

Mapping the landscape: A bibliometric analysis of determinants influencing financial literacy among women



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Abstract This study delves into the bibliometric characteristics of the literature on women's financial literacy, meticulously curated from the Scopus database. By focusing on this emerging field, the research utilizes advanced bibliometric analyses like citation network analysis and author co-citation analysis to unveil key themes and detect pairs of studies that are frequently cited together, showcasing the interconnectedness of research within the realm of Women's financial literacy. Employing tools such as VOS Viewer and R Software for a comprehensive analysis, the study highlights a marked increase in publications related to women's financial literacy in 2021, indicating a peak in research activity and an escalating recognition of its importance both academically and socially. A notable finding is the prominence of the Journal of Corporate Finance, which has emerged as a leading publication in this area due to its high citation rate, underscoring its significant role in shaping discourse and policies on financial literacy. Additionally, the author Lusardi A. is identified as a key figure whose contributions have significantly influenced the field, as evidenced by the high citation count. The research also points out the substantial contributions from the United States and India, signaling their pivotal roles in advancing the literature on women's financial literacy and highlighting the global interest and diverse contexts under which this topic is studied. Overall, this study provides a comprehensive insight into the bibliometric landscape of research on women's financial literacy, detailing the contributions of influential journals, authors, and the geographical distribution of research output. Through a methodical approach and the application of advanced bibliometric tools, it significantly enriches the understanding of the scholarly network and thematic evolution within this crucial area of study.

Keywords: bibliometric analysis, citation network analysis, co-citation analysis, geographic distribution of research, scholarly publications trends, women's financial literacy.

1. Introduction

Financial literacy refers to knowing and understanding many financial matters, such as owning a business, and cash, in addition to investing. Financial literacy refers to a person's understanding of financial products. Financial literacy enables people to handle their finances to pay for regular expenses, maintain emergency savings, intend for their youngsters' studies, and prepare for quick retirement (Goyal and Kumar, 2021). Financial literacy (FL) is determined by how well a person manages his or her money and how effectively he or she uses financial properties for development in addition to the well-being of some, his or her professional, and his or her personal by way of entire. It has a large impact on a person's financial health (Kamakia et al., 2017). A financially literate person could make more intelligent decisions and very good financial decisions (Lusardi and Mitchell, 2007). Financial illiteracy can cause people to make inappropriate financial choices, which may harm their financial security. Individuals can increase their financial literacy by learning about various ideas about popular money, and monetary marketplaces, and then monetarist goods such as places of stocks, promises, and reciprocated capital, as well as by making informed decisions to improve their financial situation and prevent costly mistakes (Lusardi and Mitchell, 2011).

The ability to make decisions regarding personal finances is referred to as "financial literacy." Devadevan (2013) states that "financial literacy is being able to comprehend the products of the stock market, particularly their rewards, and risks so that you can make smart decisions." According to the OECD (2014), "financial literacy (FL) is defined as the knowledge and analysis of economic constructs, moreover, the abilities, confidence, and strength to apply such understanding and knowledge to effectively make choices across an array of monetary scenarios, to enhance individuals and humanity's financial well-being, and to allow involvement in economic life." Thus, it may be inferred that it is very important for a country's economy to grow. Financial literacy has become increasingly crucial as the economy and stock market have grown. To identify somewhere in the direction of investing, in addition to developing and protecting our funds, we need economic literacy. Economic literacy is a way to gain a complete understanding of various financial concepts, such as utilizing just how much away from one's earnings, in what manner to formulate a reason for future likewise day-to-day expenditures, and devoting positively to making decent choices in the fiscal squares and effectively bringing about one's own economic possessions. Economic literacy refers to the



knowledge and thought of just how cash is situated earned, used up, set aside, and served in additional capacity on the way to make decisions using financial resources. These choices include generating, investing, spending, and saving currency. The subject is situated in the direction of know-how cash all of it in an occupational to individual life expectancy (Choudhary and Kamboj, 2017). The literature also shows that many consumers lack sufficient knowledge of financial practices and products, which prevents them from investing and saving money (Lusardi and Mitchell, 2011). In industrialized regions, financial literacy (FL) is a key indicator of financial behaviors and well-being. (Cole et al., 2009). It aids regulars in spotting deception, controlling finances during a crisis, and refraining from actions that would harm their finances. We can create a stable monetary sector and attain long-term economic growth by improving financial literacy (Refera et al., 2016).

A wise financial decision-maker knows where to put his hard-earned money for the best return. The three scopes are situated monetarist facts, economic behavior, and fiscal boldness. Financial literacy is difficult to maintain, yet it is vital to do so. Financial decisions are influenced by illiteracy, but the form and extent of that impact may vary depending on the situation. Those who are financially literate, particularly women, are more equipped to make their judgments. If someone is financially literate, she may take remedial action in case of catastrophes or unanticipated events. The literature review indicates that financial literacy is low globally and that dealing with financial concepts is more difficult for women, young, people, elderly people, and those with less education (Lusardi and Mitchell, 2011, 2014). In both developed and developing nations, there is a significant gender gap in financial literacy (Atkinson and Messy, 2012; Bucherkoenen et al., 2017; Cupák et al., 2018; Fonseca et al., 2012; Hung et al., 2012; Klapper and Lusardi, 2020). The literature also demonstrates the impact of sociodemographic factors on financial literacy, including age, gender, education, income, family size, occupation, and household socialization processes (Agarwalla et al., 2015; Atkinson and Messy, 2012; Bucherkoenen et al., 2017; Lusardi and Mitchell, 2011; Potrich et al., 2018).

According to the literature financial literacy was linked to a variety of terms in most studies conducted in the previous ten years, including financial literacy, home finance, investments, money management, retirement planning, savings, involvement in the stock market, wealth and risk management, and gender. In the present study, an attempt is made to determine the research papers and trends as well as important keywords involved in the published articles globally on financial literacy related to women.

Research on the benefits of financial knowledge and studies on gender differences in financial literacy (FL) has indeed been identified as significant popular subjects for the 2020–2021 period (Rani and Goyal, 2022). Bibliometric analysis was necessary to detect possible subtopics and trending topics related to women's financial literacy. Bibliometric analysis is a quantitative analysis method that examines research journals using statistical and mathematical methods to ascertain and examine the key facts of a topic of interest and pinpoint the key forces influencing a particular field of study (Huang et al., 2014).

Limited access to financial education: Women has limited access to financial education due to social and cultural barriers. For example, women in developing countries face challenges such as illiteracy, lack of resources, and cultural norms that limit their access to financial education (Ahmed and Chowdhury, 2020; Kaur and Singh, 2020).

Gendered financial attitudes and behaviors: Women's financial attitudes and behaviors are influenced by gender norms and stereotypes. For example, women are often socialized to be risk-averse, which may lead them to avoid financial risks (Chou and Loibl, 2016; Singh and Kaur, 2018).

Lack of financial confidence: Women lack financial confidence since they have no financial knowledge or experience. The absence of confidence can lead to lower levels of financial literacy (FL) and limited financial decision-making (FDM) (Chen & Volpe, 2018; Kim and Chatterjee, 2015).

2. Review of the Literature

Table 1 provides a summary of the comprehensive reviews with the most citations from 2008 to 2023. The study period was set from 2008 to 2023. The article title, author and year, and results are the three main columns in the table. The research papers mostly discuss the implications of women's financial literacy (FL), financial attitude (FA), financial knowledge (FK), financial behavior (FB), gender, and women's investment decisions. According to Lusardi and Mitchell (2011). Women often have a lower level of financial literacy than men. Middle-aged men have a greater level of literacy than younger and older men, and those with a higher level of schooling have a greater level of commercial literacy. The most crucial thing is financial security, as people make withdrawal strategies. Instrumental factors overstate the effects of monetary information on superannuation preparedness. These findings demonstrate the importance of financial literacy. Assist low-income, dependent women.

