Journal of Research Administration
Society of Research Administrators International

AN OVERVIEW OF STUDIES ON FINANCIAL RESILIENCE AMONG WOMEN LED SMES AFTER COVID-19 PANDEMIC: A SYSTEMATIC LITERATURE REVIEW AND BIBLIOMETRIC ANALYSIS

[1]Nur Farhah Mahadi, [2]Muhammad-Bashir Owolabi Yusuf, [3]Salina Kassim and [4] Khairunnisa Abd Samad

[1,3]IIUM Institute of Islamic Banking and Finance, Malaysia.
[2]Al-Hikmah University, Nigeria.
[4]Universiti Teknologi MARA

Abstract - Small-business owners faced a variety of difficulties during the pandemic, including interruptions to operations, issues with supply chains, a lack of internal capital to cover ongoing operating costs, increased insolvency risks, and a lack of sufficient government support during the protracted lockdowns and severe movement restrictions. This paper provides a thorough summary of research on the financial resilience of small and medium-sized businesses (SMEs) run by women. In addition to determining how the field of financial resilience of women-led Small and Medium Enterprises (SMEs) research during and after pandemics is changing over time, the study aims to identify which approaches or models are most commonly used in relation to SMEs' financial resilience. We searched scholarly publications for relevant papers and found them using the Scopus and Web of Science databases. Between 2020 and 2023, a total of 180 publications were released. For the bibliometric analysis, the R-based Biliometrix library was used. Our findings show that different theories and approaches are employed to explain the financial resilience of small and medium-sized businesses (SMEs) owned and operated by women. Furthermore, the study employed the Descriptive research model consistently, with the United States and Asia setting the bar for model and technique adoption. The bibliometric study indicates that there is a sharp increase in scholarly interest in the financial resilience of Small and Medium Enterprises (SMEs) run by women. Global scientists have shown a strong desire to collaborate and learn more about this challenging subject.

Keywords: Bibliometric Analysis, COVID-19, Financial Resilience, SMEs

This research is supported by the Ministry of Education (MOE) through Fundamental Research Grant Scheme (FRGS/1/2021/SS01/UIAM/03/3).

1.0 INTRODUCTION

The world has been engulfed in the deadly grip of the COVID-19 pandemic for the past 10 months, with several nations experiencing an outbreak of the disease. This unique virus was first identified in Wuhan, China, in December 2019. By March, it had spread swiftly to become a global pandemic (Anggadwita et al., 203). After being initially controlled in China and Europe, the virus quickly spread around the world, with 6,724,667 confirmed cases and 198,589 deaths by March 2020 (Mahadi, 2023). This unexpected worldwide occurrence has rocked the economy and quickly stopped business, causing chaos (Taneo et al., 2022).

Amidst the pervasive effects of COVID-19 on many aspects of society, there is a particular concern about what it means for small and medium-sized businesses (SMEs). Kaberia and Muathe's (2021) research highlights the critical role that SMEs play, accounting for over 90% of all worldwide firms and acting as the foundation of both the formal and informal business sectors. SMEs are particularly vulnerable to the Covid-19 pandemic, putting them in a hazardous position even with their substantial contribution (Arimany-Serrat et al., 2023).

Small and Medium Enterprises (SMEs) are heavily dependent on the velocity of money circulation, therefore a sudden decrease in normal trade demand causes these enterprises' cash flow to be disrupted. According to Islam et al. (2020), SMEs are more vulnerable during times of crisis because they are ill-prepared, depend too much on local and governmental assistance, and suffer greater psychological and financial consequences for their owners and management. Although previous studies have mostly concentrated on the recovery process following natural disasters such as earthquakes and floods, there hasn't been much investigation into how long-term epidemics affect small and medium-sized enterprises (SMEs) (Nordhagen et al., 2021).

In Nigeria, like in other developed and developing countries, SMEs function mainly as private enterprises in a highly competitive environment. A hitherto unheard-of shadow has been cast over the SME sector by the arrival of COVID-19 (Forson et al., 2022). SME owners faced a number of challenges during the extended lockdowns and severe movement restrictions, such as supply chain failures, operational disruptions, a lack of internal funds to cover ongoing operating costs, an increased risk of insolvency, and a shortage of government aid programs (Suminah et al., 2022).

Scholars from all around the world have focused on evaluating the effects of the Covid-19 epidemic on small and medium-sized enterprises (SMEs) in order to better understand the conditions that surround these companies. The current crisis that the Covid-19 epidemic has sparked is unlike any other crisis since it has resulted in a variety of disruptions to economic activity in different geographic locations, which has had unanticipated consequences (Dewi et al., 2021).

Small-business owners faced a variety of difficulties during the pandemic, including disruptions to operations, issues with supply chains, a lack of internal capital to cover ongoing operating costs, increased insolvency risks, and a lack of sufficient government support during the extended periods of lockdowns and severe movement restrictions (Surya, 2023).

The impact of the Covid-19 pandemic on Small and Medium Enterprises (SMEs) has been highlighted by several studies (Chhatwani et al., 2022; Muhammed et al., 2022; Di-Stefano and Fratochi, 2022; Hadjielias et al., 2022; Aassouli and Ahmed, 2023) based on a thorough review of the literature. These studies emphasize the impending economic distress and explore recovery strategies to navigate the crisis. These studies show that SMEs face a variety of challenges during this time, and the severity of the issue varies depending on factors like the type of business, location, national economic conditions, environmental factors unique to the company, and the ability of entrepreneurs to be innovative and adapt during the crisis (Yadav et al., 2023).

Though research on SMEs has garnered increasing interest from academics and practitioners in the wake of the Covid-19 pandemic, there is still a lack of studies that comprehensively address the crises that SMEs confront as well as recovery solutions based on real-world experiences in SME company operations. Given the importance of the matter, this study attempts to provide light on how the pandemic has affected SMEs, especially in the context of developing nations like Nigeria (Aziz et al., 2022). Many studies have looked at how Covid-19 has affected SMEs in developed countries like the USA, Europe, Australia, Canada, and the UK, but there isn't much research in developing countries like Nigeria that fills in the gaps in the knowledge that this study found. Therefore, there is a great deal of demand for more research based on real-world applications in developing nations.

The article aims to address the following primary research questions:

RQ1: What economic methodologies have been developed to assess the financial resilience of women-led Small and Medium Enterprises (SMEs) during and post the COVID-19 pandemic?

RQ2: What are the predominant research gaps and emerging trends concerning the financial resilience of women-led Small and Medium Enterprises (SMEs) during and after the COVID-19 pandemic period?

The study employs distinct methodologies to address each of the research questions:

For RQ1

The study addresses the first research question on the strategies used to increase financial resilience among women-led Small and Medium Enterprises (SMEs) during and after the COVID-19 epidemic by using thematic analysis, which is carried out using Microsoft Word and Excel. A qualitative research method called thematic analysis entails locating, analyzing, and combining conclusions and suggestions from literature reviews. This method makes it possible to find and investigate a number of themes that are related to the research topics.

For RQ2:

The paper uses bibliometric analysis to answer the question of what are the main research gaps and trends in financial resilience among women-led SMEs before, during, and after the COVID-19 epidemic. The bibliometrix package and R-studio are used in this research to allow the investigation of bibliometric statistics relevant to the subject of the study. Aspects like sources, authors, documents, grouping, conceptual frameworks, and social systems are all included in the study. It entails a thorough analysis of a variety of metrics, including Bradford's law, annual average citations, important sources, and scientific production, among others. This method offers a thorough summary of the patterns and gaps in the body of knowledge about the financial resilience of women-led SMEs in the wake of COVID-19.

According to a research by Muhammad et al. (2022), there would be a significant drop in global commerce in the pandemic year of 2020, ranging from 14% to 33%. This indicates the widespread effect of Covid-19 on normal economic activity around the globe. According to a recent analysis by Di-Stefano and Fratocchi (2022), underdeveloped nations are most vulnerable to the negative consequences of the Covid-19 epidemic. These conditions highlight the significance of examining how Covid-19 has affected Small and Medium-Sized Enterprises (SMEs), considering their susceptibility to changes in the economy and their dependence on cash flow, which has been negatively impacted by the epidemic.

