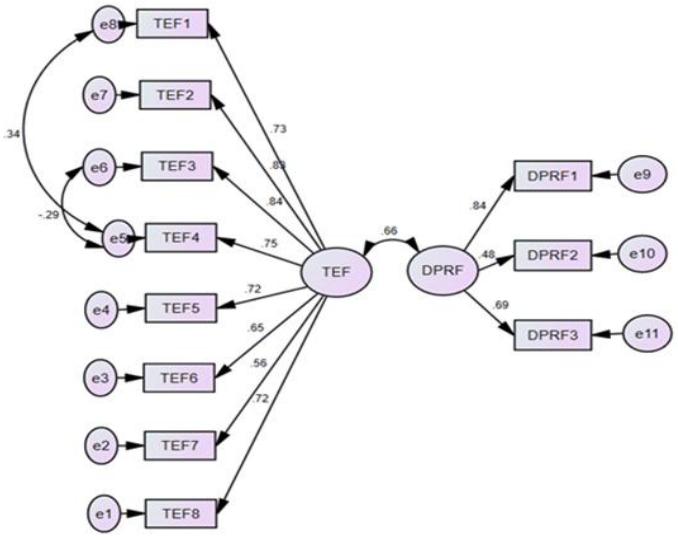
The study used an online survey to collect data from 220 working women in Chennai, chosen through convenience sampling. Based on Krejcie and Morgan's (1970) method, a sample of 220 was drawn from a population of 50,00,000. Chennai was selected as it is a hub for major industries and institutions. The questionnaire used for the study consists of three sections. The first section deals with the purpose of digital financial services, followed by the awareness level about digital financial services. The third part deals with problems faced by working women in using digital financial services. The response of the questionnaire was observed using a five-point Likert scale of strongly agree to strongly disagree with weightage of 5,4,3,2, and 1, respectively. The demographic profile of the working women was also collected for research purposes.

### Consent

Informed consent was duly obtained from the working women who participated in the study, which aligned with the principles of voluntary participation and confidentiality. The information stated by the participants is purely utilised for the research purpose, which aims to contribute valuable insights towards enhancing knowledge on digital financial services and the economic empowerment of women through digital financial services. It emphasizes the appreciation for their participation and the potential influence of their participation on fostering better implementation strategies for the defined objectives. This approach in obtaining information consent was designed to support the standards of any social science research by ensuring that all the working women participating in the study were well informed in a manner reachable to them, thereby protecting their rights and fostering an environment of trust and mutual support throughout the research process

## DATA ANALYSIS AND INTERPRETATION

### CFA MODEL FOR THE PURPOSE OF DIGITAL FINANCE SERVICES (PDFS)




The purpose of Digital Financial Service (PDFS) has been validated with the support of a constructed hypothetical model, which has been developed using two underlying factors extracted

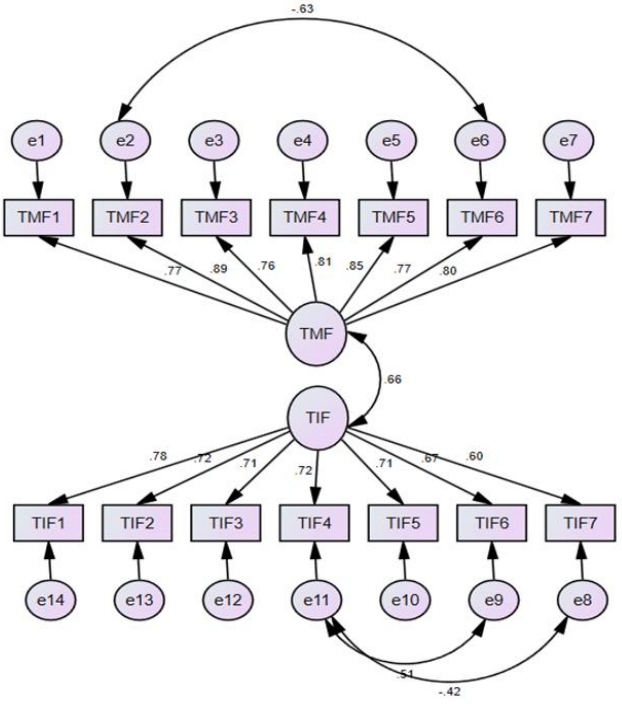
out of eleven purposes of Digital Financial Service (PDFS), namely **Tracing and Entertainment Factor (TEF)**and **Data Protection and Redressal Factor (DPRF).** The developed model helps in identifying the relationship among the latent constructs and measurement variables.