Table 1 Women's financial literacy: A review of extensive research from 2008-2023

Author and year	Title	Findings
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Lusardi and Messy (2023)	The importance of financial literacy and its impact on financial wellbeing	Financial literacy is important because it helps individuals make wise financial choices by reducing the impact of framing, improving their comprehension of the information given to them, better understanding how insurance works, and increasing their comfort level while utilizing simple financial instruments. Simply said, financial literacy raises one's level of financial security.
Sarpong-Kumankoma et al. (2023)	Gender and financial literacy in Ghana	Males are often more financially literate than females, according to the authors. The findings also demonstrate that differences in coefficients, or how literacy is created, rather than variations in the demographic and socioeconomic traits of men and women, account for a large portion of the gender gap in financial literacy. Therefore, the gender disparity in financial decision-making may be caused by unrecognized behavioral and psychological characteristics as well as cultural and social conventions.
Struckell et al. (2022)	Financial literacy and self-employment – The moderating effect of gender and race	They uncover an indication of a favorable affiliation flanked by economic literateness and self-employment in the United States, and we build on the previous exploration by concentrating scheduled two frequently deliberate and relevant demographic categories in the self-employment and private enterprise literature — gender and race. In contrast to other U.S.-based research findings, the invention that women with advanced financial literacy notches be located extra to be expected to be self-starting than men; however, in attendance is no noteworthy alteration flanked by nonwhite and white U.S. respondents in the memory amidst advanced economic literacy scores and self-employment.
Park et al. (2021)	Empowering women in finance through developing girls' financial literacy skills in the United States	The results of the longitudinal learning also showed that the program was benefiting the students, improving their financial literacy, and inspiring them to look into various financial careers.
Ali et al. (2021)	Determinants of Financial Empowerment Among Women in Saudi Arabia	The researchers discovered a substantial link skirted by economic literacy, monetarists deal with actions, in addition, to monetary well-being. Fiscal socialization is also associated with economic self-efficacy and fiscal enablement, with financial self-efficacy and financial coping strategies playing a favorable influence in the expansion of monetary empowerment.
Baker et al. (2020)	Are Indian professional women financially literate and prepared for retirement?	This research demonstrates that respondents had inadequate financial literacy, as shown by a deficiency in knowledge of both basic and complex financial topics. A woman's age, salary, profession (financial), and understanding of complex financial concepts are all crucial factors to consider while preparing for her retirement.
Raj (2020)	Financial literacy among women in Kaushambi: An overview of rural India	The action research outcomes are compared to the literature to better understand women's financial situations. It is assumed that a more decentralized strategy is required to train finance instructors and that delivering door-to-door instruction will help benighted mothers and their children improve their financial capabilities.
Koti (2019)	Financial literacy and its impact on the investment decisions of working women	They discovered that 30% of them felt at ease and that the gray part was reciprocated deposit speculation and return. Bank deposits and gold markets were two prominent investment opportunities that were not overly concentrated. They are cautious while making investments since they are aware of the market risk and volatility. They set financial goals and objectives and attain them.
Salem (2019)	Examining the investment behavior of Arab women in the stock market	The findings, which were found from an illustration of Arab male and female standard investors in Saudi Arabia and Jordan, show that Arab women engage in more round-up actions and have inferior savings

		reading ability, poise, and financial risk broad-mindedness than Arab men, resulting in them investing less in the stock market.
Rai et al. (2019)	Association of Financial Attitude, Financial Behavior, and Financial Knowledge Toward Financial Literacy: A Structural Equation Modeling Approach	Financial attitude and financial behavior have a stronger behavior working women's financial literacy than financial knowledge, according to the data.
Shanti and Murty (2019)	Impact of socioeconomic determinants on women empowerment in India (Working women in selected districts of Andhra Pradesh)	The study found that employed women in carefully chosen areas of Andhra Pradesh, India, are empowered. Women employed at a higher level of education are more powerful and earn more money than men with a lower level of education.
Bucher-Koenen et al. (2017)	How Financially Literate Are Women? An Overview and New Insights	Gender inequalities in financial literacy can be found in both the most basic and advanced metrics. The economic reading ability is connected to fiscal activity, such as giving up work preparation and capital building. Womenfolk lean toward living longer than men and are more to be expected to be widowed. As an outcome, increasing women's economic literacy is critical to assist them in planning for superannuation and ensuring their pecuniary stability.
Bhonde-Saraf (2016)	Are women financially educated? A study concerning earning women of Aurangabad District, Maharashtra	The notion that both women and men need to be financially educated in today's world which encourages gender equality must be underlined. On the other hand, women are frequently regarded as taking a passive role in financial decision-making. The drive of this study was to determine the amount of monetarist awareness and knowledge among working women.
Potrich et al. (2015)	Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables	These findings highlight the importance of developing effective strategies to address financial illiteracy. It is recommended that significant efforts be made to help women with dependent family members and poor educational and economic levels. The need for such a study is explained by the need to develop a model that can assess the level of financial literacy among Brazilians based on socioeconomic and demographic data. This identification could be valuable in supporting various economic players in developing financial strategies and products that are appropriate for the users' profiles.
Lusardi and Mitchell (2011)	Financial literacy around the world: An overview	Women are not as financially literate as men, the first and old are less economically well-read than the middle-aged, and those with higher education are additionally commercially literate. Furthermost prominently, fiscally aware people are extra to be expected to kind withdrawal plans. According to estimations based on instrumental variables, the impacts of monetary knowledge on superannuation preparation are often overestimated. To summarize, financial knowledge is crucial to retirement security everywhere around the world.

Source: Presented by the author

2.1. Research Gap

Table 1 shows that many authors from various countries have conducted research on the financial literacy (FL) and financial literacy of women but have not concentrated on the significant factors influencing financial literacy adoption or publication trends globally. Research on women's financial literacy is essential for several reasons:

Women have less financial literacy than men. According to an OECD survey, women had poorer financial literacy scores than men in all participating nations, in 2020. This disparity can offend women's financial decisions and economic outcomes (OECD, 2020). Gender disparities, longer life expectancies, and caregiving responsibilities all present distinct financial issues for women. These issues might affect women's finances and necessitate financial planning (Lusardi and Mitchell, 2014). Financial

literacy empowers women to manage their money, make choices based on accurate information, and enhance their overall financial health. This can improve their health and life.

2.2. Main aim of the study

The major purpose of this investigation is to describe the present state of research on women's financial literacy. The following questions will serve as a guide to the scope of the investigation:

RQ1: What are the studies on women's financial literacy publishing trends concerning Duration, publications, disciplines, authors, connected nations, citations, institutions, study types, and economics?

RQ2: What are the keywords that influence women's financial literacy?

3. Research Methodology

A publication known as a systematic review is an example of a structured review that focuses on methodologies, ideas, and concepts that are often applied. The creation of a model or framework is supposed to be the result of combined bibliometric and framework-based evaluation. In this study, the evaluation of research topics is performed with the assistance of bibliometrics, which is the technique that has seen the most widespread use for tracking the knowledge of anatomy held within a research area. The open-source software Bibliometric is used for comprehensive scientific mapping analysis and was created in the computer language R. According to Aria and Cuccurullo (2017). It is capable of being continually developed and integrated with other statistical R packages. It was initially presented by Pritchard (1969), and it is used to analyze academic literature that has been published both quantitatively and qualitatively, as well as to chronicle the growth of a study subject over time (Pritchard, 1969). Pritchard was the one who first presented it. The Java program Biblioshiny was developed by Massimo Aria from the University of Naples Federico. It blends the accessibility of web applications with the capability of a bibliometric package (Aria and Cuccurullo, 2017). Systematic literature reviews are conducted to summarize the contents of the relevant literature, determine future research requirements, and minimize bias. Bibliometric research has been carried out to obtain further knowledge in the field.