The structure of the remainder of the paper is organized as follows:

Section 2: Methodology: This section will go over the methodology used for the Systematic Literature Review (SLR), including how data was gathered from different published databases, how a strict screening procedure was implemented, and what criteria were used to choose which data to include. Sections 3 and 4: Thematic and Descriptive Analysis: Section 3 will give an outline of the data that was gathered and concentrate on the descriptive analysis. The goal of Section 4's thematic analysis is to pinpoint and elucidate the main ideas and trends that emerge from the literature. Section 5: A Comprehensive Case Study of SMEs in Bangladesh: In this section, the state of the Small and Medium Enterprises (SMEs) industry in Bangladesh in the midst of the ongoing pandemic will be explained through a thorough case study. This case study will provide useful advice based on actual situations.

2.0 METHODOLOGY

A systematic literature review, or SLR, is a condensed and rigorous evaluation of the body of literature that uses established procedures to find, choose, arrange, and critically evaluate data from pertinent studies (Linares and Wilson, 2023). By using established eligibility criteria and documented, repeatable procedures, it seeks to synthesis existing knowledge on a particular research subject (Mitropoulos et al., 2021). To preserve objectivity and reduce bias, a protocol specifying the goals of the review, the inclusion/exclusion standards for research publications, analytical techniques, and search tactics must be established (Azeem et al., 2023). To avoid adding bias, all modifications from the review process must be substantiated.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology was used in this particular investigation. According to Khalil et al. (2022) PRISMA is intended to make transparent reporting and literature review procedures easier. There were three main processes in implementing the PRISMA approach: searching the literature thoroughly, finding relevant papers that fit certain requirements, and methodically gathering and combining data. To conduct the research, two online databases were thoroughly searched for publications on the economic modeling of carpooling adoption that were published in 2022 and 2023 (Fig. 1 provides an overview of the search procedure).

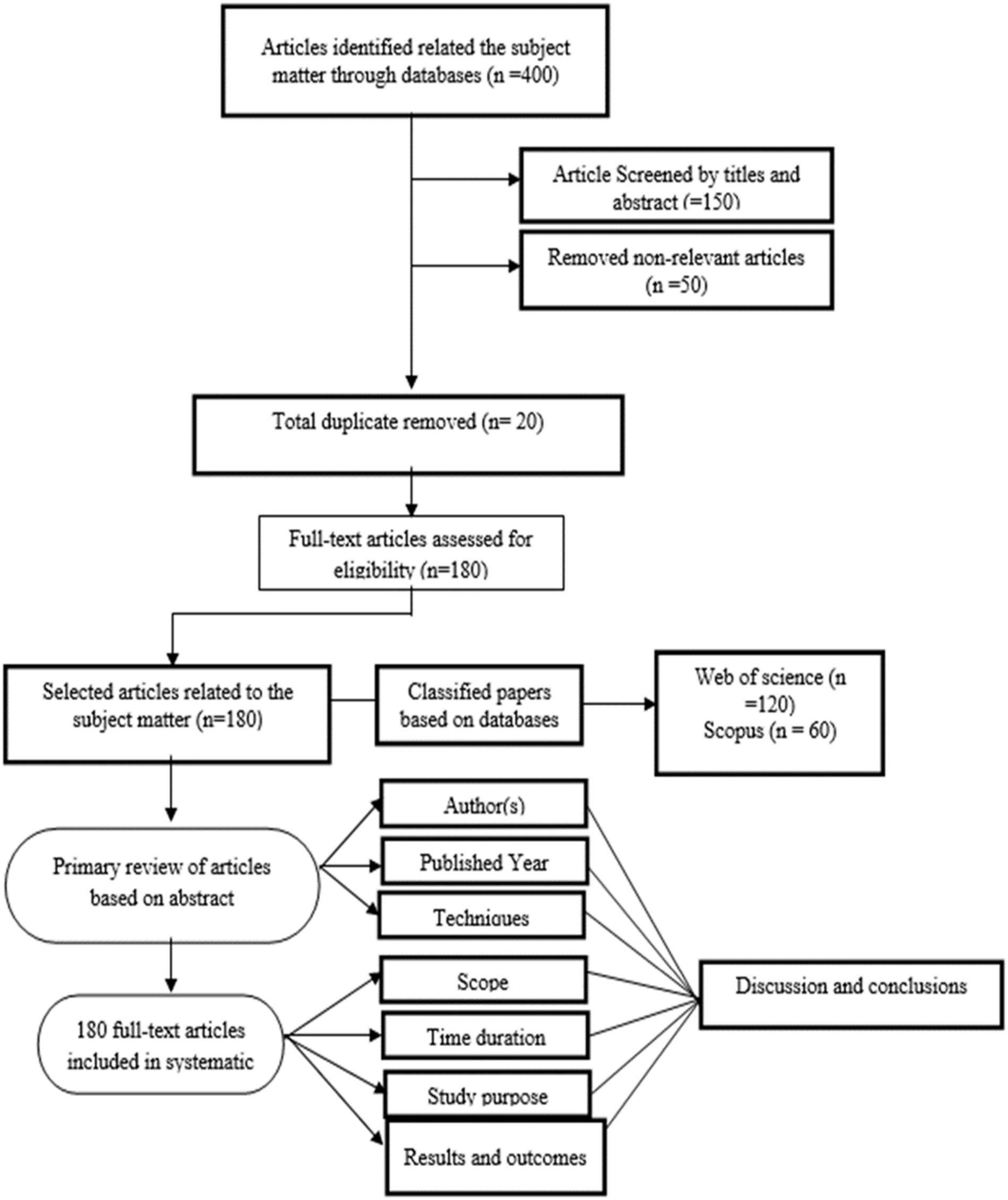


Figure 1: Literature search process using PRISMA

2.1 Literature search

The following search terms were used to locate all research on women's financial resilience in small and medium-sized enterprises (SME) during and after the COVID-19 pandemic using the two well-known indexed electronic databases, Web of Science (WoS) and Scopus:

"Financial tech*" OR"Digital Finance*" OR"Fintech*" OR"Digital Transfer*" OR"Digital*" OR"Financ*" OR "Resillan*" AND "Wom*" AND "MSME*" OR "Busin*" OR "Entrepre*" OR "SME*" OR "Small Busines*" OR "Small Compan*" OR "Small Entrep*" OR "Small Fir*" OR "Small and Mediu*" OR "Small and Medium Entrep*" AND "during" AND "Post" OR "in the post" OR "After" AND "COVID-19" OR "COVID 19" OR "COVID-19 pandemic" OR "COVID 19 pandemic" OR "Covid-19" OR "Covid 19" OR "Covid-19 pandemic" OR "Covid 19 pandemic" OR "SARS CoV-2" OR "SARS-CoV 2" OR "SARS-CoV-2" OR "SARS CoV 2" OR "Coronavirus" OR "Corona virus" OR "Corona-virus" OR "Corona virus" OR "Covid" OR "coronavirus disease 2019" OR "coronavirus disease 19" OR "Severe acute respiratory syndrome coronavirus 2" OR "Severe acute respiratory syndrome coronavirus-2" OR "Wuhan coronavirus" OR "Novel coronavirus 2019" AND "Era" OR "Period".

2.2 Search output

Our inquiry has generated 180 peer-reviewed scientific publications in its first phase. It is important to recognize that, although useful, our study does not cover all aspects of the field of subject matter research. We only searched the SCOPUS and WoS databases, which suggest that this topic has a narrow reach. As we moved from Phase 1 to Phase 2, a thorough examination of the titles and abstracts was carried out in order to find articles that were specifically related to the topic and supported the use of a certain approach. After careful examination, 180 items in all met the requirements for inclusion. Notably, all 180 of these articles were from SCOPUS (120) and WoS (77), demonstrating its extensive coverage in the context of our investigation.

