



BIBLIOMETRIC ANALYSIS ON WOMEN ENTREPRENEURSHIP IN THE MSME SECTOR

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ABSTRACT

The increasing focus on women's entrepreneurship within the Micro, Small, and Medium Enterprises (MSME) sector stems from an enhanced acknowledgment of women's vital contribution to economic development. The rising interest among scholars in women's entrepreneurship within the MSME sector requires an enhanced comprehension of pertinent issues and the development of collaborative networks to advance research through multidisciplinary approaches. A bibliometric analysis was conducted to uncover significant patterns and subjects by analyzing key papers, countries, authors, and keywords. This study broadened its scope to encompass scientific mapping with VOSviewer and Biblioshiny, alongside the Scopus database, to provide a comprehensive overview of research trends. The statistics indicate a continuous increase in the total number of articles from 2017 to 2023. Researchers from Indonesia, the United Kingdom, and the United States significantly advanced the study of women's entrepreneurship in the MSME sector. The statistical analysis demonstrates a significant correlation among female entrepreneurship, micro, small, and medium enterprises (MSMEs), gender, and financial literacy. This study conducted analysis including co-citation, authors' keywords, corresponding nations of authors, and co-occurrence of all keywords. Future scholars examining women's entrepreneurship in the MSME sector will be able to effectively focus their research utilizing the findings articulated in this paper.

INTRODUCTION

Women's entrepreneurship in the MSME sector is a crucial element for both economic development and gender equality. It enhances women's financial power, creates employment opportunities, fosters innovation, and promotes overall social and economic development. Despite ongoing challenges, several programs and support initiatives are accessible to aid female entrepreneurs in surmounting obstacles and achieving success in this sector. In the intricate landscape of the MSME sector, female entrepreneurs have emerged as exemplars of resilience, creativity, and remarkable achievements. Notwithstanding their diminutive scale, these firms exemplify remarkable tenacity and determination. These enterprises encompass diverse characters within this imaginary realm, spanning handmade goods, agricultural ventures, technology firms, and service providers. The narrative of female entrepreneurship in the MSME sector extends beyond the boundaries of commerce. It is a discourse about empowerment, gender parity, and economic advancement. It interweaves human ambition, societal transformation, and economic advancement to form a dynamic tapestry that resonates throughout society.

The participation of women in the MSME sector has recently attracted heightened interest from scholars. Therefore, the pertinent papers must be examined employing dependable analytical techniques. There are little bibliometric evaluations on this subject despite the heightened interest. Bibliometric analysis refers to the statistical examination of publishing bibliographic data utilizing various approaches and technologies. Technological tools are commonly employed in bibliometric methodologies to assess and comprehend both quantitative and qualitative data derived from bibliographic records, in addition to generating relevant visualizations. Academics employ bibliometric assessment for several purposes, including identifying trends in research publications and analyzing publication productivity, author collaboration patterns, and study characteristics. They utilize it to analyze the foundational aspects of a specific domain in the ongoing research (Donthu et al, 2021). This study aims to create a graphical representation of bibliometric data pertaining to women entrepreneurship in the MSME sector, utilizing the Scopus database, Biblioshiny, and the VOSviewer tool. The structure of this article is outlined below. Section 2 presents a relevant literature review on women entrepreneurs within the MSME sector. Section 3 delineates the plan, which integrates data collection and a search methodology. Section 4 presents the data analysis and visual representation. Section 5 presents conclusions, challenges, and recommendations for future research.



REVIEW OF LITERATURE

There are several studies were made to investigate the area of women entrepreneurship in the MSME sector. Bekele and Worku (2008) emphasize how critical it is to address gender gaps, expand financing options, strengthen capacity-building initiatives, and create an atmosphere that supports women entrepreneurs. In order for women entrepreneurs to be empowered and contribute to Ethiopia's economic growth, government policies, private sector involvement, and civil society initiatives are all essential. Anurag et al. (2022) studied the importance of innovation in women's entrepreneurship in MSMEs and revealed that women's role in innovation has been underrecognized. The study also examines women's roles in Indian MSMEs and their challenges and recommends several policies and suggestions for their improvement. Shivakami and Sunita (2020) discover how the perceived success of women entrepreneurs' businesses has a big impact on their entrepreneurial ability by looking at the variables of women's entrepreneurial ability that affect the successful performance of women entrepreneurs in MSMEs in Karnataka State, India. Amrita et al (2022) gave a comprehensive framework for making decisions that would speed up women entrepreneurship growth in Indian MSMEs. The study found that the top three types of hurdles to female entrepreneurship development in India are personal and familial, infrastructural, and regulatory and legal. Rani and Sundaram (2023) examined the effects of financial inclusion on the operation of women-owned microbusinesses in Vellore, Tamil Nadu. According to the study, financial inclusion has a favorable and considerable impact on how well women-owned businesses operate. Hamdani et al (2023) looked at how gender stereotype perceptions, perceived social support, and self-efficacy relate to women's entrepreneurial intentions in Batik micro, small, and medium enterprises (MSMEs) in West Java, Indonesia. It finds that these factors have a positive and significant impact on self-efficacy, which in turn affects how well the MSMEs perform. Singh et al (2022) highlighted the need to address gender disparities, promote technology adoption, and foster innovation in Indian MSMEs. Future research should focus on reducing barriers, improving access to resources, and creating an inclusive environment. Rajan and Panicker (2020) investigate the elements of women's entrepreneurial aptitude that influence their successful operations in MSMEs in the Indian state of Karnataka. The research backs up the claim that women entrepreneurs' perceived company performance has a big impact on their capacity to start their firms.