The study period considered for this study was between 2008 and 2023. It was determined based on the assumption that women's financial literacy attracted much public consideration. During this period, 94 papers were published on the financial literacy of women. Therefore, it may be presumed that increasing women's financial literacy is gaining attention globally. Alongside men, women were given priority in making independent financial decisions.

To demonstrate similarities between the articles mentioned and their authors, this study on cocitation and bibliographic coupling makes use of the most prevalent bibliometric methodologies. The present investigation makes use of methods such as citation network analysis and publication pattern recognition. In addition, keyword analysis and cocitation are used in the clustering process. VOS Viewer and R Software were used to carry out the analysis.

It is possible to use the distance that exists between objects in the VOS viewer to illustrate the connections that exist between them. The "visualization of similarity" (VOS) suggests that the gaps between different items are closer together. The VOS Viewer was used to import the 94 articles that were to be analyzed for bibliographic coupling and cocitation, in addition to citation, cocitation, and keyword analysis. Fifty articles were selected for use in the content analysis. In Figure 1, the inclusion and exclusion criteria for the data are broken out in depth.

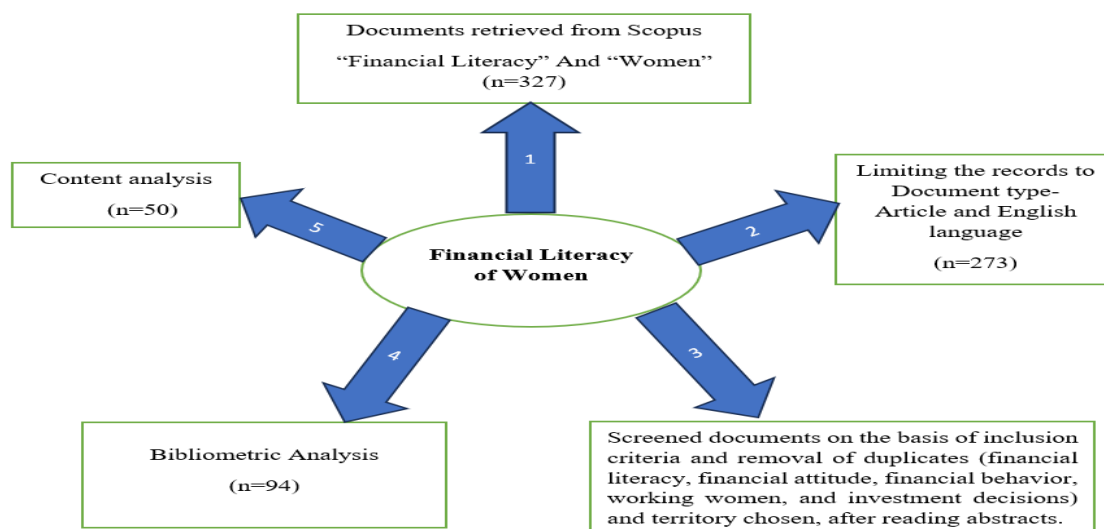


Figure 1 Data retrieval process of Women's Financial literacy from 2008 to 2023.

Source: Created by the Author



4. Results and Discussion

Figure 2 shows the development of articles on women's financial literacy in the Scopus database between 2008 and 2023. The year the most publications about women's financial literacy.

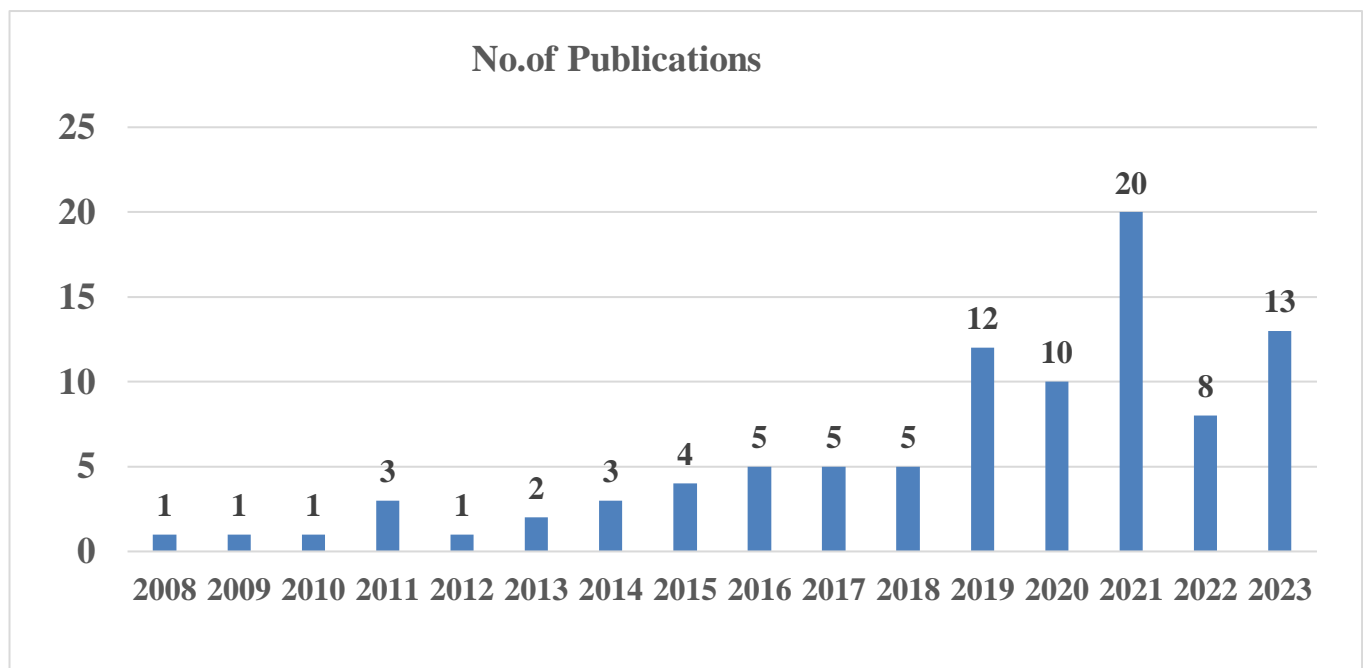


Figure 2 Publication trend on Women's financial literacy from 2008 to 2023

Source: Created by the Author using SCOPUS Bibliographic Data

4.1 Conceptual model of financial literacy

As a conceptual framework, a detailed content analysis of clusters and previous years' papers is recapitulated. The model depicts the factors that influence women's financial literacy, as well as the effects it has on their financial behavior and decision-making. Individuals' financial literacy is influenced by a variety of factors, including gender, household income, physical health, and sociodemographic factors. Other significant antecedents studied in the research thus far include personal/psychological factors, environmental/regional factors, culture, family support, technology, and economic issues. Financial literacy offers favorable economic benefits ascribed to financial capability, financial well-being, forward financial planning, investment decision-making, increased savings, better debt management, financial inclusion, and personal budgeting. According to the literature, as described in the content analysis. The three components of financial literacy and their logical linkages are also shown in the conceptual framework. Financial behavior, financial attitude, and financial knowledge are all related to financial literacy. The OECD has identified three additional peripherals to financial literacy: fiscal facts, monetary daring, and economic behavior. Concerning self-financing a more financially educated person is more likely to have proper information, attitudes, and conduct. Individuals with an excellent comprehension of financial concepts, both fundamental and advanced, are more likely to report having a better understanding of them. Financial attitude is another factor of financial literacy, and individuals who have a positive fiscal attitude are expected to have a better financial attitude.

Figure 3 shows a conceptual model. Financial literacy represents financial literacy for those who exhibit optimum financial behavior (FB) and are more likely to engage in active trading in financial markets. Financial attitude (FA) also acts as a mediator in the link between financial behavior and financial knowledge (FK). According to social cognitive theory, financial self-efficacy is the belief in one's ability to manage one's money (Goyal and Kumar, 2020). The assumption that financial self-efficacy is essential for transforming financial literacy (FL) into financial action is supported by existing research. Financial confidence and the capacity to use financial knowledge are the wheels that turn knowledge into behavior. Only those who have obtained financial education can completely integrate financial literacy, and only those who can benefit from financial knowledge (FK) via financial actions. Financial competence, which goes beyond financial literacy, is a term that considers access to financial products, is given appropriate weight in the existing literature, and is still a growing concept.

