Financial Literacy Variables in Microfinance Institutions studies: A Systematic Literature Review

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ABSTRACT
The study applied a systematic literature review to explore financial literacy variables in microfinance institution (MFI) studies. Using manual content analysis, 73 studies identified variables covered in MFIs' financial literacy literature. The study revealed that the majority of scholars have assessed the role of financial literacy in promoting clients' savings, money and mobile money usage, loan repayment and investment. However, few studies focused on variables such as outreach, budgeting, interest rates and women's empowerment. In most of the reviewed studies, regression data analysis was used. The findings indicate that there is a dearth of MFI studies that use the term "financial literacy" and its sub-variables. Furthermore, there are no studies that have examined how financial literacy impacts MFI performance variables such as sustainability, profitability, efficiency, credit risk management and corporate governance. In addition, there are a few studies that link financial literacy with MFI theories. Generally, the findings indicate that variables related to financial literacy are not adequately covered in MFI studies. The study recommends the formulation of policies that promote financial literacy training for formal and informal MFIs. This is the first comprehensive systematic review to examine financial literacy variables in MFI studies.

Keywords: *Systematic literature review, financial literacy, microfinance institutions*

INTRODUCTION
The microfinance concept elucidates the types of financial services such as micro savings, microcredits, money transfers and microinsurance offered to clients (Sayankar and Mali, 2022). Microcredit refers to small loans offered to individuals who are financially excluded. Microcredit and microfinance existed after human beings became civilized. Microcredit and microfinance existed after human beings became civilized. However,

modern microfinance commenced in 1976 when Muhammad Yunus established the Grameen Bank in Bangladesh (Gutiérrez-Nieto and Serrano-Cinca, 2019). Microfinance Institutions (MFIs) through job and financial services provision, contribute significantly to the growth of the economy of developing countries (Robert et al. 2013). Globally, approximately 1.7 billion people do not have access to formal financial services, but are served by MFIs (Malhotra and Baag, 2021). Millions of the poor lack access to financial services, which contradicts the United Nations Millennium Sustainable Development Goal number one. A major objective of MFIs is to increase financial inclusion, reduce poverty, and improve the living conditions of the poor (Hasan and Hoque, 2021).

Financial literacy is achieved when investors and consumers advance their knowledge and become aware of financial opportunities and risks. Financial literacy enhances the proper choice of financial services and hence promotes clients' financial wellbeing (Organization for Economic Co-operation and Development -OECD, 2005). Financial literacy enhances access to financial services both in rural and urban areas (Hasan and Hoque, 2021). Remund (2010) conceptualized finance literacy into five groupings which are financial knowledge, financial communication ability, personal finance management aptitude, proper financial making decisions and effective future financial needs planning. Huston (2010) attested that scholars are challenged to operationalize the concepts of financial literacy. According to Malhotra and Baag (2021), financial literacy does not only explicate the understanding of financial concepts and their applications but also aptitude for managing personal financing, and confidence in making appropriate financial decisions. Many scholars equate financial literacy with an understanding of financial concepts and their applications (OECD, 2013; Wanjiku and Muturi, 2015).

Financial literacy is used to identify, evaluate, compare and select the appropriate financial products such as credit cards, investment, savings and microcredits. Moreover, it protects financial service users against fraud, abuse vulnerability, bankruptcy and delinquency (OECD, 2005; Lusardi and Mitchell, 2013). Financial knowledge also promotes women's empowerment, clients' livelihood realization, firm sustainability, economic growth and social economic development (Bijli, 2012, Refera et al., 2016; Premarathne and Abeysekera, 2020).

A key objective of financial literacy is to improve the financial status of citizens in developed and developing countries and to alleviate poverty (Garg and Singh, 2018; Banciu et al., 2022). Since there exist diverse financial products and services both in developed and developing countries, financial literacy overcomes the challenge of improper selection of financial products (Refera, et al., 2016; Garg and Singh, 2018). According to Bernanke (2011), the evolution of new financial products in the contemporary world forces people to update their financial literacy skills.