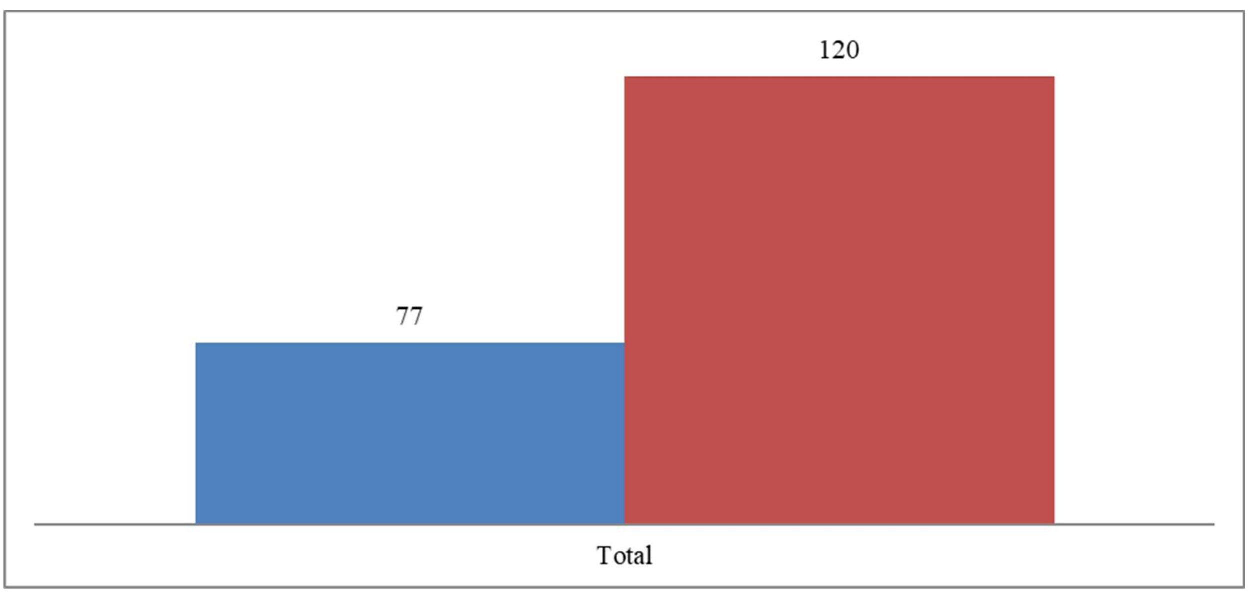


Figure 2: Distribution of sources

Inclusion and Exclusion Criteria

A number of crucial elements were included in the inclusion criteria used to choose research papers: First and foremost, the study has to pay particular attention to the relationship between women-led Small and Medium Enterprises (SMEs) and financial resilience. Second, it needed to discuss this subject in light of the pandemic era as well as the post-pandemic period that followed. Thirdly, in order to ensure intellectual rigor and legitimacy, the inclusion criterion mandated that the manuscript have gone through a peer review procedure. Prerequisites for admission included being written in the English language and falling within the research paper category.

Research not specifically related to investigating financial resilience in women-led small and medium-sized enterprises (SMEs) during or during the COVID-19 epidemic was not taken into account. Additionally, among the accepted papers, the structure of articles was prioritized above other document formats like proceedings or reviews. Notably, there were no limitations on language or publication date, which made it possible to thoroughly review pertinent material from a variety of linguistic and chronological perspectives.

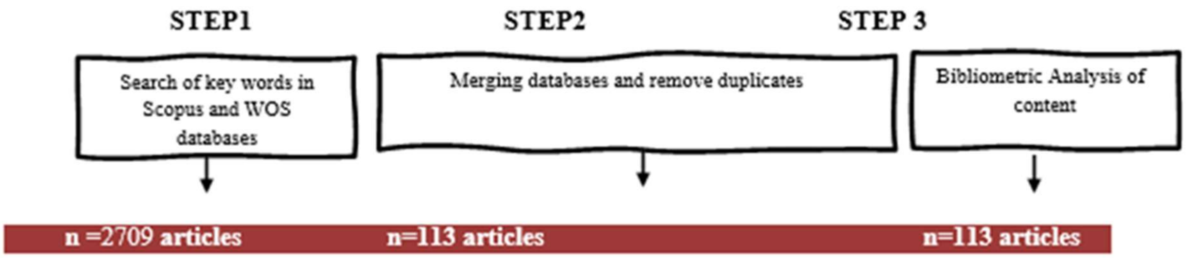
2.3 Bibliometric Analysis

The investigation starts by looking at the most important bibliometric statistics before digging into the dataset. It begins with broad topics such the overall framework, sources, writers, documents, clustering, conceptual organization, and social structure.

Subsequently, each of these categories undergoes a thorough examination utilizing various factors: Main information, Annual scientific production, Average citation per year, Three fields plot, Most relevant sources, Bradford's law, Source impact, Relevant authors, Authors production over time, Authors impact, Country’s citation, Word cloud, Treemap, Clustering by coupling, Co-citation Network, Thematic map, Factorial analysis (topic dendrogram), Collaboration network, Collaboration word map

This thorough bibliometric analysis, which was carried out with R and is highlighted below, makes use of a variety of approaches and visualization strategies to investigate and clarify the state of the literature on financial resilience in small and medium-sized businesses led by women both during and after the COVID-19 pandemic.

Table 2: Description of Data Collection Process using R



	To merge databases and remove duplicates we ran	Bibliometric analysis
"Financial tech*" OR "Digital Finance*" OR "Fintech*" OR "Digital Transfer*" OR "Digital*" OR "Financ*" OR "Resillan*" AND "Wom*" AND "MSME*" OR "Busin*" OR "Entrepre*" OR "SME*" OR "Small Busines*" OR "Small Compan*" OR "Small Entrep*" OR "Small Fir*" OR "Small and Mediu*" OR "Small and Medium Entrep*" AND "during" AND "Post" OR "in the post" OR "After" AND "COVID-19" OR "COVID 19" OR "COVID-19 pandemic" OR "COVID 19 pandemic" OR "Covid-19" OR "Covid 19" OR "Covid-19 pandemic" OR "Covid 19 pandemic" OR "SARS CoV-2" OR "SARS-CoV 2" OR "SARS-CoV-2" OR "SARS CoV 2" OR "Coronavirus" OR "Corona virus" OR "Corona-virus" OR "Corona virus" OR "Covid" OR "coronavirus disease 2019" OR "coronavirus disease 19" OR "Severe acute respiratory syndrome coronavirus 2" OR "Severe acute respiratory syndrome coronavirus-2" OR "Wuhan coronavirus" OR "Novel coronavirus 2019" AND "Era" OR "Period".	these lines of commands in R Studio: Install.Package(Bibliometrix) Library(Bibliometrix) Biblioshiny()	with R Studio and Bibliometrix Package

3 RESULTS

3.1 Thematic analysis

Thematic analysis is an approach used in qualitative research that facilitates the identification, analysis, and synthesis of results and conclusions from literature studies. It entails the identification and investigation of many overarching themes that are in line with the particular research objectives of the study. By employing this methodology, the research aims to clarify, incorporate, and grasp the many viewpoints and ideas presented in the literature about the research questions.

RQ1: What types of methods/models are being built to evaluate financial resilience and women-led Small and Medium Enterprises (SMEs)?

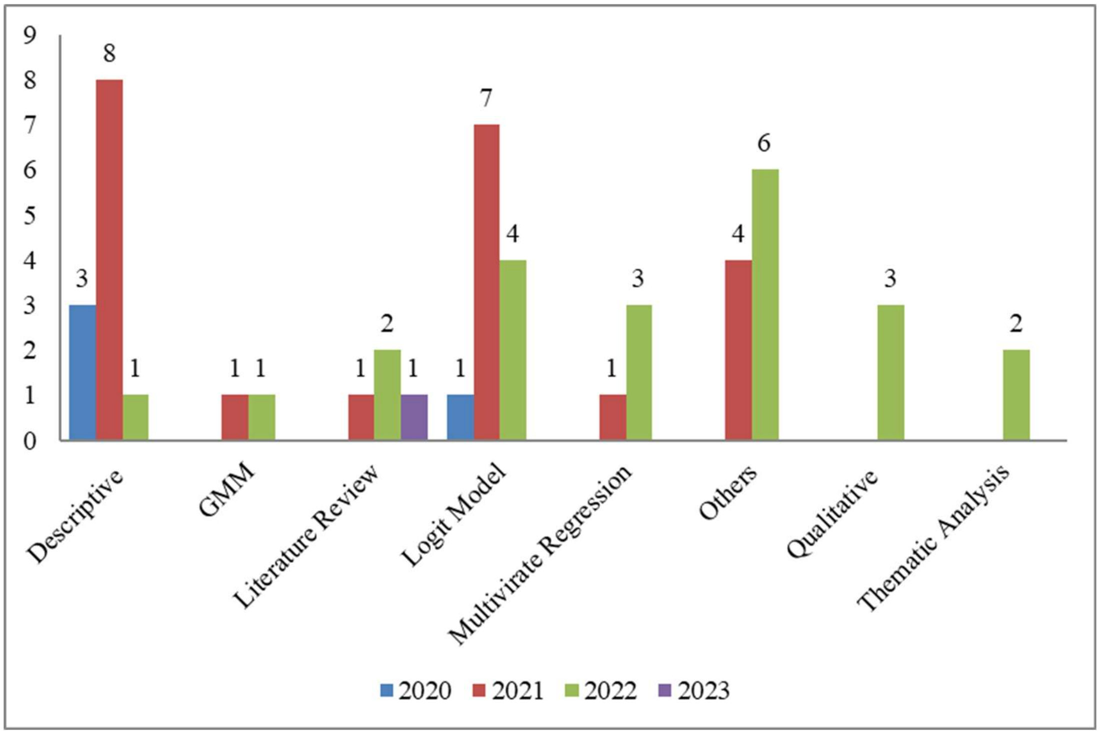


Figure 3: Distribution of methods/model used to tackle financial resilience and women-led Small and Medium Enterprises (SMEs)