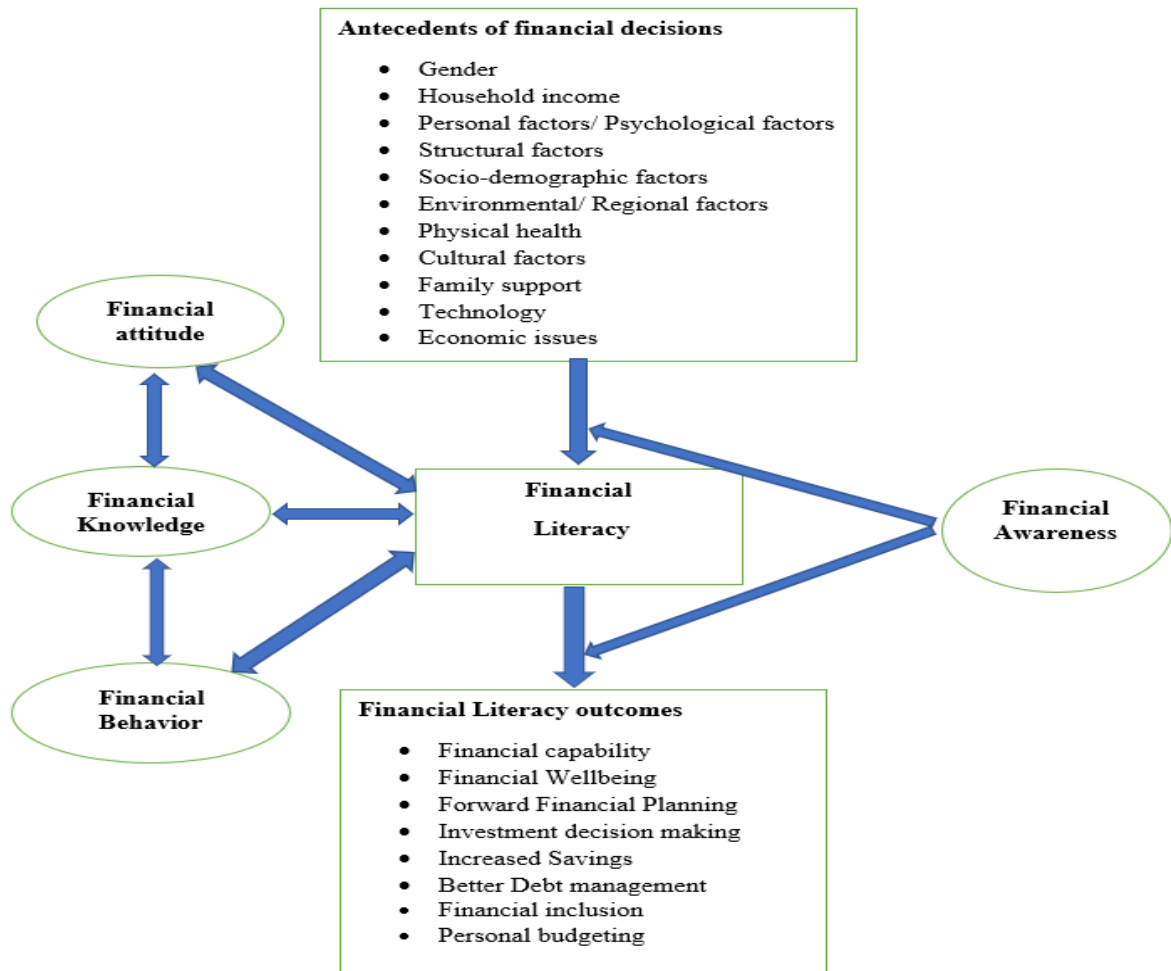


Figure 3 Conceptual model of financial literacy
 Source: The authors

4.2 Publication outlets of women’s financial literacy from 2008 to 2023

A total of 94 papers were published in 66 different journals. The most well-known journals publishing on women's financial literacy are included in Table 2. A total of 50 papers were published in the top 25 journals, accounting for 53.19% of the total. The most productive platform is the Journal of Family and Economic Issues, which published 4 articles, followed by the Journal of Behavioral and Experimental Finance, which published 3 articles. Women's financial literacy is a topic of user interest in the marketplace, which warrants its inclusion in these publications. Furthermore, many of these journals have Australian Business Deans Council (ABDC) scores of A*, A, B, or C, indicating that the area is among the top journals of business and management academic research.

Table 2 Leading Journals on Women’s Financial Literacy from 2008 to 2023

Journal Name	Publisher	ABDC Ranking	AJG rank	TP
Journal Of Corporate Finance	Elsevier	A*	4	1
Journal Of Economic Behavior and Organization	Elsevier	A*	3	1
Applied Economics	Taylor & Francis	A	2	1
Economics Letters	Elsevier	A	3	2
Finance Research Letters	Elsevier	A	2	1
Financial Management	Wiley -Black Well Publishing	A	3	1
International Journal of Bank Marketing	Emerald Group Publishing	A	1	2



Journal Of Behavioral and Experimental Finance	Elsevier	A	1	3
Journal Of Business Research	Elsevier	A	3	2
Journal Of Family and Economic Issues	Springer	B	2	4

Source: VOS viewer, R package for SCOPUS bibliometric data analysis

Note: TP stands for total publications; AJG is the Academic Journal Guide rating provided by the Chartered Association of Business Schools. Original research journals publish but may not always have a high impact factor; acceptable research journals publish with a factor of 2, and satisfactory research journals publish with a factor of 1. The greatest impact factor for original research journals is 4*, while the second-highest is 4.

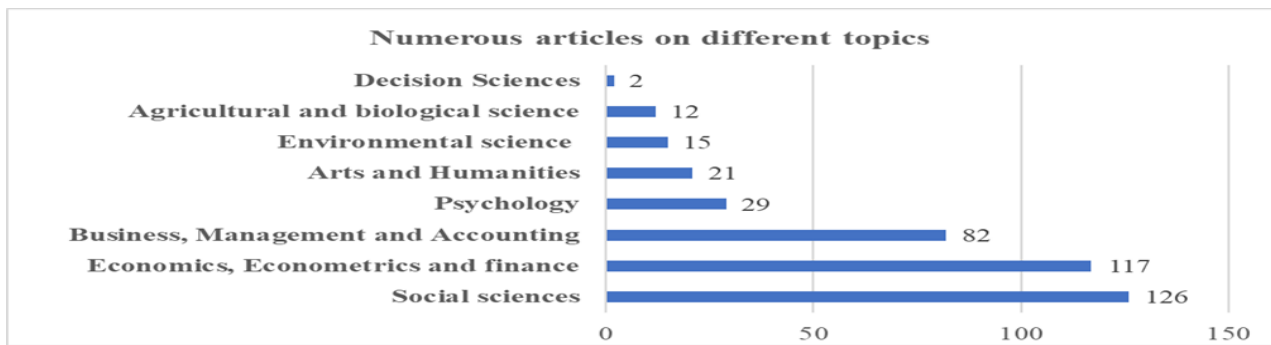


Figure 4 Research studies related to 404 papers covering the most important aspects of women's financial literacy from 2008 to 2023

Source: Created by the Author using SCOPUS Bibliographic Data

Figure 4 depicts how women's financial literacy is linked to subjects such as business management and accounting, psychology, arts and humanities, environmental sciences, and agricultural studies, in addition to social sciences and economics. This denotes an interdisciplinary topic. Intriguingly, there is a paucity of research in other areas, particularly in the field of decision sciences. There are many studies on financial literacy's economic value, which are centered on money. The lack of studies in decision sciences may be explained by the fact that the significance of financial literacy for the efficient operation of society is yet unclear. Because of vast socioeconomic disparities and low literacy levels, research on women's financial literacy in developing countries is difficult.