Citizens of both developed and developing countries face the challenge of poor financial literacy, despite the problem being much larger in developing countries, particularly in Africa and Asia (Lusardi and Mitchell, 2013). In 2014, Sri Lanka recorded 35% of financially literate adults. The MFIs worked tirelessly to improve this rate through seminars, training and mobilization of community committees and credit societies. Obstacles faced by the financial literacy programmes in Srilanka were inadequate budget, competition in MFI industry, poor attitudes, poor participation of MFI clients and regulatory bodies' ineffectiveness (Premarathne and Abeysekera, 2020). The MFIs imparted financial literacy to poor clients in India (Vijaykumar and Naidu, 2016; Sayankar and Mali, 2022). In this systematic review, the researcher sought to assess the variables of financial literacy in microfinance institutions studies. The researcher also assessed whether scholars specify MFI type in their research titles. Moreover, the researcher determined the data analysis methods for MFI financial literacy studies, analyzed the limitations of the literature and recommends areas for future research.

METHODOLOGY

The study employed a systematic literature review to conclude the phenomena under study. Garg and Singh (2018) used this method to analyze the youth financial literacy variables. This study assessed the coverage of financial literacy variables in microfinance institutions studies. The study focused on the link between financial literacy or its components (financial knowledge, attitudes and behavior) and MFI variables. In analyzing data, the researcher examined financial literacy dimensions, variable occurrences in titles and within articles, and data analysis methods. Therefore, the review exposes the adequacy of variables coverage and depicts the direction of future research.

To analyze the relationship between the independent and dependent variables, only articles with the terms "financial literacy" and "microfinance institutions" were considered. However, MFI studies that contained at least one component of financial literacy were selected for review. The majority of the articles were found in Google Scholar where raw search generated a total of 17,700 articles. The other articles were generated from the Taylor and Francis, Online Wiley, and Emerald insight databases. Afterwards, only the first four pages of search results were selected. This criterion generated a total of 658 articles in all databases. As a result of the final screening, 73 articles were selected. Table 1 depicts the search process.

The researcher picked articles published in the English language, from journals, working papers and reports from reputable publishers such as the International Labour Organization (ILO), World Bank (WB) and Economic Co-operation and Development (OECD). Dissertations, theses, books and book chapters were excluded from the analysis. This strategy was also applied by Gupta and Sharma (2021). The literature survey was conducted from October 2022-January 2023. Since the manual content analysis can handle small datasets (Lewis et al., 2013); the study applied this technique to identify the occurrence of the variables in the articles and titles. Then, variables from the objectives were classified into themes and the analysis was executed. The themes were the variables of financial literacy and its components (financial knowledge, attitude and behaviors) in microfinance institutions. The study also identified data analysis techniques and occurrence of variables in the research titles.

Table 1: Article Search Process

Type of database	Initial search for articles	First four pages of articles	Final articles selected
Google scholar	17,700	478	52
Sage	1, 131	72	0
Emerald	1,000	46	8
Tylor and Francis	627	38	7
Online Wiley	96	24	6
Total	**20,554**	**658**	**73**

Source: Literature review

FINDINGS AND DISCUSSION

This section discusses the MFI specifications in research titles, data analysis methods, and variable coverage.

Research Title Analysis
According to the analysis, 32 studies (44%) used the term "financial literacy" in their titles. The findings further demonstrate that only 13 (18%) studies mentioned the terms financial literacy and MFIs in their titles. The analysis indicates that only 7 (10%) articles specified the type of MFIs in their titles while 9 studies (12%) did not specify the type of MFIs. Almost 5(7%) studies indicated components of financial behavior in their titles, but one article described a component of financial knowledge. Moreover, the analysis shows that none of the studies included a component of financial attitude in their titles. The analysis indicates that in most of the studies, the association between financial literacy and MFI is expressed within the documents, not in the titles. According to the analysis, only Moko et al. (2020) incorporated all three variables of financial attitude, knowledge, and behavior into their titles.