The range of strategies or models used to address financial resilience in women-led Small and Medium-Sized Enterprises (SMEs) before to, during, and following the pandemic is shown in Figure 3. The method or paradigm most commonly used to examine financial resilience in these businesses both during and after the pandemic is descriptive research. Notably, as Figure 3 illustrates, the pandemic's effects have shown a steady upward trend since it began in 2019. In particular, during the post-pandemic era in 2022, the use of descriptive research decreased sharply to 1.92 percent from 5.77 percent in 2020 to 15.38 percent in 2021.More specifically, the proportion of studies using logit models increased from 1.92 percent in 2020 to 13.46 percent in 2021 before declining to 7.69 percent in 2022. The Gaussian Mixture Model (GMM) model, which first debuted in 2021 or 2022, hasn't shown up in any current data, though. It's important to remember that the literature review procedure was first revealed in 2023. Furthermore, the multivariate regression model has gained popularity since its inception in 2021 and peaked at 5.77 percent in 2022 (Khalil et al., 2022).

Regions and their publication years used to tackle financial resilience and women-led Small and Medium Enterprises (SMEs)

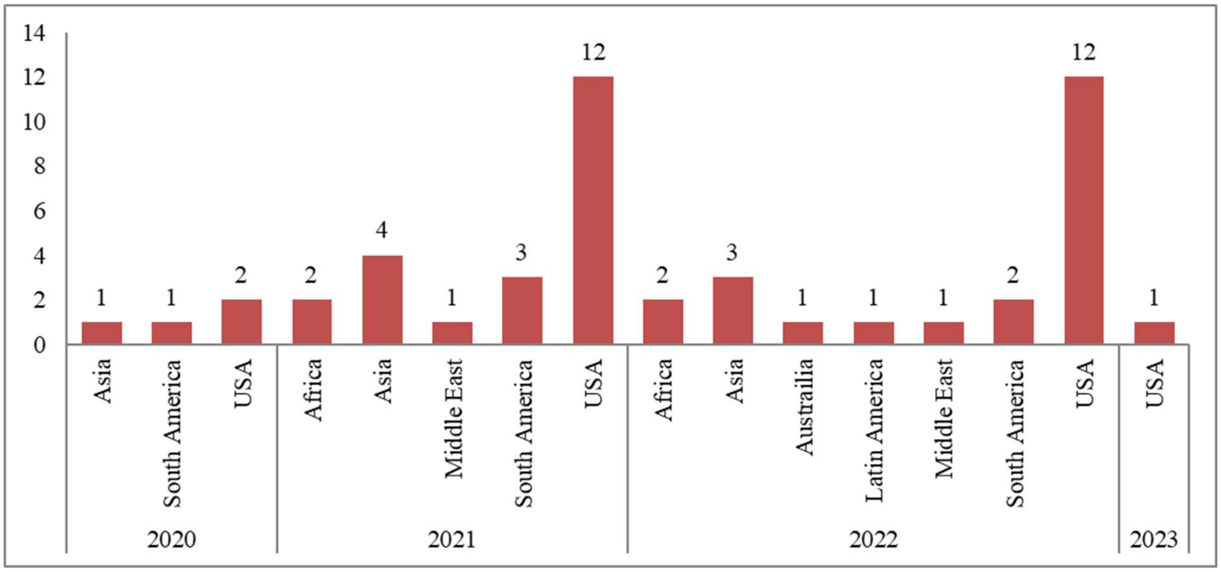


Figure 4: Distribution of Regions and their publication years

A breakdown of publication years for research on financial resilience in women-led small and medium-sized enterprises (SMEs) across different areas throughout the pandemic and post-pandemic eras (2020, 2021, 2022, and 2023) is shown in Figure 4. 7.67 percent of published studies in 2020 came from Asia (1 study), South America (1 study), and the United States (2 studies). With two publications addressing financial resilience within women-led Small and Medium Enterprises (SMEs), the United States emerged as the top region for publications in this area. With 12 publications in 2021, the United States remained in the lead with 23.08 percent of all publications during that year.Moreover, throughout this time, research on financial resilience within women-led Small and Medium Enterprises (SMEs) was influenced by Asia (7.69 percent), South America (5.77 percent), Africa (3.85 percent), and the Middle East (1.92%). In 2022, the post-pandemic period continued the pattern, with the United States continuing to play a major role alongside new contributors like Australia and Latin America. This broad focus on the financial resilience of women-led Small and Medium Enterprises (SMEs) is consistent with the investigation of the worldwide effects of Covid-19 on this crucial matter by researchers.Interestingly, the first post-pandemic research paper on financial resilience in women-led Small and Medium Enterprises (SMEs) appeared in 2023; it came from the United States. This suggests that there is still research being done on this topic in the context of how the pandemic is changing.

4.2 Descriptive bibliometric analysis

4.2.1 GENERAL OVERVIEW

Table 2: Main Information

Description	Results
MAIN INFORMATION ABOUT DATA	

Timespan	2020:2023
Sources (Journals, Books, etc)	117
Documents	180
Annual Growth Rate %	-51.93
Document Average Age	1.6
Average citations per doc	4.72
References	4660
DOCUMENT CONTENTS	
Keywords Plus (ID)	451
Author's Keywords (DE)	565
AUTHORS	
Authors	443
Authors of single-authored docs	17
AUTHORS COLLABORATION	
Single-authored docs	17
Co-Authors per Doc	4.78
International co-authorships %	25.81
DOCUMENT TYPES	
Article	164
book chapter	4
conference paper	2
Editorial	1
Note	2
Review	9

Source: Authors computation from R-Studio, 2023

Data from the Scopus and WoS databases are shown in Table 2, which includes 180 relevant publications published between 2020 and 2023. Numerous elements of financial resilience in small and medium-sized enterprises (SME) have been covered in detail in these publications, with particular attention paid to important topics including hunger, gender, climate change, agriculture, nutrition, poverty, sustainability, and dietary variety. Due to the epidemic's worldwide effects, financial resilience in small and medium-sized enterprises (SME) and supply have received more attention, and improvements in these areas are projected (Secinaro et al., 2020). Since financial resilience in small and medium-sized enterprises (SME) has become a major worldwide concern throughout the pandemic, this bibliometric analysis began in the same year that pertinent research began to appear, following the general pattern. The keywords used in these papers are notably three times as numerous as the publications themselves.This study period includes a full four years of scientific output, with the latter three years showing a significant rise in articles published (Figure). With an average contribution of two writers per publication (4.78 total), the collaborative nature of these papers is clearly visible. According to Linnenluecke and Marrone (2020), the International Co-authorship Percentage (IC) of 25.81 indicates the degree of international cooperation in these academic publications.

4.2.1.1 Annual Scientific Production

According to Ertz (2018), the rate of scientific growth is correlated with population number and exhibits a multiplicative pattern across time. According to this link, scientific growth rates appear to accelerate with greater populations. The number of academic publications about the financial resilience of women-led Small and Medium Enterprises (SMEs) climbs with time, as Figure 8 illustrates. After this stage of increasing development, there will likely be a stabilizing phase since Price's rule suggests that exponential growth fits into a logistic function. Based on our data, the number of publications on financial resilience in women-led Small and Medium Enterprises (SMEs) increased at an annual rate of -51.93 percent between 2020 and 2023.Remarkably, 2022 was the most productive year with 44 publications published. Even though the total number of citations for the papers published in 2020 and 2022 was greatest, the articles released in 2022 scored higher in the mean total citation per year index because they had less citable years. This difference draws attention to the significance and importance of these writings in a condensed amount of time.