4.3. Notable authors and their linked organizations and countries

The chosen data indicate that 214 writers from 185 organizations across 36 countries have written articles on women's financial literacy. The top contributors are shown in Table 3 according to the number of publications and citations they have. The most productive author is Annamaria Lusardi, with 11 publications and citations from 1978; she is followed by Olivia S. Mitchell, with 5 publications and 1614 citations. Renowned in the industry, these two writers have written a great deal on women's financial literacy.

Table 3 Top authors according to citations and publications on women's financial literacy from 2008 to 2023

Authors	Total publications	Total citations
Lusardi A	11	1978
Mitchell O. S	5	1614
Kumar S	3	16
Tomar S	3	16
Bucher-Koenen T	2	258
Kirch G	2	56
Potrick A.C. G	2	56
Vieira K.M	2	56
Ahmed A	2	16
Lind T	2	16

Source: Source: VOS viewer, R package for SCOPUS bibliometric data analysis



4.4. Top organizations founded in publications and citations of women's financial literacy from 2008 to 2023

The major organizations of women's financial literacy are shown in Table 4. George Washington University is the most active institution focusing on women's financial literacy, with 3 publications. Wharton School University is ranked second on the list. George Washington University and Wharton School University have the most citations, with 898 and 744 citations, respectively. These institutes are based in the United States, demonstrating the importance of women's financial literacy.

Table 4 Top organizations founded on publications and citations of women's financial literacy from 2008 to 2023

Top Organizations	Total publications	Total citations
The George Washington University	3	898
The Wharton School University	2	744
Boettner Centre for Pensions and Retirement Research	1	324
Dartmouth college, united states	1	324
Financial literacy Centre, rand corporation Dartmouth College	1	324
National bureau of economic research (NBER)	1	324
Pension research council	1	324
Wharton School of the University	1	324
Pardee rand graduate school	1	151
Rand, United States	1	151

Source: VOS viewer, R package for SCOPUS bibliometric data analysis

4.5. Topmost National based on Citations and Publications of Women's Financial Literacy from 2008 to 2023

The top countries' research publications on women's financial literacy throughout the study period are shown in Table 5. In terms of women's financial literacy, the United States led the field with 27 study papers, followed by India (16 articles), the United Kingdom (8 articles), and Germany (6 articles).

Table 5 Top countries based on citations and publications on women's financial literacy from 2008 to 2023

Countries	No of publications	Total Citations
United States	27	2342
India	16	104
United Kingdom	8	45
Germany	6	234
Sweden	5	210
Australia	5	123
Turkey	5	34
Canada	3	204
Malaysia	3	14
Zimbabwe	1	26

Source: VOSviewer and R program for the analysis of bibliometric data from SCOPUS

Figure 5 depicts how women's financial literacy publications are linked to lists of the top nation's published research papers on women's financial literacy during the study period. In the figure, two countries, namely, the USA and India, are clearly highlighted, as having the greatest number of research publications on the concept of women's financial literacy. The United States, with 27 research papers, was the second most common, followed by, India (16 articles) and others. The United States is a developed nation that has a greater focus on women's financial literacy. India is a developing country. Women in this country are not extensively literate in financial terms. However, based on the number of studies conducted in the subcontinent, there is motivation to research and frame policies and plans to develop women as financially literate.

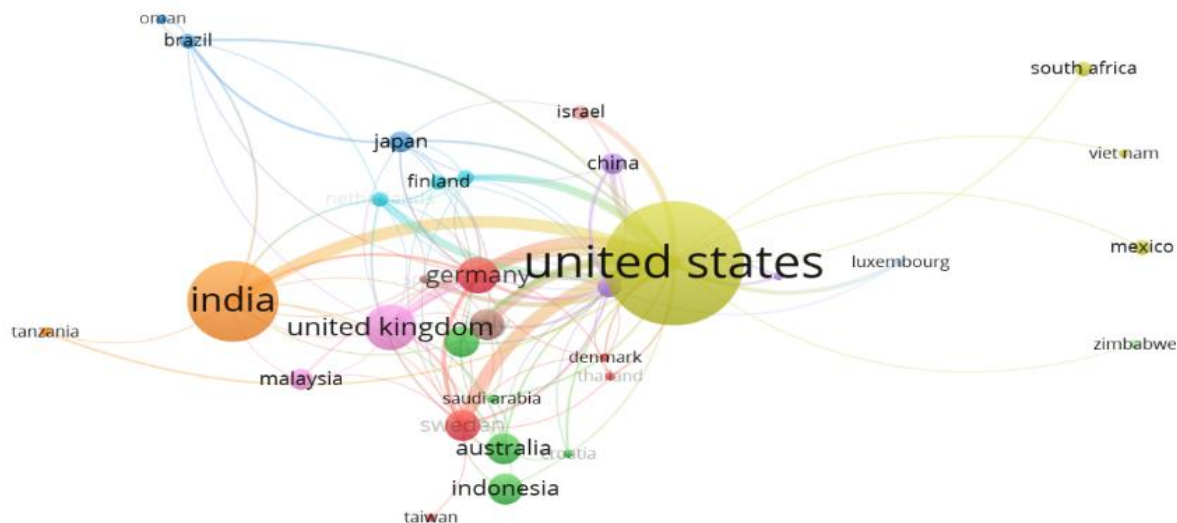


Figure 5 A network analysis of Nations from 2008 to 2023
 Source: VOSviewer and R program for the analysis of bibliometric data from SCOPUS

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4.6. Statistics from a Sample

Various study approaches have been used to investigate financial literacy. The 94 publications were manually divided into three separate study approaches, conceptual/theoretical, and review studies- to investigate the different modalities of research employed on the topic. The goal of conceptual studies is to create a conceptual framework based on a theory or concept. In this context, empirical studies use surveys to assess financial literacy levels among women, explore variables, and measure the impact of financial education through experiments. Review studies look back at previous research. Figure 6 depicts the percentage of different study techniques utilized in studies on women's financial literacy. Eighty-three percent of the 94 articles are empirical, 11% are conceptual, and only 6% are reviews. Few studies can provide a sound, grounded-theory-based conception of financial literacy. Although the issue of "what" has been adequately addressed, there is still a gap in the understanding of "why" via conceptions and interpretations of existing theories. Additionally, few review studies provide current information on financial literacy.

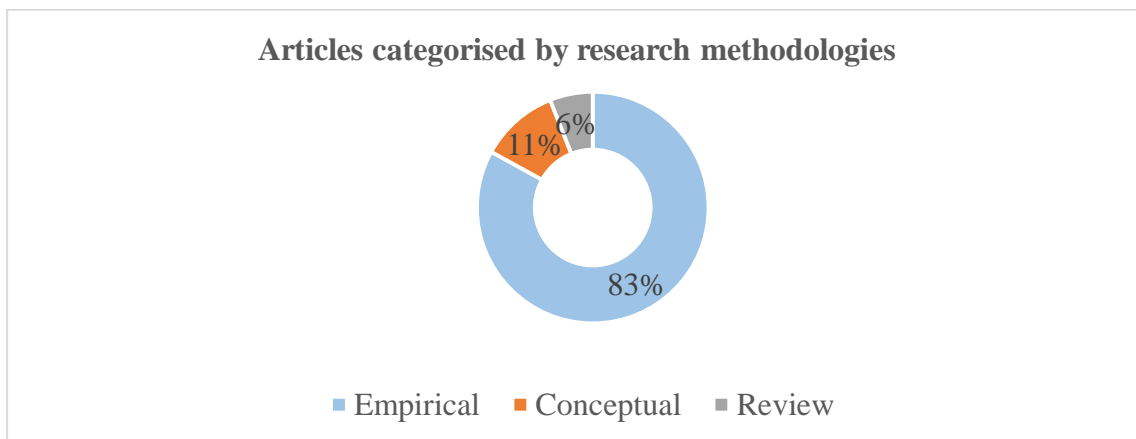


Figure 6 Based on study methodologies, sample statistics from 94 papers on women's financial literacy from 2008 to 2023
 Source: Created by the Author using SCOPUS Bibliographic Data



The literature for this study was divided into two groups based on the economics of the nation those studies that were not country-specific were labeled as developed or developing. Figure 7 demonstrates that 55 percent of the 94 studies were undertaken in industrialized nations, whereas 45 percent were conducted in developing countries. Women's financial literacy is a more popular research issue in developed nations than in developing nations, even though ignorance of basic finance is widespread not only in middle-class households but also in established financial markets. To improve policy initiatives for financial education in developing nations, much work needs to be done on this subject.