METHODOLOGY

This article examined the framework and fundamental principles of women's entrepreneurship within the MSME sector through a bibliometric analytic approach. Academicians perform bibliometric analysis for several purposes, including evaluating research impact, detecting research trends, conducting benchmarking and competitor analysis, assessing quality, quantifying research productivity, and facilitating data-driven decision-making. The quantity of citations aids the researcher in identifying significant publications and research trends that are beneficial for conducting literature reviews or understanding the principal contributions in the area of interest. Researchers can assess the impact and significance of their work through citation analysis. The quality and dependability of a research paper can be deduced from the number and source of its citations. A bibliometric study is essential since it offers significant quantitative insights; nevertheless, it should be utilized alongside qualitative evaluations to deliver a more holistic perspective on research quality and impact.

DATA COLLECTION AND SEARCH STRATEGY

The Scopus data collection was selected for the current study because it has the greatest number of thorough, peer-reviewed studies on the subject topic. In a series of tests, the keywords "female entrepreneurship" OR "women entrepreneurship" AND "MSME" were used to discover articles related to women's entrepreneurship in the MSME sector. The Scopus database was used for the data extraction, which was done on October 10, 2023. With coverage that is more than 60% larger than other databases, Scopus has grown to be one of the most popular and widely utilized compared to WOS (Zhao and Strotmann, 2015.). The selected data is downloaded in CSV file format and exported into the VOS viewer and Biblioshiny, an R software tool. Biblioshiny is an online data analysis platform that reads fundamental bibliometric codes. Similarly, VOS viewer is another bibliometric analysis software that gives us bibliometric results in colorful images by reading the exported file. Figure 1 shows the flow chart with search query strings that were used for this study.