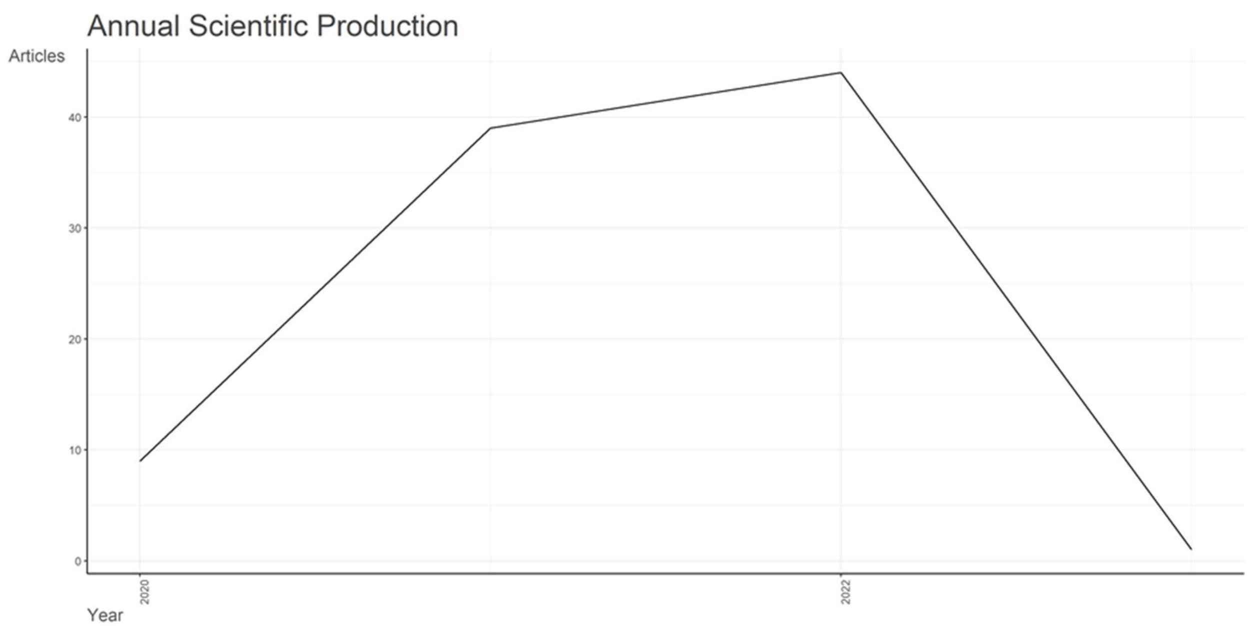


Figure 5: Annual Scientific Production

4.3 AUTHORS

Figure 6 lists the ten most prolific writers in the area according to their productivity. Aria and Cuccurullo (2017) assert that there is a rational relationship between a scientist's reputation and the number of scientific publications they publish. This image most likely captures the significant impact and contribution that these eminent writers have made to the field of financial resilience in small and medium-sized enterprises (SME) research.

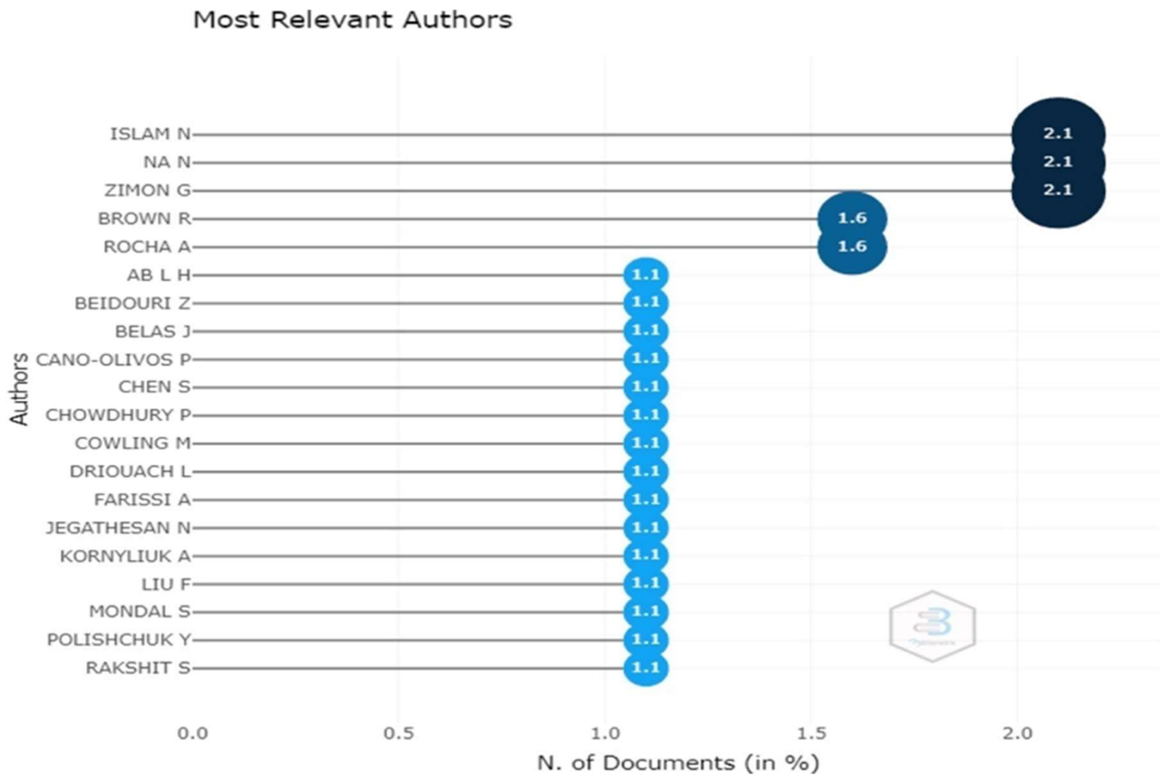


Figure 6: Most relevant Authors based on number of documents

After scrutinizing the 180 articles in our database, the most significant writers—as primary authors and co-authors—are shown to be Islam S., Na N., and Zimon G., who are each credited with precisely 2.1 publications. This represents 1.16% of the articles included in the database and indicates their noteworthy existence in this field of study. One additional noteworthy finding is that the writers of 0.88% of the papers in the database are those shown in the table of most relevant authors, and these authors have only contributed 1.6 publications apiece. This highlights a trend in which a sizable percentage of writers have made individual contributions to this corpus of work, demonstrating a diversity of individual contributions to the area.

4.3.1 Authors by countries

4.3.1.1 Country Scientific Production

Hungary has been identified as the country with the highest level of academic production related to the issue under consideration based on the collective research taken into account for this analysis. The United States became apparent as a second major contributor to the corpus of research on this subject, after Hungary. Figure 7 provides a complete geographic picture of the nation's top contributions to this field of study by visually representing the global distribution of academic production among the most important countries. With regard to the regional distribution of scholarly contributions, this depiction highlights the leading roles that the United States and Hungary have played in this field.