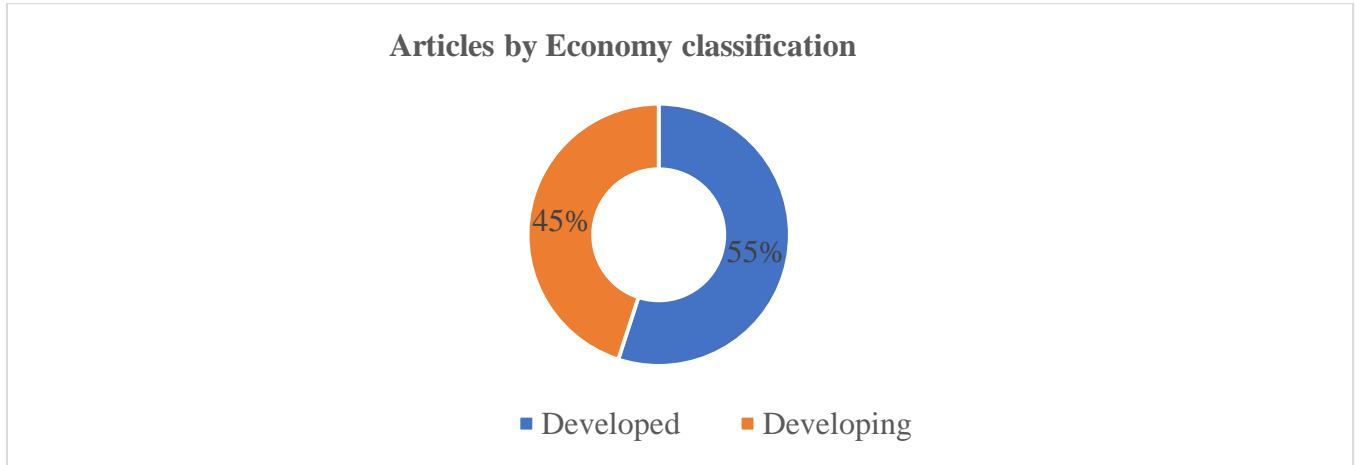


Figure 7 Articles by economy classification of women’s financial literacy from 2008 to 2023
 Source(s): Created by the Author using SCOPUS Bibliographic Data

4.7. Citation network analysis of women’s financial literacy from 2008 to 2023

A text's citation count indicates the total number of citations it has collected over time. Higher citation frequency documents are more productive and impactful than lower citation frequency documents. The best technique for assessing the significance of a research publication is citation analysis. Using VOS Viewer and R software, the citation network of 94 publications was analyzed to identify the most important articles regarding women's financial literacy.

Table 6 displays the top 20 articles regarding women's financial literacy that received the greatest attention both locally and internationally between 2008 and 2023. The quantity of times an article appears in other works across all databases, disciplines, and study areas is known as its global citation count. The number of times an article is referenced by other publications in this 94-node network is known as its local citations. Lusardi A, 2008, AM Econ rev ranks first with 483 citations, followed by Lusardi A, 2011, J Pension Econ Finance (482 citations), Mitchell OS, 2011, and Finance Lit (324 citations).

Table 6 Top publications from 2008 to 2023 based on the number of citations received both locally and internationally

Document	Local Citations (LC)	Global Citations (GC)	LC/GC (%)	Normalized Local Citations (NLC)	Normalized Global Citations (NGC)
Lusardi A And Am Econ Rev (2008)	34	483	7.04	1	1
Lusardi A And J Pension Econ Financ (2011)	18	482	3.73	1.91	2.42
Fonseca R And J Consum Aff (2012)	15	151	9.93	3	2.44
Lusardi A And J Pension Econ Financ-A (2011)	13	262	4.96	1.38	1.32
Almenberg J And Econ Lett (2015)	12	114	10.53	3.33	2.65
Farrell L And J Econ Psychol (2016)	4	112	3.57	4	3.33
Lusardi A And J Pension Econ Financ (2014)	3	63	4.76	6	3.78
Agarwal Sk And World Dev (2015)	3	42	7.14	0.83	0.98
Lusardi A And J Pension Econ Financ (2014)	3	63	4.76	6	3.78
Bannier Core and Econ Lett (2016)	2	70	2.86	2	2.08

Source: VOSviewer and R program for the analysis of bibliometric data from SCOPUS

With 34 citations, Lusardi A and AM Econ rev (2008), rank first in terms of local citations. With 18 citations, Lusardi A and J. Pension Econ Finance (2011) is ranked second. The most famous studies paving the road for more studies on women’s financial literacy are Lusardi and Mitchell. They offer a theoretical framework to support the idea that financial knowledge is a



form of human capital investment. They also include a summary of various empirical studies on financial literacy and economic behavior.

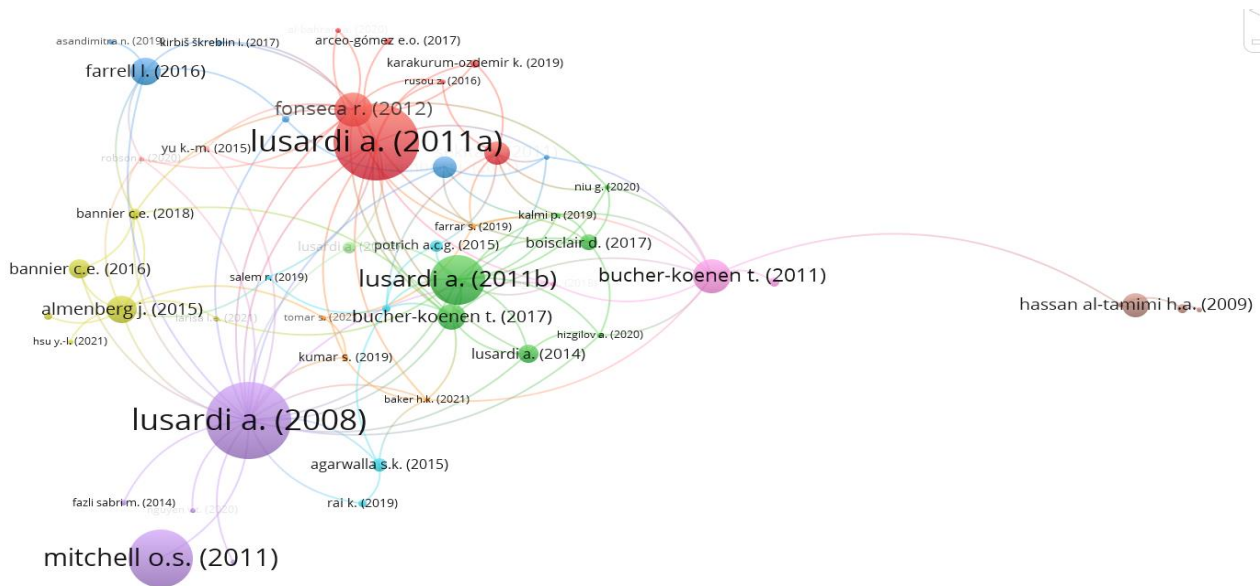


Figure 8 Citation network on Women’s financial literacy from 2008 to 2023
 Source: VOSviewer and R program for the analysis of bibliometric data from SCOPUS

The most notable, well-connected nodes in the network with a significant number of local citations are shown in Figure 8. An article with a significant number of local citations is regarded as important within the body of literature on women's financial literacy. When the top 10 publications were compared based on citation count, Lusardi and Mitchell's work identified 10 highly referenced papers.