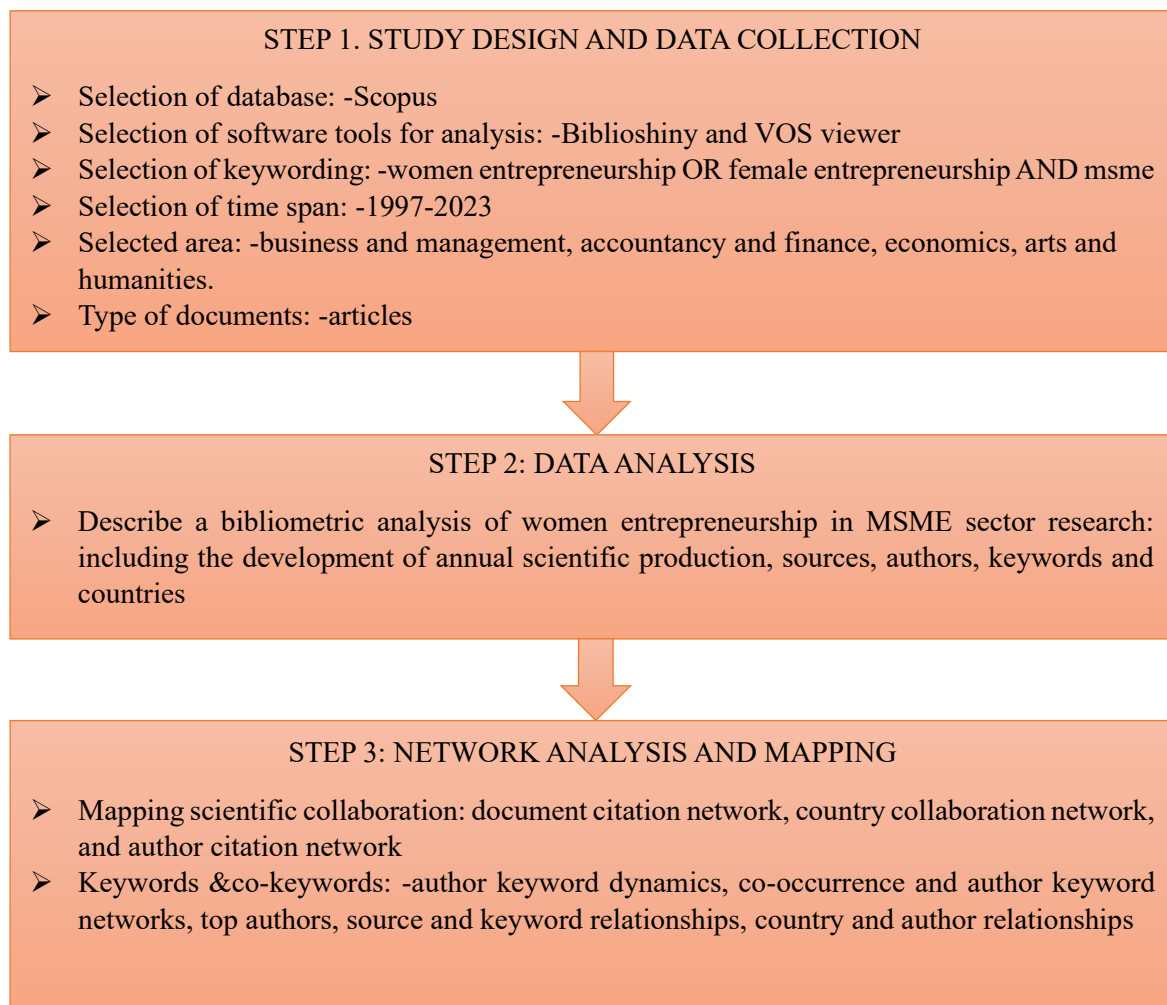


Figure 1 Flow Chart of Search Query Strings

DATA ANALYSIS AND VISUALISATION

There were 622 different studies on the defined subject in the Scopus dataset, with a total of 198 authors. There are a large number of articles indicating that women entrepreneurs in MSME sector publications are the outcome of coordinated research efforts.

Annual Scientific Production of Documents

Figure 2 shows the annual scientific production of documents related to women entrepreneurs in the MSME sector from the Scopus database, spanning 1997 to 2023. From 1997 to 2014, scientific production remained low and stable, with sporadic contributions indicating minimal academic focus on the subject.

A significant rise in research production has been noted since approximately 2015, aligning with the increasing interest in and recognition of the importance of female entrepreneurs in the MSME sector. The significant rise in publications commencing in 2017 and persisting at elevated levels until 2023 indicates heightened scholarly engagement. This rise is likely attributable to global initiatives for gender equality, pro-gender legislation, and the increasing acknowledgment of the accomplishments of female entrepreneurs. The results indicated that scholarly interest in this subject has increased since 1997.