Therefore, the analysis indicates that studies that specify the type of MFIs in the study titles, those that combine three variables of financial literacy and those that specify one or two sub-variables of financial literacy in the research titles were missing. The findings confirm the argument of Refera et al. (2016) who reported that few studies have examined the role of financial literacy in policy reforms in developing countries. Additionally, Refera et al. (2016) claimed that the variation in financial literacy groups makes it impossible to generalize financial literacy findings. Table 2 presents the title analysis from the empirical literature.

Table 2: Research title analysis

S/N	Variable (s)	Authors	No of studies	%
1	Financial literacy in titles	Agarwalla et al., 2013; Ajibola et al., 2020; Andreou and Anyfantaki, 2021; Baidoo et al., 2020; Banciu et al., 2022; Barua and Sane, 2014; Bhandare et al., 2021; Bijli, 2012; Bongomin and Munene, 2019; Bongomin et al. 2020; Chiwaula et al., 2020; Das and Dutta, 2014;, Gaudence et al., 2018; Gebeyehu, 2022; Hasan and Hoque, 2021; Huston, 2010; Kaiser and Menkhoff, 2017; Khuc et al., 2022; Lee and Huruta, 2022; Malhotra and Baag, 2021; Mishra et al., 2021; Murendo, and Mutsonziwa, 2017; Nawaz, 2015; Premarathne, and	32	44

		Abeysekera, 2020; Razak et al., 2020; Redson and Magali, 2022; Refera et al., 2016; Robert et al. 2018; Sayankar and Mali, 2022; Shibia, 2012; Vijaykumar and Naidu, 2016; Widhiyanto et.al., 2018; Xu and Zia, 2012).		
2	Financial literacy and MFIs in the titles	Ajibola et al., 2020; Banciu et al., 2022; Barua and Sane, 2014; Bijli, 2012; Bongomin and Munene, 2019; Das and Dutta, 2014; Gaudence et al., 2018; Lee and Huruta, 2022; Malhotra and Baag, 2021; Premarathne, and Abeysekera, 2020; Robert et al. 2018; Sayankar and Mali, 2022; Vijaykumar and Naidu, 2016)	13	18
3	Studies that specify the type of MFIs in the title and their concentration	women empowerment in MFIs (Bijli, 2012), rural Assam MFI clients (Das and Dutta, 2014), MFIs in Srilanka (Premarathne and Abeysekera, 2020), MFIs in Uganda (Bongomin et al., 2020), MFIs in Cambodia (Banciu et al., 2022), MFI clients (Sayankar and Mali, 2022), MFIs (Barua and Sane, 2014), MFIs and financial literacy in Nigeria (Ajibola et al., 2020). Moreover, Karlan and Valdivia (2011) analyzed the training impact for MFI clients.	9	12
4	Studies that specify the type of MFIs in titles	Mishra et al, 2021), Green microfinance (Lee, and Huruta, 2022), VSLAs in Malawi (Chiwaula et al., 2020), VICOBA in Tanzania (Redson and Magali, 2022), SACCOS in Uganda (Gaudence et al., 2018), Indian SHGs (Vijaykumar and Naidu, 2016), Amanah Ikthiar Malaysia MFI (Razak et al., 2020).	7	10
5	Titles with a financial behavior variable	Chidambaranathan and Guha, 2020; Kumar and Mukhopadhyay, 2013; Munyegera and Matsumoto, 2018; Chiwaula et al., 2020; Bhandare et al., 2021; Andreou and Anyfantaki, 2021; Kaiser and Menkhoff, 2017)	7	10

6	Studies that contain financial behavior in titles	(Bhandare et al., 2021; Chidambaranathan and Guha, 2020; Chiwaula et al., 2020; Kaiser and Menkhoff, 2017; Kumar, and Mukhopadhyay, 2013)	5	7
7	Studies that contain all three variables of financial literacy in the titles	Moko et al., 2020)	1	1
8	Studies that contain financial knowledge in titles	(Fiebig et al., 1999)	1	1
9	Studies that contain financial attitude in titles	None	0	0

Source: Literature review

Data Analysis Methods

Regarding data analysis methods, 35 (48%) studies used regression or logistic regression analysis. In contrast, 16 (22%) studies were qualitative in nature and analyzed concepts, narratives, contents, and arguments. In 10 (14%) studies, factor analysis and structural equation modeling (SEM) were employed. There were also 2 studies (3%) that employed descriptive and correlation methods. Moreover, 1(1%) of the studies employed t-tests and chi-square tests, meta-analyses and transcendental logarithmic functions. Table 3 presents a summary of data analysis methods in financial literacy MFI studies.