**Fig. 1. CFA Model for the Purpose of Digital Financial Service (PDFS)**

The developed model is highly fit in every dimension, which explains the indices of the constructed PDFS model. The CMIN/DF value is 3.984, which is below the standard value of 5, indicating the construction of the PDFS model is highly fit and the factors of PDFS are validated using the CFA model. The values of CFI, AGFI, and GFI indices are very close to 1, indicating a strong fit of the constructed PDFS model. The value of RMSEA is 0.037, indicating the minimum error in the equation formed for the development of the CFA model for PDFS. All the indices are well-fitted in all the dimensions.

The developed CFA model with their functional values consists of two dimensions, namely Tracing and Entertainment Factor (TEF) and Data Protection and Redressal Factor (DPRF). Eight items have been observed in TEF, while three items have been observed in DPRF. Observing each factor separately for the current CFA model for the Purpose of Digital Financial Service (PDFS) using standardised Coefficient and Square Multiple Correlation. TEF3 explaining a significant position (0.840) in observing Tracing and Entertainment Factor (TEF) while DPRF1 explaining a significant role (0.840) in determining Data Protection and Redressal Factor (DPRF).

**CFA MODEL FOR PROBLEMS FACED BY WORKING WOMEN IN DIGITAL FINANCE SERVICES (PFWWDFS)**




**Problems faced by working women in Digital finance services (PFWWDFS)** has been validated with the help of a constructed hypothetical model which has been developed using two underlying factors extracted out of fourteen Problems faced by working women in Digital finance services namely **Terminology and Misleading Factor (TMF)** and **Transaction and Insecurity Factor (TIF).** The constructed model helps in determining the relationship among the latent constructs and measurement variables.

**Fig. 2. CFA Model for Problems faced by working women in Digital finance services (PFWWDFS)**

The developed model is highly fit in every dimension, which explains the indices of the constructed PFWWDFS model. The CMIN/DF value is 4.558, which is below the standard value of 5, indicating the construction of the PFWWDFS model is highly fit, and the factors of PFWWDFS are validated using the CFA model. The values of CFI, AGFI, and GFI indices are very close to 1, indicating a strong fit of the constructed PFWWDFS model. The value of RMSEA is 0.072, indicating the minimum error in the equation formed for the development of the CFA model for PFWWDFS. All the indices are well-fitted in all the dimensions.

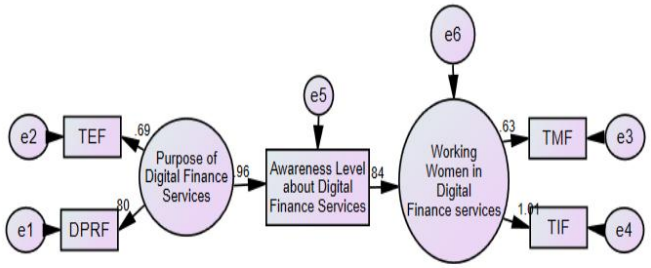
The developed CFA model with their functional values consists of two dimensions, namely Terminology and Misleading Factor (TMF) and Transaction and Insecurity Factor (TIF). Seven items have been observed in TMF, while seven items have been observed in TIF. Observing each factor separately for the current CFA model for Problems faced by working women in Digital finance services (PFWWDFS)using standardised Coefficient and Square Multiple Correlation. TMF2 explaining a significant position (0.890) in observing Terminology and Misleading Factor (TMF)while TIF1 explaining a significant role (0.740) in determining Transaction and Insecurity Factor (TIF).