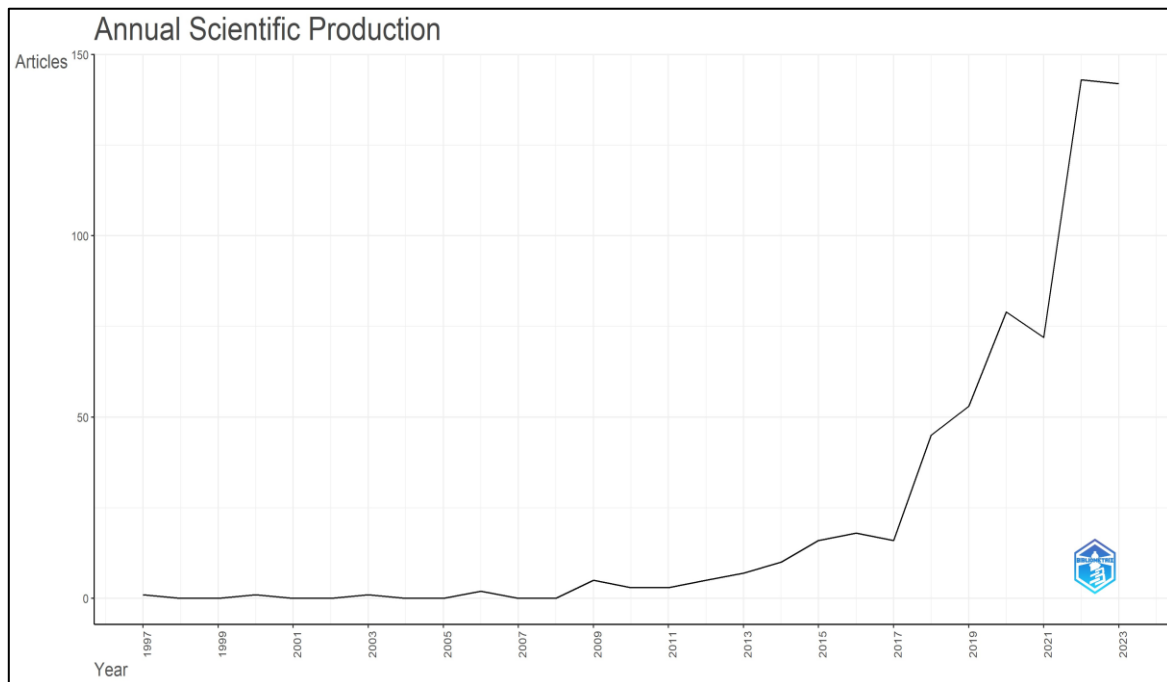


Figure 2 Annual Scientific Production of Documents

Most Global Cited Documents

The figure 3 illustrates the top ten globally cited documents in the selected research area. The document authored by Ahl, H. (2006) is the most notable one in the figure, with a total of 1224 citations. Fairlie, R.W. (2009) comes in second with 435 citations, followed by Verheul, I. (2006) in third place with 371 citations. Hughes, K.D. (2012) has 335 citations and is ranked fourth.

The outcome shows the trend of women entrepreneurship in MSME sector research works. The analysis also highlights the importance of Ahl's work in this field by highlighting the significance and quality of publications.

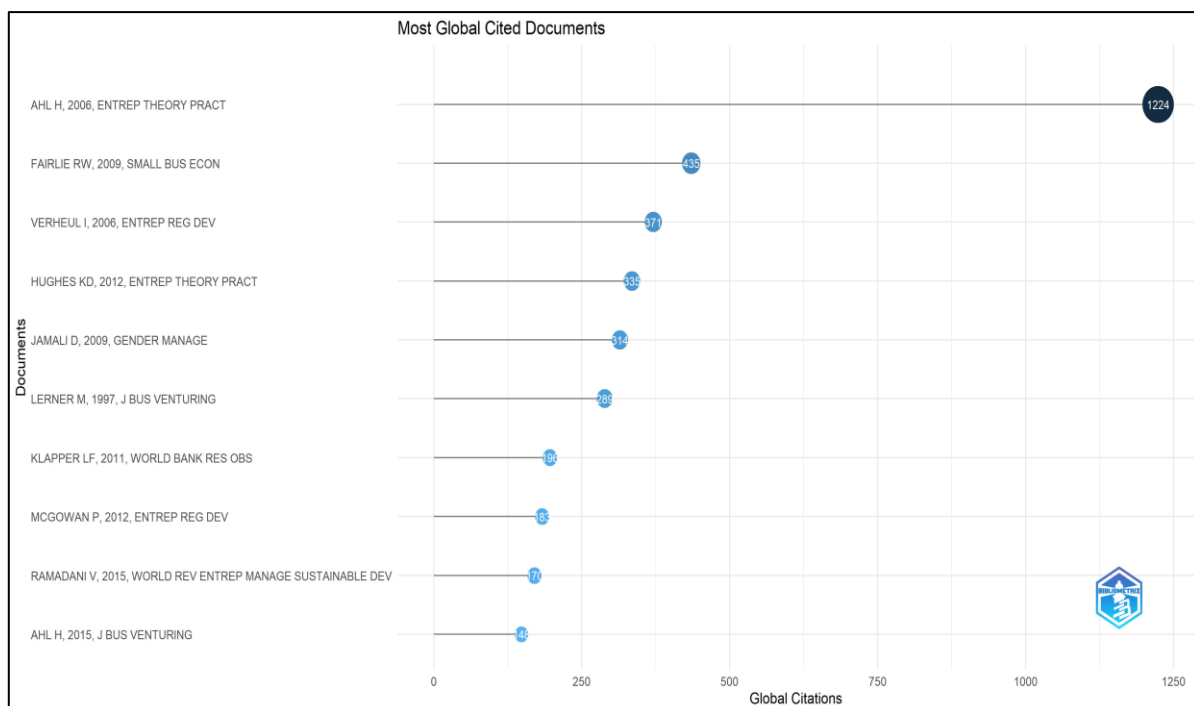


Figure 3 Top 10 Global Cited Documents

Corresponding Author's Countries

Figure 4 illustrates the leading nations of the author, quantified by their share of total publications attributed to associated authors, categorized by collaboration type: Single Country Publications (SCP) and Multiple Country Publications (MCP). Indonesia leads with the highest number of papers (82), predominantly SCPs, followed by the USA (34) and the UK (81), all of which own a considerable quantity of MCPs alongside SCPs. India, Spain, and Sweden are notable nations, indicating significant worldwide interest and collaboration in the field of study. The data reveals that some nations, including India and Indonesia, primarily contribute via SCPs, while others such as the USA and the UK exhibit considerable international cooperation through MCPs. This distinction highlights the variations in research collaboration patterns, suggesting that certain countries could enhance the impact and reach of their research through increased international partnerships..