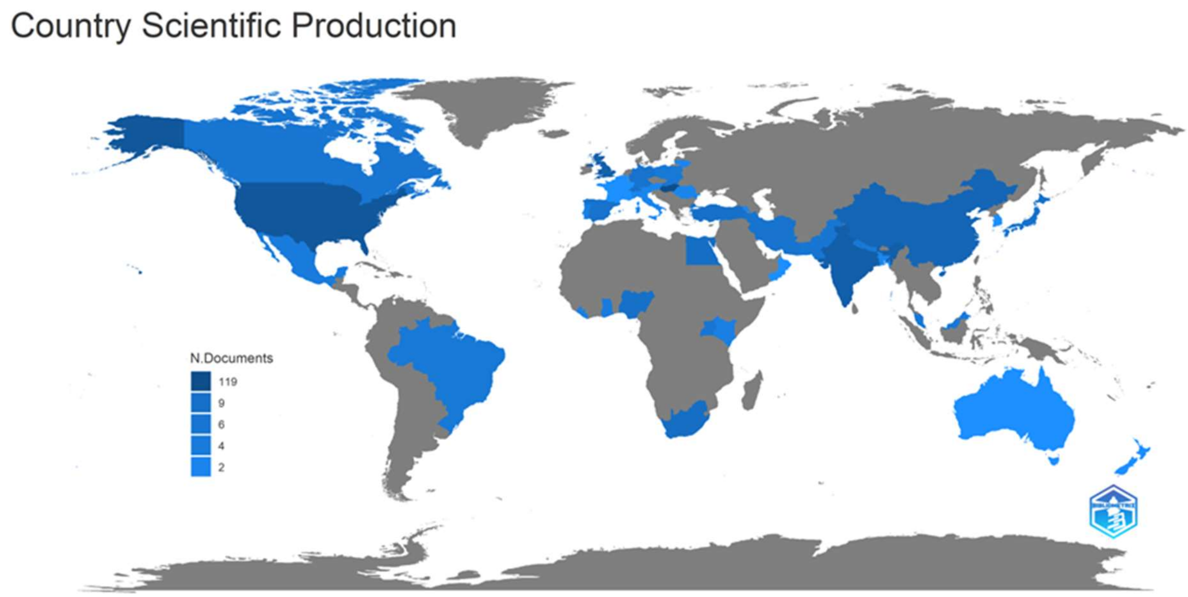


Figure 7: Country Scientific Production

4.4 DOCUMENTS

4.4.1 Word Cloud

The R program was used to do an analysis that looked at the frequency of keywords, the changing patterns in popular themes over time, and the relationships between the principal writers. These products were meant to provide researchers with an understanding of the historical development of research productivity related to the topic, establish author relationships based on their scholarly contributions, and pinpoint the most commonly used terms related to the topic. The word cloud curve in Figure 16 illustrates the words or phrases that have the greatest usage rates. This gives rise to a graphical depiction of the keywords that are most often used in the body of research that has been examined.This graphic helps to highlight and identify the major ideas or topics that are frequently discussed in academic publications pertaining to the topic of study.

Figure 8: Word cloud Graph

"Pandemic and Business supply" is a term that many writers use (see Fig. 8). Among the other frequently used phrases by the writers that surfaced in the word cloud were responder, lockdown, government, disturbance, stimulus, and cash.

4.5 CONCEPTUAL STRUCTURE

4.5.1 Network Approach (Co-occurrence Network)

A concept map is defined by Ertz (2018) as a word co-occurrence network, which is shown graphically in Figure 18. By analyzing the map's structural layout, this technique helps understand the knowledge components and cognitive structure related to a particular research subject (Kousis and Tjortjis, 2021). Every node in this network represents a semantic notion, and the size of the node indicates how common that specific concept is in the content that has been examined. The weight of each edge, which represents the degree of relationship between two concepts, is displayed through the edges or connections that connect nodes.It is possible to create clusters of terms and their relationships by mapping a study subject using word co-occurrence analysis, as shown in Figure 18. The words that are clustered together serve as thematic units, providing a visual depiction of the major ideas or themes that are present throughout the corpus of literature under analysis. This graphic makes it easier to see recurring themes and connections between different ideas or subjects related to the issue at hand.

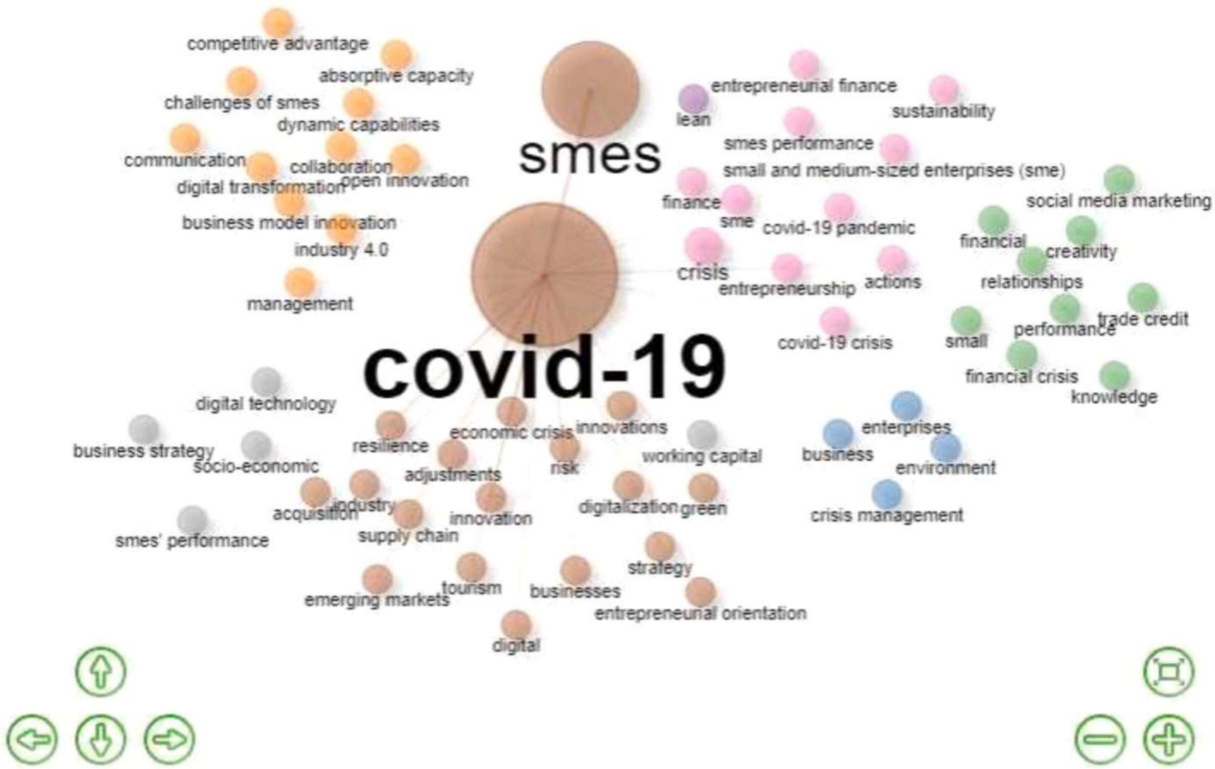


Figure 9: Co-occurrence Network

The co-occurrence network reveals that the most common co-occurring terms with different network relationships are the keywords (covid-19 andSMEs). For instance, there are connections between COVID-19 and resilience; SMEs also have connections to Covid 19, and other things. (Fig.9)

4.6 SOCIAL STRUCTURE

4.6.1 Collaboration World Map

This section explores a thorough analysis of papers that have been published on the topic in a variety of publications from across the world. Its objective is to examine the corpus of literature as a whole and track international cooperation and networking in the field of financial resilience in small and medium-sized enterprises (SME). This section attempts to shed light on the global participation and collaboration in tackling financial resilience in small and medium-sized enterprises (SME)-related issues by reviewing publications from various geographic regions and evaluating patterns of collaboration among academics and institutions.