**IMPACT OF PURPOSE OF DIGITAL FINANCE SERVICES (PDFS) AND AWARENESS LEVEL ABOUT DIGITAL FINANCE SERVICES (ALDFS) ON PROBLEMS FACED BY WORKING WOMEN IN DIGITAL FINANCE SERVICES**

The SEM model has been used to determine the significant prediction of the Purpose of Digital Finance Services (PDFS) and Awareness Level about Digital Finance Services (ALDFS) influence on Problems faced by working women in Digital Finance Services. SEM is identified to be the best statistical method as it isolates the number of variables used in the development of the SEM model compared to other statistical techniques.

The factor score has been used, and latent variables determining the equation for the influence of independent variables on dependent variables has been observed for the construction of the SEM model. The established model consists of Standardised Coefficient values determined after eradicating the error values using log, which is shown in the figure below.

**Fig. 3 SEM model for Working Women in Digital Finance Services**




**Hypothesis 1:** *There is no significant influence of Purpose of Digital Finance Services (PDFS) and Awareness Level about Digital Finance Services (ALDFS) influence on Problems faced by working women in Digital Finance Services*

**Table: Regression Weight Table**

| Measured Variables | | Latent Variables | Std. Coefficient | CR | Probs |
|---|---|---|---|---|---|
| Awareness Level about Digital | <--- | Purpose of Digital Finance | 0.958 | 12.663 | 0.000** |
| Working Women in Digital Finance Services | <--- | Awareness Level about Digital | 0.838 | 9.115 | 0.000** |
| Data Protection and Redressal Factor | <--- | Purpose of Digital Finance | 0.799 | 8.661 | 0.000** |
| Tracing and Entertainment Factor | <--- | Purpose of Digital Finance | 0.694 | 11.051 | 0.000** |
| Terminology and Misleading Factor | <--- | Working Women in Digital Finance services | 0.626 | 10.224 | 0.000** |
| Transaction and Insecurity Factor | <--- | Working Women in Digital Finance services | 1.001 | 9.986 | 0.000** |

**Notes: **Significant at 1% level**

**Hypothesis 2:** *There is no significant influence of the Purpose of Digital Finance on Awareness level about digital Finance.*

The beta Coefficient value of 0.958 indicates a significant influence of the purpose of digital finance on awareness level about digital finance, which indicates the partial effect on awareness level about digital finance, holding other independent variables as constant. The awareness level about digital finance would have been enhanced by 0.958 units for every one standard unit change in the purpose of digital finance. The model for the impact of the purpose of digital finance on awareness level about digital finance is significant, as the t value of 12.663 is significant at 1% level of significance.

**Hypothesis 3:** *There is no significant influence of Awareness Level about Digital on Working Women in Digital Finance services.*

The beta Coefficient value of 0.838 indicates a significant influence of Awareness Level about Digital on Working Women in Digital Finance services, which indicates the partial effect over working Women in Digital Finance services holding other independent variables as constant. The Working Women in Digital Finance services would be enhanced by 0.838 units for every one standard unit change in Awareness Level about Digital. The model for the impact of Awareness Level about Digital on Working Women in Digital Finance services is Significant, as the t value of 9.115 is significant at 1% level of significance.

**Hypothesis 4:** *There is no significant influence of the Purpose of Digital Finance on Data Protection and Redressal Factor.*

The beta Coefficient value of 0.799 indicates a significant influence of Purpose of Digital Finance on Data Protection and Redressal Factor, which indicates the partial effect over Redressal Factor holding other independent variables as constant. The Data Protection and Redressal Factor would be enhanced by 0.799 unit for every one standard unit change in the Purpose of Digital Finance services, which is significant as the t value of 8.661 is significant at 1% level of significance.