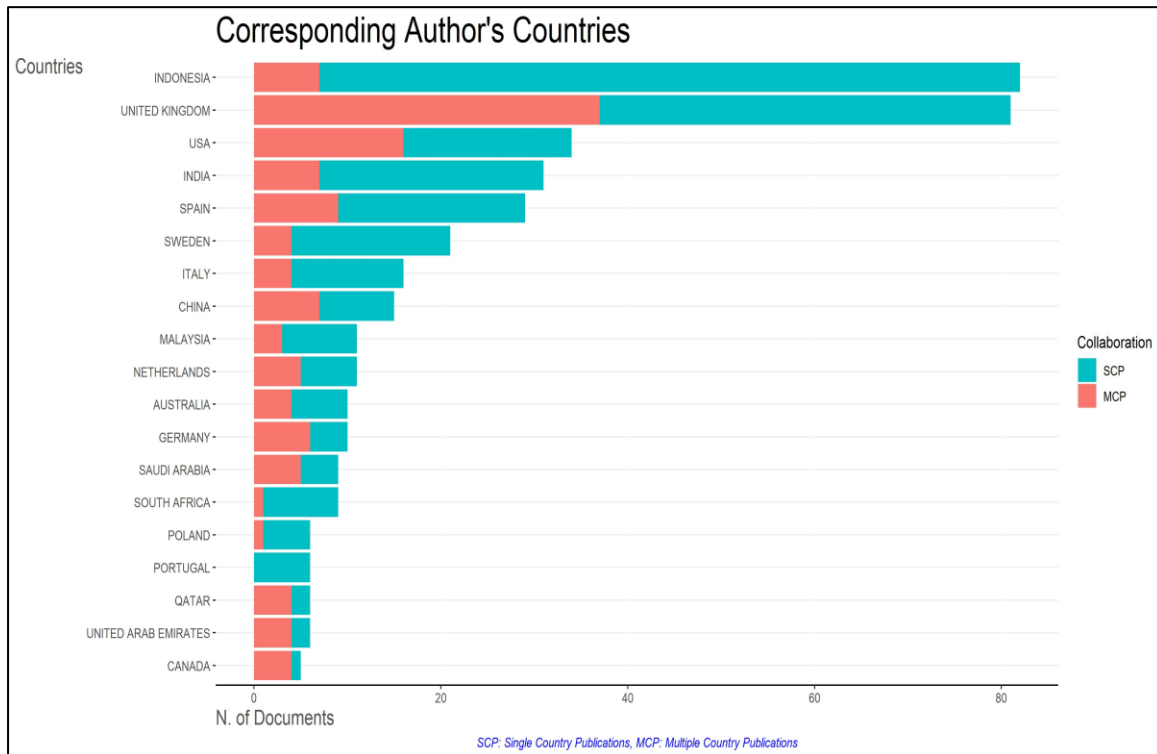


Figure 4 Corresponding author's countries

Co-Citation of Authors

Figure 5 depicts the visualization of the authors' co-citation network within the selected area of study, emphasizing influential figures and their cooperative connections. The network contains five clusters with a total link strength of 52,700, each of which is represented by a different color. Visualization enhances the understanding of the patterns of interconnection and collaboration among scholars. Co-citation network analysis sheds light on the state of the field by identifying foundational authors and works that are regularly cited alongside one another. These researchers appear to be very collaborative and influential to one another based on the strong co-citation linkages. Table 1 shows the top 10 co-cited authors based on the number of citations, with 532 citations, Welter, F. has the highest citation network, demonstrating their significant recognition and influence in the field. The next three most cited authors are Brush, C.G. (462 citations), Ahl, H. (354 citations), and Marlow, S. (365 citations), who are significant contributors in their respective fields. Minniti, M. (300 citations) and Carter, S. (280 citations) are two other significant authors

Rank	Author	Citations
1	Welter, F.	532
2	Brush, C.G.	462
3	Marlow, S.	365
4	Ahl, H.	354