Table 3: Data analysis methods

S/N	Variable (s)	Authors	No of studies	%
1	Regression/Logistic regression	(Cole et al., 2014; Chiwaula et al., 2020; Gaudence et al., 2018; Shibia, 2012; Natamba et al., 2013; Wanjiku and Muturi, 2015; Banciu et al., 2022; Gebeyehu, 2022; Hamsa and Ramly, 2022; Baidoo et al., 2020; Robert et al., 2018; Barua and Sane, 2014; Ajibola et al., 2020; Andreou and Anyfantaki, 2021; Widhiyanto et al., 2018; Robert, et al., 2018; Karlan and Valdivia, 2011; Munyua, 2016; Amran and Mwasiaji, 2019; De Mel et al., 2008; Bayai and Ikhide, 2018; Hasan and Hoque, 2021; Ghosh and Guha, 2019; Malhotra and	35	48

		Baag, 2021; Illangakoon et al., 2022; Froelich et al., 2015; Ssekiziyivu et al., 2017; Al-Amin and Islam, 2019; Murendo, and Mutsonziwa, 2017; Munyegera and Matsumoto, 2018; Bhandare et al., 2021; Janda and Turbat, 2013; Ndaki, et al., 2018; Golman and Bekerman, 2018; Smits and Günther, 2018)		
2	Qualitative analysis	(Bijli, 2012; Nawaz, 2015; Sayankar and Mali, 2022; Sangwan and Nayak, 2020; Rahman et al., 2015; Lamichhane, 2021; Hu et al., 2016; Hudon, 2008; Reeves and Sabharwal, 2013; Khursheed, 2022; Balkenhol et al., 2012; Malhotra and Baag, 2021; Mhando, 2018; Morawczynski and Pickens, 2009; Parvez and Chowdhury, 2016; Bellazzecca and Biosca, 2022)	16	22
3	Structural equation Modeling (SEM)	(Bongomin et al., 2020; Bongomin and Munene, 2019; Lee and Huruta, 2022; Kamdjoug et al., 2020; Xiong and You, 2019; Moko et al., 2022; Khuc et al., 2022; Lučić et al., 2021).	8	11
4	Correlation analysis	(Das and Dutta, 2014; Fiebig et al., 2009)	2	3
5	Factor analysis	(Mishra et al., 2021; Razak et al., 2020)	2	3
6	Descriptive analysis	(Patel and Jha, 2020; Kumar and Mukhopadhyay, 2013).	2	3
7	T- test and chi square.	(Vijaykumar and Naidu, 2016)		
8	Meta-analysis	(Menkhoff, 2017)	1	1
9	Transcendental logarithmic function.	(Servin et al., 2012)	1	1
10	*Multivariate* Canonical analysis and discriminant function	(Redson and Magali, 2022)	1	1

Source: Literature review

The review indicates that most MFI scholars prefer to use regression analysis in their financial literacy studies as compared to other methods. Regression analysis is a simple and straightforward method of identifying the relationship between variables explicitly and does not require any calibration of data (Vis, 2012). Many authors have also devoted their attention to qualitative analysis. A review of the variables indicates that there are few studies that apply factor analysis, structural equation modeling (SEM), correlation analysis, t- test, chi square, meta-analysis, transcendental logarithmic function and descriptive analysis.