4.8. Keyword analysis from 2008 to 2023

The research articles' subjects are reflected in the author's keywords. The most important issues in women's financial literacy were investigated via the use of the VOS Viewer and keyword analysis. The most often used terms in studies on women's financial literacy between 2008 and 2023 are shown in Table 7. With 53 instances, the term "financial literacy" is the most utilized, indicating that it is employed as a connected notion in the literature. It is followed by "literacy" with 11 occurrences and "gender" with 10 occurrences.

Table 7 Top keywords related to women’s financial literacy from 2008 to 2023

Keywords	Occurrences
Financial literacy	53
Literacy	11
Gender	10
Financial education	9
Financial inclusion	7
Women	6
Gender differences	6
Financial knowledge	5
Financial planning	5
Financial behavior	5

Source: VOSviewer and R program for the analysis of bibliometric data from SCOPUS

The study revealed that there is no consensus on how to define women's financial literacy and that the lack of a consistent definition forces authors to use the words. Financial literacy, financial education, financial mindset, and financial knowledge are all terms that are used interchangeably in the financial world. Financial literacy is more generally associated



policymakers, educators, and financial institutions aiming to forge programs that are both inclusive and effective, highlighting the study's contribution toward understanding the broader impact of financial literacy across different regions and cultures.

Looking ahead, the research lays a groundwork for future exploration in several key areas. There is a call for ongoing monitoring of trends and emerging clusters within the field of women's financial literacy, a deeper examination of thematic shifts over time, and the need for more cross-cultural studies to understand the impact of various factors on financial literacy and empowerment. Furthermore, the methodological approaches used in this study, such as citation network and author cocitation analysis, offer a replicable framework for investigating other emergent topics within financial education and beyond. In conclusion, our study not only enriches the understanding of the bibliometric landscape surrounding women's financial literacy research but also illuminates the dynamic interplay of scholarly efforts, providing a beacon for future research endeavors and policy formulations aimed at advancing financial literacy initiatives for women worldwide.

5. Final considerations

Studies on the effects of financial literacy and studies on gender differences in financial literacy (FL) have indeed been identified as significant trend topics for the 2020–2021 period (Rani and Goyal, 2022). This study also revealed that India had a very low number of publications in the area of women's financial literacy, despite the growth in annual scientific output and international trends in this field. Furthermore, research on gender and the effects of financial literacy, which are important issues in the current global context, is scarce in India. As a result, there is a research gap. Given that gender inequality is still prevalent in many areas of India, researchers should concentrate more on these issues and examine financial literacy from the perspective of gender. The present study used bibliometric analysis of the financial literacy of women. A total of 94 related publications on the title financial literacy of women were retrieved from the Scopus database from 2008 to 2023 and then inputted into VOSviewer and R software to represent the networks and distribution of the data they contained. Most of the studies on the financial literacy of women titled Women's Financial Empowerment, Financial Literacy among Women, Gender Differences, Financial Literacy of Women on Investments, and Stock Market Participation were published in 2021. The journal with the best ratings, 'The Journal of Family and Economic Issues' had 4 publications on the financial literacy of women during the study period, with the main theme of gender differences and financial knowledge. Lusardi A. published the greatest number of articles on financial literacy during the study period from 2008 to 2021. The common characteristic element in all his studies was financial planning and retirement. The author received the greatest number of citations (1978), with his 11 publications on the research topic of the financial literacy of women. Concerning country-wide publications, the United States and India ranked first and second, respectively. The USA, a developed nation has the strongest economy in the world. It has the backbone of a highly educated citizen who is equipped with skills, education, and technology in financial matters. Financial literacy among people has played a vital role in what the USA has achieved today. Financial literacy is a way for people to learn more about different ideas in the area of finance, financial goods, and financial markets, such as stocks, bonds, and mutual funds as well as derivatives, and to make appropriate decisions to expand their financial status. This makes the USA a better market for new businesses and aspiring entrepreneurs.

On the other hand, India has the 5th highest economy in the world, it is also home to the world's second-largest population and the highest youth population in the world. Currently, the Government of India has made financial inclusion a national policy, and many efforts have been made to make financial inclusion more widespread. The most commonly used keywords in the published studies are financial literacy, women, gender differences, financial education, and financial inclusion. These keywords have attracted the attention of researchers in recent years because these areas have remained unexplored for years and have many limitations. This may concern empowering women, gender equality, financial literacy, or creating financial awareness among people. This bibliometric analysis underlines the unique contributions of financial literacy to women, such as empowerment, gendered variables, and educational interventions. These findings have significant implications for policymakers, financial educators, and practitioners, who may utilize this information to build effective financial literacy professionals and strategies and initiatives that target the special financial needs of women and emphasize the role of financial institutions. These findings can be helpful for future studies and assist in the creation of policies and initiatives focused on enhancing women's financial literacy.

Ethical considerations

Not applicable.

Conflict of Interest

The authors declare no conflicts of interest.