5	Minniti, M.	300
6	Carter, S.	280
7	Hair, F.	270
8	Shepherd, D.A.	250
9	Ratten, V.	240
10	Urbano, D.	220

Table 1 Co-citation of authors

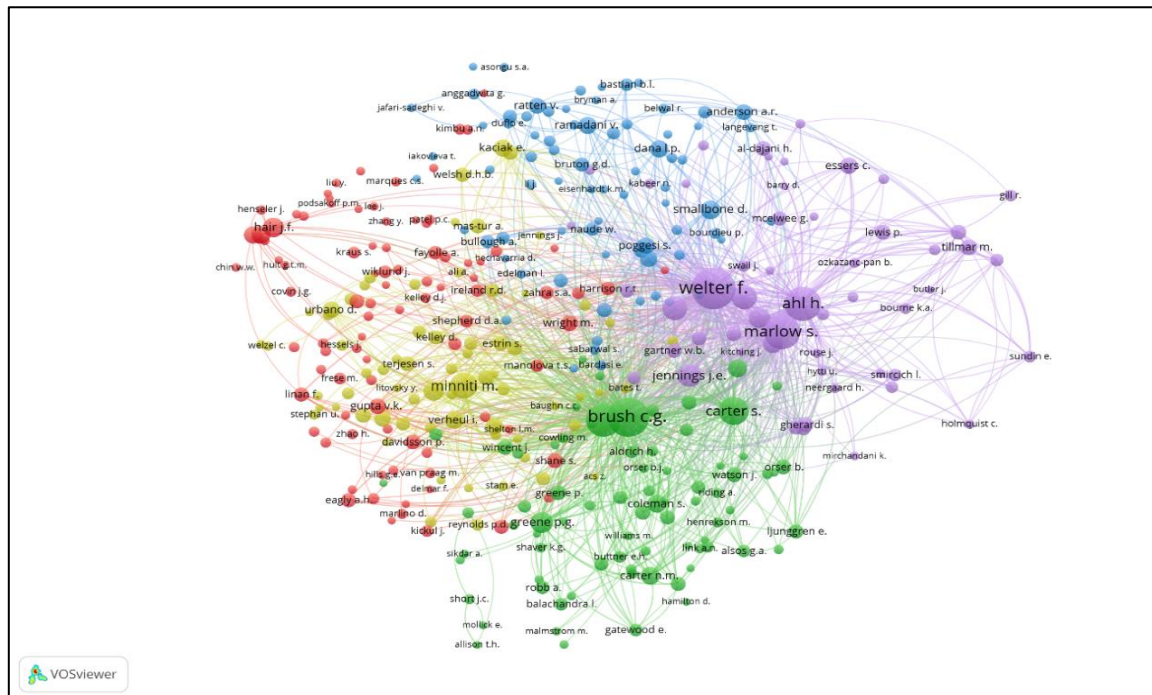


Figure 5 Co-Citation of Authors

Bibliographic Coupling of articles

The visualization network illustrates the bibliometric connections of co-cited publications by presenting the frequency of their co-citations. This analysis elucidates contemporary trends and research goals by highlighting notable publications and leading experts in the field. This type of understanding is crucial for identifying significant research and potential collaborators. Figure 6 illustrates the detected 21 clusters of articles, exhibiting a total link strength of 8382. Table 2 presents the five foremost items of bibliographic coupling according to total link strength.

Ahl's (2006) paper, "Why Research on Women Entrepreneurs Needs New Direction," published in "Entrepreneurship: Theory and Practice," is highly mentioned, with 224 citations from other sources. The essay is of considerable importance and is extensively cited by other scholars in the discipline. The subsequent highly referenced paper is by Fairlie R.W. and Robb A.M. (2009) published in the journal Small Business Economics, entitled "Gender Differences in Business Owners Survey," which has garnered 435 citations.

Rank	Author(s)	Title	Citations
1	Ahl, H.	Why research on women entrepreneurs needs new direction	224
2	Fairlie, R.W., Robb, A.M.	Gender differences in business owners survey	435
3	McGowan, P., Redeker, C.L.	Entrepreneurial education and university start-ups	200
4	Langvang, T., Gough, K.V.	Urban entrepreneurs: Views from the developing world	180
5	Liguori, E.W., Pittz, T.G.	Context matters: The importance of field research	170