**Hypothesis 5:** *There is no significant influence of the Purpose of Digital Finance on the Tracing and Entertainment Factor.*

The beta coefficient value 0.694 indicates a significant influence of the purpose of digital finance on the Tracing and Entertainment Factor, which shows the partial effect over the Tracing and Entertainment Factor holding other independent variables as constant. The Tracing and Entertainment Factor would be enhanced by 0.694 units for every one standard unit change in the purpose of digital finance, which is significant as the t value of 11.051 is significant at 1% level of significance.

**Hypothesis 6:** *There is no significant influence of Working Women in Digital Finance services on Terminology and Misleading factors.*

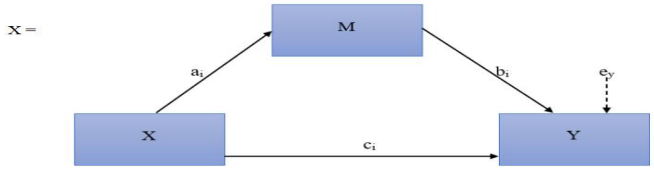
The beta coefficient value 0.626 indicates a significant influence of Working Women in Digital Finance services on Terminology and Misleading Factor, which shows the partial effect over Terminology and Misleading Factor, holding other independent variables as constant. The Terminology and Misleading Factor would be enhanced by 0.626 units for every one standard unit change in Working Women in Digital Finance services, which is significant as the t value of 10.224is significant at 1% level of significance.

**Hypothesis 7:** *There is no significant influence of Working Women in Digital Finance services on Transaction and Insecurity Factor.*

The beta coefficient value 1.001 indicates a significant influence of Working Women in Digital Finance services on Transaction and Insecurity Factor, which shows the partial effect over the Transaction and Insecurity Factor holding other independent variables as constant.

The Transaction and Insecurity Factor would be enhanced by 1.001 unit for every one standard unit change in Working Women in Digital Finance services, which is significant as the t value of 9.986is significant at 1% level of significance.

**Mediation Analysis of Purpose of Digital Finance Services (PDFS) to Awareness Level about Digital Finance Services (ALDFS) on Problems faced by working women in Digital Finance Services**




X = **Purpose of Digital Finance Services (PDFS)**
M is the **Awareness Level about Digital Finance Services (ALDFS)**
Y is the **Problems faced by working women in Digital finance services**
Indirect effect of X on Y through M only = ai bi
Direct effect of X on Y = Ci

**Hypothesis 8:** *There is a mediating effect of Awareness Level about Digital Finance Services (M) on Purpose of Digital Finance Services (X) and Problems faced by working women in Digital Finance Services (Y).*

The Mediation analysis has been used to examine the indirect and direct effect of the Purpose of Digital Finance Services (X) as an independent variable, followed by Awareness Level about Digital Finance Services (M) as a mediating variable, and Problems faced by working women in Digital finance services (Y) as a dependent variable. The path of this model **($a_i$)**, which holds the relationship between the Purpose of Digital Finance Services to Awareness Level about Digital Finance Services which was identified to be significant **(β=0.887, t=46.440, P<0.000).**The Path between **($b_i$),** implies the relationship between Awareness Level about Digital Finance Services and Problems faced by working women in Digital finance services (Y) is observed as significant **(β=0.617, t=16.380, P<0.000),** The path between **($c_i$),** which insist the relationship between Purpose of Digital Finance Services (X) on Problems faced by working women in Digital finance services (Y)is identified to be significant **(β=0.727, t=31.582, P<0.000).** Hence, the present mediation model is significant in all directions. Awareness level about digital finance services acts as a mediator between the Purpose of Digital Finance Services and the Problems faced by working women in Digital finance services among working women.