Variable coverage

The analysis reveals two studies that are related to the title of the current study. These are Sayankar and Mali (2022) and Malhotra and Baag (2021). Sayankar and Mali (2022) analyzed the role of financial literacy on financial inclusion for Indian MFI clients. However, their study had limited coverage since it did not evaluate the role of financial literacy in MFIs, but rather for all individuals living in India. This study was limited by the use of only 18 articles, of which only three were eminent (2 journal articles and 1 World Bank report). In this regard, the study was not comprehensive. Moreover, Malhotra and Baag (2021) through a systematic review of the literature analyzed how finance literacy is regarded as a tool for microfinancing. However, the study was primarily concerned with the definition, dimensions, and interpretation of financial literacy concepts. Furthermore, despite claiming to target microfinance institutions, no studies from MFIs were presented but most studies focused on university students and other sectors.

The analysis indicates that the majority (26%) of studies focused on savings. According to Magali (2022), savings enhance a microfinance institution's ability to acquire capital; therefore, scholars are interested in assessing how financial literacy has improved the availability of capital. Moreover, loan default is a significant problem in MFIs (Pamuk et al., 2021; Magali, 2022) and has attracted 10 (14%) studies. In a similar manner, 10 authors (14%) expressed an interest in the use of mobile money while 9 (12%) studies examined the impact of financial literacy on investments. Moreover, 15 (21%) studies analyzed financial behavior while financial attitude variable was examined in 8 (11%) studies. The role of training and financial knowledge in financial literacy each accounted for 5 (7%) of studies.

Furthermore, a total of 4 (6%) studies in each case examined the influence of financial literacy on women's empowerment, budgeting, and interest rates. Financial literacy's role in mediating other variables, in determining financial access and purchasing, each registered 3(4%) studies. The influence of financial transaction costs and outreach each involved 2(3%) studies. Furthermore, financial literacy influence on declarative and procedural cognitions and on number of transactions each accounted for 1(1%) study. Table 4 presents the frequencies of the variables. The review indicates that studies that influence of financial literacy on performance (profitability), efficiency, risk and credit risk management, livelihood and corporate governance improvement in MFIs are missing.

The findings further reveal that most scholars are interested in saving and deposit, financial behavior and money and mobile money financial literacy variables. Moreover, loan repayment, investment and financial attitude variables also fascinate financial literacy scholars. However, the role of training in financial literacy and the variable of financial knowledge has received scant attention. Low preference also exists for variables of women empowerment, budgeting, interest rates, and mediation between financial literacy and other variables. Financial accessibility, purchasing, transaction costs, declarative and procedural cognitions and number of transactions variables have received low attention from financial literacy scholars. The findings generally show that the coverage of variables in financial literacy studies is inadequate. Thus, financial literacy scholars need to fill in the identified gaps.

Table 4: Occurrence of variables in MFI financial literacy studies

S/N	Variable (s)	Authors	No of studies	%
1	Savings and deposits	(Fiebig et al., 2009; Morawczynski and Pickens, 2009; Bijli, 2012; Janda and Turbat, 2013; Froelich et al., 2015; Parvez and Chowdhury, 2016; Murendo, and Mutsonziwa, 2017; Günther ,2018; Mhando, 2018; Munyegera and Matsumoto, 2018; Chiwaula et al., 2020; Ajibola et al., 2020; Kamdjoug et al., 2020; Kamdjoug et al.,2020; Razak et al., 2020; Redson and Magali, 2022; Lee and Huruta, 2022; Gebeyehu, 2022; Khuc et al., 2022)	19	26
2	Financial behavior	(Morawczynski and Pickens, 2009; Fiebig et al. 2009; Kumar and Mukhopadhyay, 2013; Janda and Turbat, 2013; Parvez and Chowdhury, 2016; Ndaki, et al., 2018; Smits and Günther, 2018; Golman and Bekerman, 2018; Munyegera and Matsumoto, 2018; Ajibola et al., 2020; Bhandare et al.,	15	21