Table 2 Top 5 Articles of bibliographic coupling based on total link strength

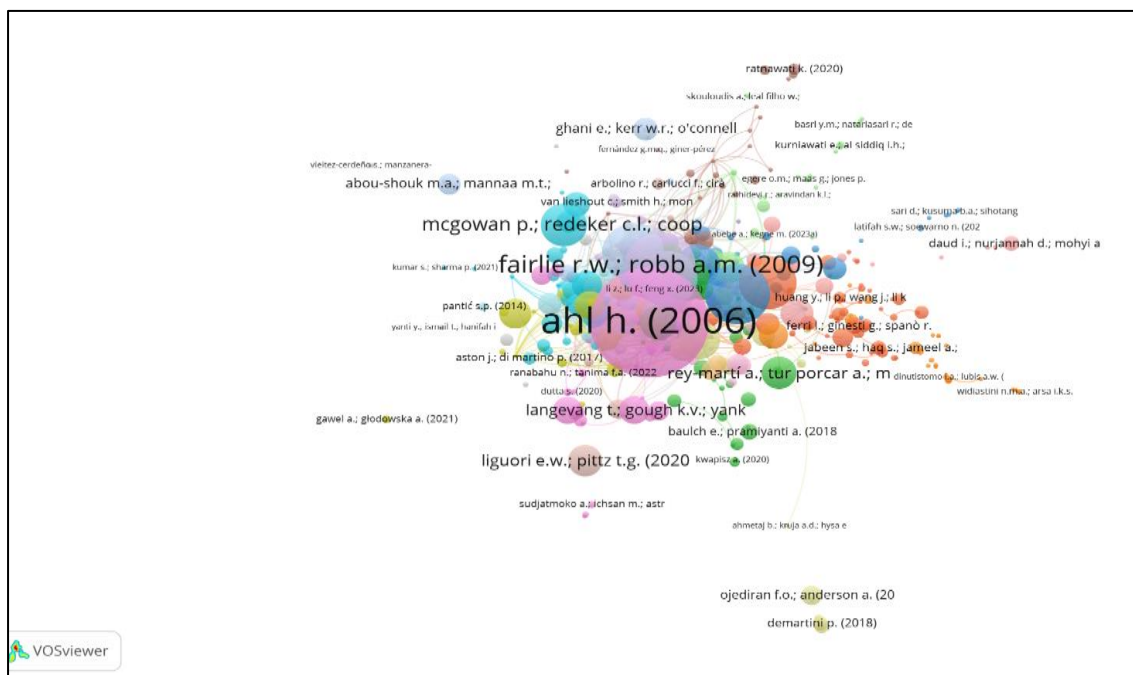


Figure 6 Bibliographic coupling of articles

Bibliographic Coupling of Countries

In the figure, 45 countries are shown based on their bibliometric connections, forming a comprehensive network. The countries with the highest total link strength are visualized after the total strength of bibliographic coupling links with other countries is determined for each of these countries. The network consists of 8 clusters with a total link strength of 840 links. The size of the nodes represents the number of articles published in each nation.

Table 3 shows the top 5 countries of bibliographic coupling. The United States, Indonesia, India, and the United Kingdom are the 5 most prominent countries of bibliographic coupling analysis, based on their total link strength, suggesting a substantial number of publications and strong bibliographic coupling in these regions. This analysis draws attention to these countries' collaborative characteristics and research influence in the field of study, showing their vital roles in promoting international collaboration and furthering research.

Rank	Country
1	United Kingdom
2	United States
3	Indonesia
4	India
5	Spain

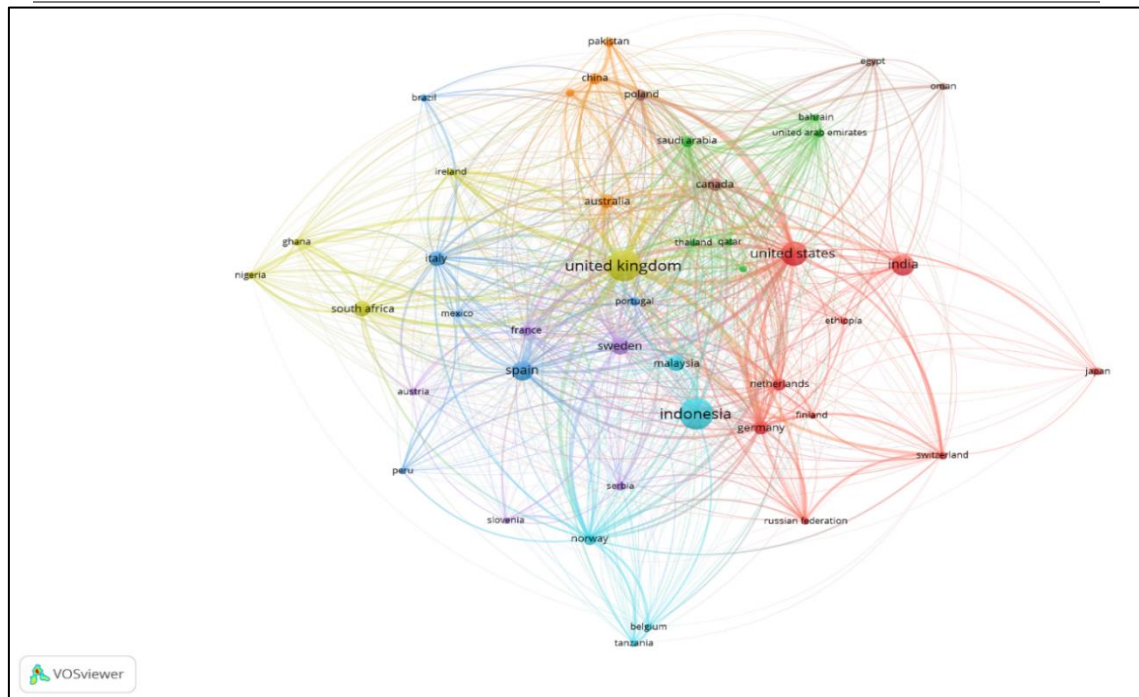


Table 3 Top 5 Countries of bibliographic coupling

Figure 7 Bibliographic Coupling of Countries

Co-occurrence of Author’s Keywords

In order to fully understand the prevalent keywords in use for women's entrepreneurship in the MSME sector at the time of doing this bibliometric research, the following analysis based on the co-occurrence of the author's keywords was employed. The total strength of the co-occurrence linkages between each of the 67 keywords is computed, and the keywords with the highest total link strength are identified. Figure 8 shows the network of co-occurrence of keywords with seven clusters each represented with a different color.