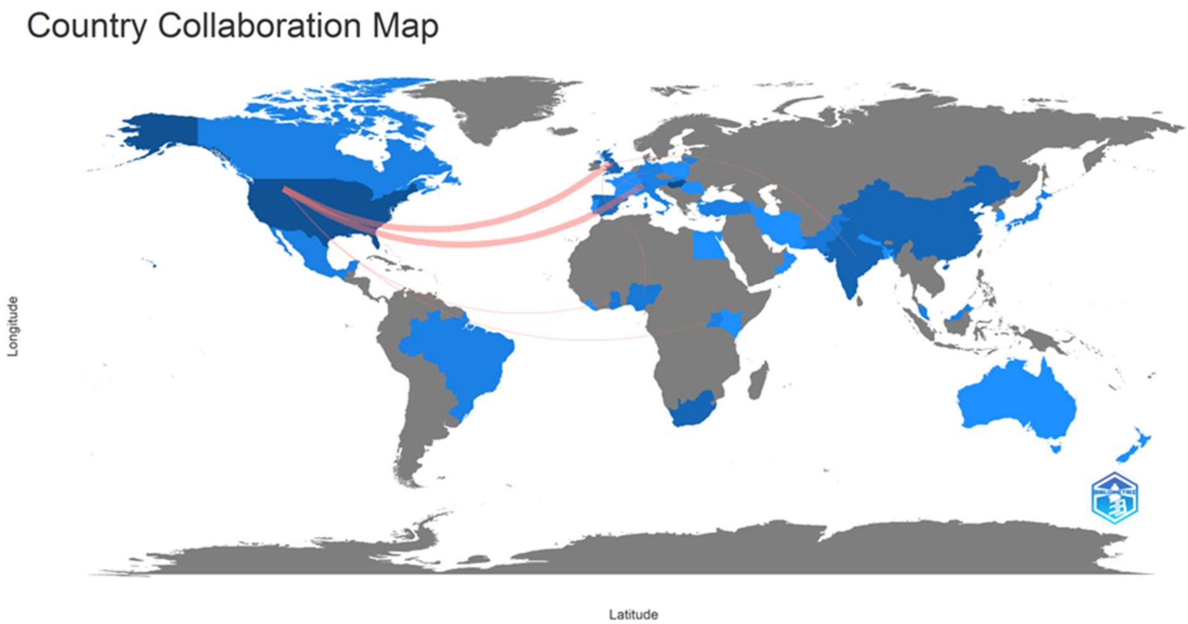


Figure 10: Country Collaboration Map

Figure 10 shows a graphic representation of the landscape of global collaboration. The map's blue hue denotes worldwide research relationships, emphasizing cases in which writers from several countries have worked together. Furthermore, the proximity and close collaboration among these writers are depicted by the pink ribbon that divides the states. Observing the patterns of cooperation between the countries that have generated a significant amount of literature on the topic is fascinating. Though the United States, Hungary, and the United Kingdom have noteworthy alliances that frequently span nations that are physically apart, this cooperative endeavor hasn't made much headway on the topic. On the other hand, these kinds of partnerships can promote market cooperation and policy interchange, which means that they have the potential to have wider effects and improve the subject of research.

5 DISCUSSIONS

A mix of thematic and bibliometric analysis was used to answer the research questions that were previously mentioned. A qualitative research technique called thematic analysis was used to identify, evaluate, and incorporate conclusions and ideas from literature reviews. It included delving into and researching a wide range of subjects that arose from the research questions. The study also took into account a number of other factors, including the larger context, sources, writers, texts, grouping, conceptual framework, and social structure. The goal of this all-encompassing strategy was to fully comprehend and analyze the overall research domain landscape.Additionally, a variety of criteria were carefully applied to thoroughly assess each of the previously mentioned categories by utilizing bibliometric analysis carried out with R Studio. This included evaluating parameters like annual scientific production, average citations annually, the importance of primary sources, and compliance with Bradford's law, among other important metrics. These analytical tools offered a comprehensive understanding of the scholarly landscape and the dynamics within the field of study.

According to the split of sources used in the research analysis, Scopus was the main source, providing 120 articles, or almost 67% of the total number of articles included in the study. Conversely, WoS produced 60 publications, or around 33 percent of all the papers that were included in the analysis. This distinction highlights the overwhelming dependence on Scopus, which accounts for a higher percentage of the examined articles than WoS.

Based on how methodologies and models were distributed between 2020 and 2023, descriptive research was the most often utilized approach to alleviate financial resilience in small and medium-sized enterprises (SME) both during and after the epidemic. Notably, the impact of the pandemic has showed a constant increase tendency from its commencement in 2019, as indicated in Figure 3. More specifically, during the post-pandemic era in 2022, the prevalence of descriptive research dropped sharply to 1.92 percent from 5.77 percent in 2020 to 15.38 percent in 2021. Subsequent investigation indicates that the percentage of research using logit models rose from 1.92 percent in 2020 to 13.46 percent in 2021 and then fell to 7.69 percent in 2022.The GMM model, which debuted in 2021 or 2022, isn't present in the most current data, though. Interestingly, the process of reviewing the material began in 2023. Furthermore, after being added in 2021, the multivariate regression model saw a spike that peaked in 2022 at 5.77 percent (Khalil et al., 2022).

The data related to many areas and their corresponding publication years are displayed in Figure 4. Seventy-seven percent of the studies that were published in 2020 came from Asia (one study), South America (one study), and the United States (two studies). With two publications on the topic of financial resilience within women-led Small and Medium Enterprises (SMEs), the United States emerged as the top contributor. Going ahead, with 12 publications in 2021—or 23.08 percent of all publications—the United States continued to dominate the field. Moreover, throughout this time, research on financial resilience within women-led Small and Medium Enterprises (SMEs) was influenced by Asia (7.69 percent), South America (5.77 percent), Africa (3.85 percent), and the Middle East (1.92%).In the post-pandemic period of 2022, this pattern continued, with the United States maintaining a prominent position alongside new contributors like Australia and Latin America. The prevalent focus on financial resilience in women-led Small and Medium Enterprises (SMEs) is a result of researchers investigating the worldwide influence of Covid-19 on this crucial matter. In addition, post-pandemic study on the financial resilience of women-led SMEs first appeared in 2023 and came from the United States. This shows that, in the context of the changing environment after the epidemic, there has been a persistent interest in and inquiry of this topic.

6 CONCLUSION

Using a variety of analytical techniques, we examined the literature on financial resilience in small and medium-sized enterprises (SME) from 2020 to 2023 in the WoS and Scopus databases. Our aim was to provide a comprehensive overview of the development of financial resilience in women-led Small and Medium Enterprises (SMEs) by outlining the main study groups, participating countries, and the relationships between research subjects. At the same time, we examined individual papers and the research of the primary writers in order to obtain a microcosmic perspective on the topic's development. This study aims to give scholars a comprehensive reference that will facilitate their understanding of the most recent findings about financial resilience in women-led SMEs. By clarifying recent studies and projected research trends, we also hope to help scholars carry out more thorough study. As a result of our research, we have learned the following observations:

The number of articles discussing financial resilience within women-led SMEs fluctuated slightly throughout the course of the pandemic and the post-pandemic years, but generally the trend remained upward. Specifically, the years 2021–2022 were a time of great activity in this field, with a significant increase in publications. The number of publications published on financial resilience inside women-led SMEs was far higher in the United States than in any other country, making it clear that this country was the main source. While Asia's leading nations—India, Malaysia, and Bangladesh—made significant contributions, North and Central Asia and Central Africa produced relatively little study in this field. This scarcity of publications suggests that there may not be enough study being done in these areas on the financial resilience of women-owned small and medium-sized enterprises.

From a collaborative perspective, important research groups have emerged between authors and countries, defining four key author groups and five large nation-based organizations. Nevertheless, there is currently a lack of adequate international collaboration and data interchange, which results in duplication of research efforts. Building stronger national partnerships is essential to creating a stronger base for research in this area. Important studies on the financial resilience of women-led SMEs were published around 2021; these studies mostly appeared in respected international publications like WoS and Scopus. The topic of financial resilience in women-led SMEs has received a lot of interest both domestically and internationally, particularly in Asia and Africa. When talking about financial resilience in women-led SMEs, important subjects to cover include gender, poverty, SMEs, Covid-19, climate change, and sustainability.

Studies on the financial resilience of women-led SMEs have recently moved from focusing on Covid-19 and SMEs to issues like self-resilience, entrepreneurship, sustainable development, and poverty alleviation. Significantly, there is a lack of previous study on women-led SMEs' financial resilience with an emphasis on sustainability, pointing to a research need. Evaluation of women-led SMEs' regional financial resilience is a continuous process that evolves as the social and economic environment does. Continuous monitoring and periodic assessments are crucial to fully comprehend the issues preventing financial resilience inside women-led SMEs, particularly during and after the pandemic phase. The variables influencing financial resilience inside women-led SMEs at various points in time will be studied with the use of these assessments.

Recent years have witnessed a significant progress and evolution in the field of research on financial resilience within women-led SMEs, indicating increased availability, variety, sustainability, and efficacy in this area. The development and advancement of research in this area is credited with this progress. The field of environmental science, demography, sociology, and other disciplines has come together to study financial resilience in women-led SMEs. Consequently, conducting research in this field necessitates a comprehensive approach due to the interdisciplinary nature of its research fields. This interdisciplinary approach is fostering the

gradual development of theoretical foundations and standards within this sector, which were previously lacking, particularly in addressing ecological, economic, and social aspects.
Research from basic science to technical science has to be expanded in order to enhance the study of financial resilience inside women-led SMEs. In order to achieve more integrated and significant results, future research should focus on examining the relationships and alignments between the economy, environment, and society. It should also take use of technical improvements and efficient policy management. This widened emphasis will help women-led SMEs understand and use financial resilience in a more comprehensive way.