		2021; Lučić et al., 2021; Banciu et al., 2022; Bellazzecca and Biosca, 2022: Khuc et al., 2022).		
3	Money and mobile money transactions	Morawczynski and Pickens, 2009; Reeves and Sabharwal, 2013; Munyegera and Matsumoto, 2018; Chiwaula et al., 2020; Kamdjoug et al., 2020; Chidambaranathan and Guha, 2020; Hasan and Hoque, 2021; Banciu et al., 2022; Illangakoon et al., 2022)	10	14
4	Loan repayment	(De Mel et al., 2008; Barua and Sane, 2014; Wanjiku and Muturi, 2015; Munyua, 2016; Gaudence et al., 2018; Smits and Günther, 2018; Ghosh and Guha, 2019; Baidoo et al., 2020; Redson and Magali, 2022; Sayankar and Mali, 2022).	10	14
5	Investment	(Morawczynski and Pickens, 2009; Das and Dutta, 2014; Rahman et al., 2015; Robert et al., 2018; Ajibola et al., 2020; Khuc et al., 2022; Banciu et al., 2022; Khursheed, 2022; Bellazzecca and Biosca, 2022).	9	12
6	Financial attitude	(Das and Dutta, 2014; Froelich et al. 2015; Razak et al., 2020; Chidambaranathan and Guha, 2020; Malhotra and Baag, 2021; Moko et al., 2022; Khursheed, 2022; Illangakoon et al., 2022).	8	11
7	Training	(Froelich et al., 2015; Vijaykumar and Naidu, 2016; Patel and Jha, 2020). Bhandare et al., 2021; Banciu et al., 2022).	5	7
8	Financial knowledge	(Hudon, 2008; Reeves and Sabharwal, 2013; Ghosh and Guha, 2019; Xiong and You, 2019; Hasan and Hoque, 2021).	5	7
9	Women empowerment	(Bijli, 2012; Sangwan and Nayak, 2020; Lee and Huruta, 2022; Khursheed, 2022)	4	6
10	Budgeting	(Cole et al., 2014; Wanjiku and Muturi, 2015; Gaudence et al., 2018; Banciu et al., 2022).	4	6
11	Interest rate	(Cole et al., 2014; Razak et al., 2020; Lamichhane, 2021; Hasan and Hoque, 2021)	4	6
12	Mediation role between financial literacy and other	(Bongomin et al. 2020; Moko et al., 2022; Lee and Huruta, 2022)	3	4

	variables			
13	Financial accessibility	(Shibia, 2012; Widhiyanto et al., 2018; Hasan and Hoque, 2021)	3	4
14	Purchasing	Morawczynski and Pickens, 2009; Kumar and Mukhopadhyay, 2013; Cole et al., 2014)	3	4
15	Transaction costs	Natamba et al., 2013; Das and Dutta, 2014).	2	3
16	Outreach	(Natamba et al., 2013, Sangwan and Nayak, 2020 and Robert et al., 2018)	2	3
17	Declarative and procedural cognitions	(Bongomin and Munene, 2019).	1	1
18	Number of transactions	(Cole et al., 2014).	1	1

Source: Literature review

CONCLUSION

The findings indicate that most studies do not specify the type of MFIs in the research titles. The majority of studies revealed that financial literacy promotes clients' savings, followed by money and mobile money usage, loan repayment and investment. Nevertheless, few studies have demonstrated that financial literacy influences women's empowerment, transaction costs, outreach, and declarative and procedural cognitions. Further, the findings indicated that most studies employed regression data analysis, while others applied qualitative, factor analysis, structural equation modeling, descriptive, correlation, t-tests and chi-square tests, meta-analyses and transcendental logarithmic functions.

The review shows that few studies have examined the role of financial knowledge and attitude, as well as the role of moderation and mediation variables. Moreover, a limited number of studies have examined the impact of financial literacy on MFI performance variables such as sustainability, profitability, efficiency, credit risk management and corporate governance. There is also a lack of studies that link the role of financial literacy to performance, credit risk management, livelihood, and sustainability theories. The findings generally show that the coverage of variables in MFI financial literacy studies is insufficient. In this study, the literature has been reviewed in a systematic manner and gaps have been identified for future research. The study's novel findings suggest management and policy implications for enforcing financial literacy training within MFIs. In the author's opinion, this is the first comprehensive systematic review to study financial literacy variables in MFI studies.

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