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References

- Agarwalla, S. K., Barua, S. K., Jacob, J., & Varma, J. R. (2015). Financial literacy among working young in urban India. *World Development*, *67*, 101-109. <https://doi.org/10.1016/j.worlddev.2014.10.004>.
- Ahmed, S., & Chowdhury, A. (2020). Women's empowerment through financial inclusion in Bangladesh. *Journal of Financial Services Marketing*, *25*(3), 109-121.
- Ali, M., Ali, I., Badghish, S., & Soomro, Y. A. (2021). Determinants of financial empowerment among women in Saudi Arabia. *Frontiers in psychology*, *12*, 747255.
- Almenberg, J., & Dreber, A. (2015). Gender, stock market participation and financial literacy. *Economics Letters*, *137*, 140-142.
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of informetrics*, *11*(4), 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>.
- Atkinson, A., & Messy, F. A. (2012). Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) pilot study. OECD Publishing, *15*, 1-73. <https://doi.org/10.1787/20797117>.
- Baker, H. K., Tomar, S., Kumar, S., & Verma, D. (2021). Are Indian professional women financially literate and prepared for retirement?. *Journal of Consumer Affairs*, *55*(4), 1416-1441.
- Bannier, C. E., & Neubert, M. (2016). Gender differences in financial risk taking: The role of financial literacy and risk tolerance. *Economics letters*, *145*, 130-135.
- Bannier, C. E., & Schwarz, M. (2018). Gender-and education-related effects of financial literacy and confidence on financial wealth. *Journal of Economic Psychology*, *67*, 66-86.
- Bernheim, B. D., Garrett, D. M., & Maki, D. M. (2001). Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of public Economics*, *80*(3), 435-465.
- Bhonde-Saraf, A. (2016). Are women financially educated? A study with reference to earning women of Aurangabad District, Maharashtra. *Indian Journal of Finance*, *10*(3), 43-51.
- Boisclair, D., Lusardi, A., & Michaud, P. C. (2017). Financial literacy and retirement planning in Canada. *Journal of pension economics & finance*, *16*(3), 277-296.
- Bottazzi, L., & Lusardi, A. (2021). Stereotypes in financial literacy: Evidence from PISA. *Journal of Corporate Finance*, *71*, 101831.
- Bucher-Koenen, T., & Lusardi, A. (2011). Financial literacy and retirement planning in Germany. *Journal of Pension Economics & Finance*, *10*(4), 565-584.
- Bucher-Koenen, T., Lusardi, A., Alessie, R., & Van Rooij, M. (2017). How financially literate are women? An overview and new insights. *Journal of Consumer Affairs*, *51*(2), 255-283.
- Chen, H., & Volpe, R. P. (2018). Gender differences in personal finance knowledge, attitudes, and behaviors: An empirical study. *Journal of Financial Counseling and Planning*, *29*(2), 214-227.
- Chou, K. L., & Loibl, C. (2016). Gender, personality, and retirement saving: The role of perceived risk tolerance. *Journal of Economic Psychology*, *52*, 147-158.
- Choudhary, K., & Kamboj, S. (2017). A study of financial literacy and its determinants: Evidence from India. *Asian Journal of Accounting Perspectives*, *10*(1), 52-72.
- Cole, S., Sampson, T., & Zia, B. (2009, February). Valuing financial literacy training. In *Conference on Measurement, Promotion, and Impact of Access to Financial Services, March* (pp. 12-13).
- Cupák, A., Fessler, P., Schneebaum, A., & Silgoner, M. (2018). Decomposing gender gaps in financial literacy: New international evidence. *Economics Letters*, *168*, 102-106. <https://doi.org/10.1016/j.econlet.2018.04.004>.
- Devadevan, V. (2013). Mobile Banking in India—Issues & Challenges. *International Journal of Emerging Technology and Advanced Engineering*, *3*(6), 516-520.
- Farrell, L., Fry, T. R., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. *Journal of economic psychology*, *54*, 85-99.
- Fonseca, R., Mullen, K. J., Zamorro, G., & Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs*, *46*(1), 90-106.
- Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. *International Journal of Consumer Studies*, *45*(1), 80-105. <https://doi.org/10.1111/ijcs.12605>.
- OECD. (2020). OECD/INFE 2020 International Survey of Adult Financial Literacy. <https://www.oecd.org/financial/education/oecd-infe-2020-international-survey-of-adult-financial-literacy.pdf>. Accessed on December 12, 2023.
- Huang, L., Zhang, Y., Guo, Y., Zhu, D., & Porter, A. L. (2014). Four dimensional Science and Technology planning: A new approach based on bibliometrics and technology roadmapping. *Technological Forecasting and Social Change*, *81*, 39-48. <https://doi.org/10.1016/j.techfore.2012.09.010>.
- Hung, A., Yoong, J., & Brown, E. (2012). Empowering women through financial awareness and education. *OECD Working Papers on Finance, Insurance and Private Pensions, No. 14*, OECD Publishing, Paris. <https://doi.org/10.1787/5k9d5v6kh56g-en>.
- Kamakia, M. G., Mwangi, C. I., & Mwangi, M. (2017). Financial literacy and financial wellbeing of public sector employees: A critical literature review. *European Scientific Journal, ESJ*, *13*(16), 233. <https://doi.org/10.19044/esj.2017.v13n16p233>.
- Kaur, J., & Singh, D. (2020). Role of financial education in enhancing financial literacy of rural women. *Indian Journal of Positive Psychology*, *11*(4), 745-749.
- Kim, J., & Chatterjee, S. (2015). Money matters Gender differences in financial socialization and monetary motivations. *Journal of Consumer Affairs*, *49*(1), 72-99.
- Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, *49*(3), 589-614.
- Koti, K. (2019). Financial literacy and its impact on the investment decisions of working women. *Humanities & Social Sciences Reviews*, *7*(6), 554-561.
- Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D., & Tinghög, G. (2020). Competence, confidence, and gender: The role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues*, *41*, 626-638.
- Lusardi, A. (2012). Financial literacy and financial decision-making in older adults. *Generations*, *36*(2), 25-32.
- Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare?. *American economic review*, *98*(2), 413-417.
- Lusardi, A., & Mitchell, O. S. (2011). *Financial literacy and planning: Implications for retirement wellbeing* (No. w17078). National Bureau of Economic Research.



- Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and retirement planning in the United States. *Journal of pension economics & finance*, 10(4), 509-525.
- Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: an overview. *Journal of pension economics & finance*, 10(4), 497-508.
- Lusardi, A., & Messy, F. A. (2023). The importance of financial literacy and its impact on financial wellbeing. *Journal of Financial Literacy and Wellbeing*, 1(1), 1-11.
- Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54(1), 205-224.
- Lusardi, A., & Mitchell, O. S. (2007a). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54(1), 205-224.
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature*, 52(1), 5-44.
- OECD (2014). PISA 2012 Results: Students and Money: Financial Literacy Skills for the 21st Century, VI, *OECD Publishing*, Paris, 123-145.
- OECD. (2020). OECD/INFE 2020 International Survey of Adult Financial Literacy. <https://www.oecd.org/financial/education/oecd-infe-2020-international-survey-of-adult-financial-literacy.pdf>. Accessed on December 12, 2023.
- Park, C. M., Kraus, A. D., Dai, Y., Fantry, C., Block, T., Kelder, B., ... & Solberg, V. S. H. (2021). Empowering women in finance through developing girls' financial literacy skills in the United States. *Behavioral Sciences*, 11(12), 176.
- Potrich, A. C. G., Vieira, K. M., & Kirch, G. (2015). Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables. *Revista Contabilidade & Finanças*, 26, 362-377.
- Potrich, A. C. G., Vieira, K. M., & Kirch, G. (2018). How well do women do when it comes to financial literacy? Proposition of an indicator and analysis of gender differences. *Journal of Behavioral and Experimental Finance*, 17, 28-41. <https://doi.org/10.1016/j.jbef.2017.12.005>.
- Pritchard, R. D. (1969). Equity theory: A review and critique. *Organizational behavior and human performance*, 4(2), 176-211.
- Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behavior and financial knowledge towards financial literacy: A structural equation modeling approach. *FIB Business Review*, 8(1), 51-60.
- Raj, A. (2020). Financial literacy among women in Kaushambi: An overview of rural India. *Finance India*, 34(2), 731-742.
- Rani, S., & Goyal, N. (2022). Potential Sub-Topics and Trend Topics in Financial Literacy: A Bibliometric Analysis. *International Journal of Accounting & Finance Review*, 10(1), 35-52.
- Refera, M. K., Dhaliwal, N. K., & Kaur, J. (2016). Financial literacy for developing countries in Africa: A review of concept, significance and research opportunities. *Journal of African Studies and development*, 8(1), 1-12. <https://doi.org/10.5897/JASD2015.0331>.
- Salem, R. (2019). Examining the investment behavior of Arab women in the stock market. *Journal of Behavioral and Experimental Finance*, 22, 151-160.
- Sarpong-Kumankoma, E., Ab-Bakar, S., & Akplehey, F. N. (2023). Gender and financial literacy in Ghana. *African Journal of Economic and Management Studies*, 14(4), 569-582.
- Shanti, S., & Murty, A. V. N. (2019). Impact of socio economic determinants on women empowerment in India (Working women in selected districts of Andhra Pradesh). *International Journal of Engineering and Advanced Technology (IJEAT)*, 8, 458-462.
- Singh, D., & Kaur, J. (2018). Financial literacy of rural women: A study in Punjab. *The Journal of Rural and Agricultural Research*, 18(1), 10-16.
- Struckell, E. M., Patel, P. C., Ojha, D., & Oghazi, P. (2022). Financial literacy and self employment—The moderating effect of gender and race. *Journal of Business Research*, 139, 639-653.
- Tinghög, G., Ahmed, A., Barrafreem, K., Lind, T., Skagerlund, K., & Västfjäll, D. (2021). Gender differences in financial literacy: The role of stereotype threat. *Journal of Economic Behavior & Organization*, 192, 405-416.
- Tomar, S., Baker, H. K., Kumar, S., & Hoffmann, A. O. (2021). Psychological determinants of retirement financial planning behavior. *Journal of Business Research*, 133, 432-449.
- Tomar, S., Kumar, S., & Sureka, R. (2021). Financial planning for retirement: Bibliometric analysis and future research directions. *Journal of Financial Counseling and Planning*.