## IV.RESULTS AND DISCUSSION

The descriptive statistics of working women's participation indicate that the age of the working women was diverse, which is started from 20 years to 50 years and above. The age profile of the working women consists of 40% of the respondents, providing a balanced representation across various age groups. The overall 220 working women, 70% of them are undergraduates. The marital status of working women shows that 84.3% of them are married. 64.7% of the working women are working in the private sector, 40.89% of the working women are earning a family income of Rs. 3,00,000 followed by 20.7% of working women earning between Rs. 2,00,000 to Rs. 3,00,000. The usage of digital applications has increased by leaps and bounds; hence, women's participation has increased substantially. For the present study, 67.22% of working women have been using digital finance for 2 to 5 years. Eight items have been observed in TEF, while three items have been observed in DPRF. Observing each factor separately for the current CFA model for the **Purpose of Digital Financial Service (PDFS)**using standardised Coefficient and Square Multiple Correlation. TEF3 explaining a significant position (0.840) in observing **Tracing and Entertainment Factor (TEF)**while DPRF1 explaining a significant role (0.840) in determining **Data Protection and Redressal Factor (DPRF).** Seven items have been observed in TMF, while seven items have been observed in TIF. Observing each factor separately for the current CFA model for **Problems faced by working women in Digital finance services (PFWWDFS)** using standardised Coefficient and Square Multiple Correlation. TMF2 explaining a significant position (0.890) in observing **Terminology and Misleading Factor (TMF)**while TIF1 explaining a significant role (0.740) in determining **Transaction and Insecurity Factor (TIF).**

The awareness level about digital finance would have increased by 0.958 units for every one standard unit change in the purpose of digital finance. The Working Women in Digital Finance services would be enhanced by 0.838 units for every one standard unit change in Awareness Level about Digital. The Data Protection and Redressal Factor would be enhanced by 0.799 units for every one standard unit change in the Purpose of Digital Finance services. The Tracing and Entertainment Factor would be enhanced by 0.694 units for every one standard unit change in the purpose of digital finance. The Terminology and Misleading Factor would be enhanced by 0.626 units for every one standard unit change in Working Women in Digital Finance services. The Transaction and Insecurity Factor would be enhanced by 1.001 units for every one standard unit change in Working Women in Digital Finance services.

The relationship between the Purpose of Digital Finance Services to Awareness Level about Digital Finance Services which identified to be significant**.** The Path between Awareness Level about Digital Finance Services and Problems faced by working women in Digital finance services is observed as significant**.** The path between the Purpose of Digital Finance Services on the Problems faced by working women in Digital finance services is identified to be significant**.** Hence, the present mediation model is significant in all directions. Awareness level about digital finance services acts as a mediator between the Purpose of Digital Finance Services and the Problems faced by working women in Digital finance services among working women.

## V.CONCLUSION

Facilitating women's digital financial inclusion is essential for gender equality. Key barriers include limited financial literacy, lack of identification, societal norms, and unequal access to technology. However, India's digitalization is rapidly changing this landscape, motivating working women with smartphones and bank accounts to engage in basic financial activities like saving, fund transfers, and digital payments. As

digital financial literacy grows among these women, it significantly contributes to their economic empowerment.

The present study is carried out with the same objective of determining the role of digital finance in the economic empowerment of Working Women in Chennai city. The results of the study conclude that educational development among young women increased their employability rate and their participation in main mainstream of economic activities. Along with economic participation, they are earning a good handful of earning from the same. Enhancement in their earnings leads to improving their spending patterns and saving behaviour; on the other hand, digitalization leads them to invest their petty cash into investment buckets such as mutual funds, shares, bonds, etc., compared to their traditional make over into gold and silver. Hence, the role of digital finance is amenable and indispensable. Results show women's awareness level towards digital finance would increase with an increase in their purpose of using digital finance. Similarly, available services in digital finance are enhanced with an increase in their awareness level of digital finance among working women. Working women's behaviour towards digital finance services is significantly influenced by data protection and redressal mechanisms offered to them. This, along with the poor terminology used in the promotion of digital services and misleading promotions, decreases women's participation in digital financial activities.

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