REFERENCES

Aassouli, D., and Ahmed, H. (2023). Supporting SMEs Financial Resilience during Crises: A Framework to Evaluate the Effectiveness of Financial Literacy Programs Targeting SMEs. Malaysian Journal of Economic Studies, 60(1), 105-121.
Abuhussein, T., Barham, H., and Al-Jaghoub, S. (2023). The effects of COVID-19 on small and medium-sized enterprises: Empirical evidence from Jordan. Journal of Enterprising Communities: People and Places in the Global Economy, 17(2), 334-357.
Anggadwita, G., Permatasari, A., Alamanda, D. T., and Profityo, W. B. (2023). Exploring women's initiatives for family business resilience during the COVID-19 pandemic. Journal of Family Business Management, 13(3), 714-736.
Aria, M., and 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
Arimany-Serrat, N., Farreras-Noguer, M. À., and Coenders, G. (2023). Financial resilience of Spanish wineries during the COVID-19 lockdown. International Journal of Wine Business Research, 35(2), 346-364.
Azeem, N., Ullah, M., and Ullah, F. (2023). Board gender diversity and firms' financial resilience during the Covid-19 pandemic. Finance Research Letters, 58, 104332.
Aziz, A., Iqbal, J., Murtza, M. H., Gill, S. A., and Cheema, I. Y. (2022). Effect of COVID-19 pandemic on women entrepreneurial sustainability: the role of Islamic microfinance institutions. Journal of Economic and Administrative Sciences.
Babatunde, K. A., Rawshan Ara Begum, and Said, F. F. (2017). Application of computable general equilibrium (CGE) to climate change mitigation policy : A systematic review. Renewable and Sustainable Energy Reviews, 78(August 2016), 61–71. https://doi.org/10.1016/j.rser.2017.04.064
Chhatwani, M., Mishra, S. K., Varma, A., and Rai, H. (2022). Psychological resilience and business survival chances: A study of small firms in the USA during COVID-19. Journal of Business Research, 142, 277-286.
Dewi, L. G. K., Sinarwati, N. K., and Oktariyana, M. D. (2021). Young Entrepreneur's Financial Resilience Strategies During Pandemic. In 6th International Conference on Tourism, Economics, Accounting, Management, and Social Science (TEAMS 2021) (pp. 110-118). Atlantis Press.
Di Stefano, C., and Fratocchi, L. (2022). Covid-19 Pandemic and Women-Led Companies: An Exploratory Study of the Italian Context. In Organizational Resilience and Female

Entrepreneurship During Crises: Emerging Evidence and Future Agenda (pp. 111-121). Cham: Springer International Publishing.

Ertz, M. (2018). Sustainability in the collaborative economy : A bibliometric analysis reveals emerging interest. 196. https://doi.org/10.1016/j.jclepro.2018.06.095

Forson, J. A., Gadzo, S. G., Anaman, E. A., and Adams, A. (2022). Online sales adoption and financial resilience in Sub-Sahara Africa: the moderating role of ownership and enterprise size during Covid-19 crisis. Future Business Journal, 8(1), 42.

Hadjielias, E., Christofi, M., and Tarba, S. (2022). Contextualizing small business resilience during the COVID-19 pandemic: evidence from small business owner-managers. Small Business Economics, 59(4), 1351-1380.

Islam, A., Rahman, A., and Nisat, R. (2020). The impact of COVID-19 pandemic on small and medium enterprises in Bangladesh.

Kaberia, S. K., and Muathe, S. (2021). Effect of Covid-19 pandemic on performance of women owned micro, small and medium enterprises in Kenya. Int'l J. Soc. Sci. Stud., 9, 7.

Khalil, A., Abdelli, M. E. A., and Mogaji, E. (2022). Do digital technologies influence the relationship between the COVID-19 crisis and SMEs' resilience in developing countries?. Journal of Open Innovation: Technology, Market, and Complexity, 8(2), 100.

Laurenti, R., Singh, J., Cotrim, J. M., Toni, M., and Sinha, R. (2019). Characterizing the Sharing Economy State of the Research : A Systematic Map. Sustainability (Switzerland), 1–21.

Liñares-Zegarra, J. M., and Wilson, J. O. (2023). Navigating uncertainty: The resilience of third-sector organizations and socially oriented small-and medium-sized enterprises during the COVID-19 pandemic. Financial Accountability and Management.

Linnenluecke, M. K., and Marrone, M. (2020). Conducting systematic literature reviews and bibliometric analyses. August 2019. https://doi.org/10.1177/0312896219877678

Mahadi, N. F. (2023). Financial Resilience and Financial Education among Malaysi-an Women Small and Micro Business-Owners: Lessons beyond the Covid-19 Crisis. Al-Hikmah: International Journal Of Islamic Studies And Human Sciences, 6(2), 1-16.

Matharu, S. K., and Juneja, D. (2021). Factors impacting resilience of women entrepreneurs in India in the face of COVID-19. Vision, 09722629211043299.

Muhammad, S., Ximei, K., Haq, Z. U., Ali, I., and Beutell, N. (2022). COVID-19 pandemic, a blessing or a curse for sales? A study of women entrepreneurs from Khyber Pakhtunkhwa community. Journal of Enterprising Communities: People and Places in the Global Economy, 16(6), 967-987.

Nordhagen, S., Igbeka, U., Rowlands, H., Shine, R. S., Heneghan, E., and Tench, J. (2021). COVID-19 and small enterprises in the food supply chain: Early impacts and implications for longer-term food system resilience in low-and middle-income countries. World Development, 141, 105405.

Onoshakpor, C., Etuknwa, A., and Karamalla-Gaiballa, N. (2020). Strategic Flexibility And Organizational Resilience Of Women Entrepreneurs'in Africa During The Covid-19 Pandemic. Research journal of business and management, 7(4), 277-287.

Puspitarini, I. A. M. D., and Setiawina, N. D. (2022). Resilience of micro, small and medium enterprises (MSMEs) through the COVID-19 pandemic. International Journal of Business, Economics and Management, 5(2), 86-91.

Secinaro, S., Brescia, V., Calandra, D., and Biancone, P. (2020). Employing bibliometric analysis to identify suitable business models for electric cars. Journal of Cleaner Production, 264, 121503. https://doi.org/10.1016/j.jclepro.2020.121503

Suminah, S., Suwarto, S., Sugihardjo, S., Anantanyu, S., and Padmaningrum, D. (2022). Determinants of micro, small, and medium-scale enterprise performers' income during the Covid-19 pandemic era. Heliyon, 8(7).

Surya, S. (2022). Business Disruptions, Financial Fragility and Resilience Strategy: Exploration of Impact of The Covid-19 on Micro, Small and Medium Entreprises. Jurnal Akuntansi, Manajemen dan Ekonomi, 23(3), 46-55.

Tambunan, T. (2022). Factors influencing the resilience of mses to the covid-19 pandemic crisis in indonesia. Journal of Management and Science, 12(4), 92-103.

Taneo, S. Y. M., Noya, S., Agustina, M., Nirwanaa, A., and Adriana, E. (2022). The Resilience of Some Types of Micro, Small and Medium Enterprises to the Covid-19 Pandemic: Case in Malang Regency. Sustainable Competitive Advantage (SCA), 11(1).

Vasilica, I., Silva, R. U. I., Costa, P., Figueira, B., and Vaz, L. (2022). Original Article Football refereeing : a systematic review and literature mapping. 22(2), 388–401. https://doi.org/10.7752/jpes.2022.02049 neswfne.

Yadav, U. S., Sood, K., Tripathi, R., Grima, S., and Tripathi, M. A. (2023). An Analysis of the Impact on India's Sustainable Development Resulting from Women in Small Enterprises' Fin-Tech and Financial Awareness During COVID-19 Using The (UTAUT) Model. In Digital Transformation, Strategic Resilience, Cyber Security and Risk Management (Vol. 111, pp. 71-85). Emerald Publishing Limited.