Table 4 shows that with 105 citations, "Female entrepreneurship" is the most used keyword, highlighting the significance of the literature on women's entrepreneurship in MSMEs. "Women entrepreneurship" and "Gender" come in second and third, respectively, with 82 and 73 instances, showing a significant interest in gender dynamics in entrepreneurship. Other noteworthy terms that highlight the significance of these businesses and specific female entrepreneurs include "MSME" and "Women entrepreneurs" (34 times each). The discourse on women's entrepreneurship in MSMEs is further characterized by keywords such as "Innovation" (24 occurrences), "Financial inclusion" (10 occurrences), "MSME performance" (7 occurrences), "Business performance" (6 occurrences), and "Financial literacy" (5 occurrences).

An overlay depiction of all keyword co-occurrences is shown in Figure 9. It resembles network visualization in certain ways. The colors range from lighter tints of blue to darker ones like green or yellow (Gillani et al., 2022). Figure 1 demonstrates that research on women's status, empowerment, gender, entrepreneurship, and gender issues was prioritized prior to 2020. Studies focused on MSME performance, MSME innovation, female

entrepreneurship, COVID-19, Indonesia, and MSME beyond 2020. In conclusion, entrepreneurship, women's entrepreneurship, female entrepreneurship, and empowerment were the most popular and often used phrases throughout the past five years, with all other keywords being related to one another.

Rank	Keywords	Occurrences
1	Female entrepreneurship	105
2	Gender	82
3	Women entrepreneurship	73
4	MSME	34
5	Women entrepreneurs	34
6	Innovation	24
7	Financial inclusion	10
8	MSME performance	7
9	Business performance	6
10	Financial literacy	5

Table 4 Top 10 author keywords of co-occurrence analysis

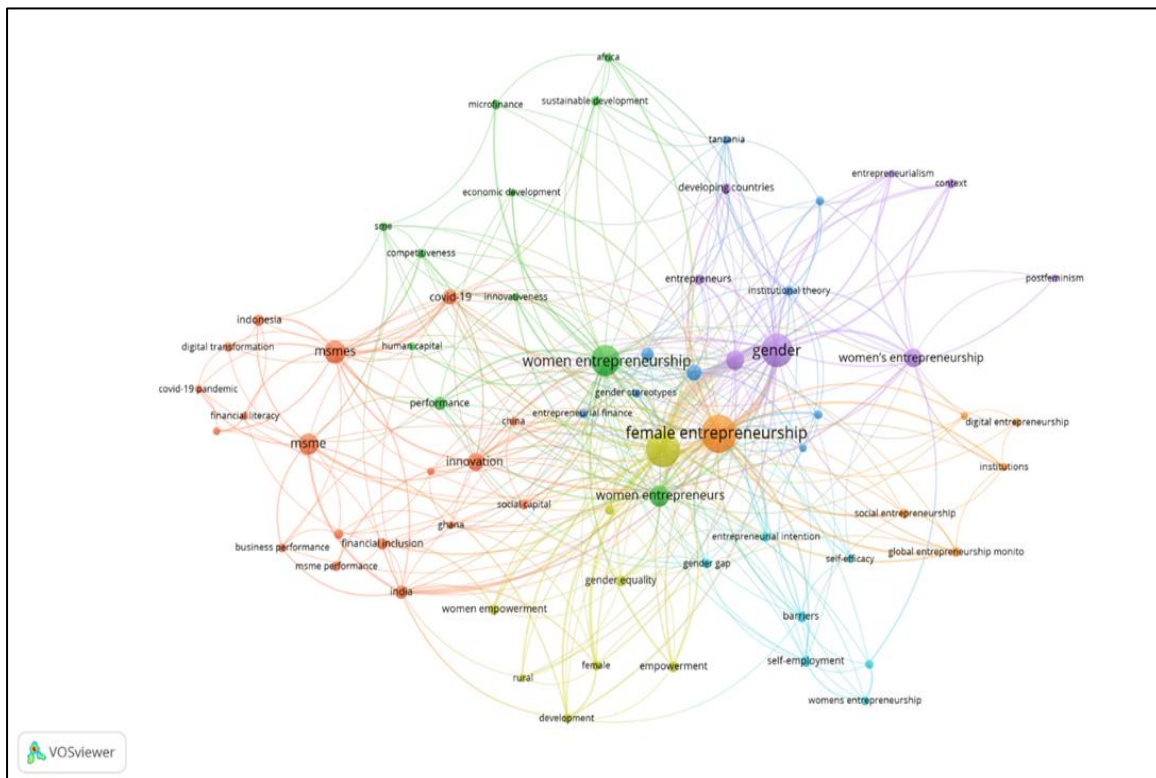


Figure 8 Author's Keywords Co-Occurrence

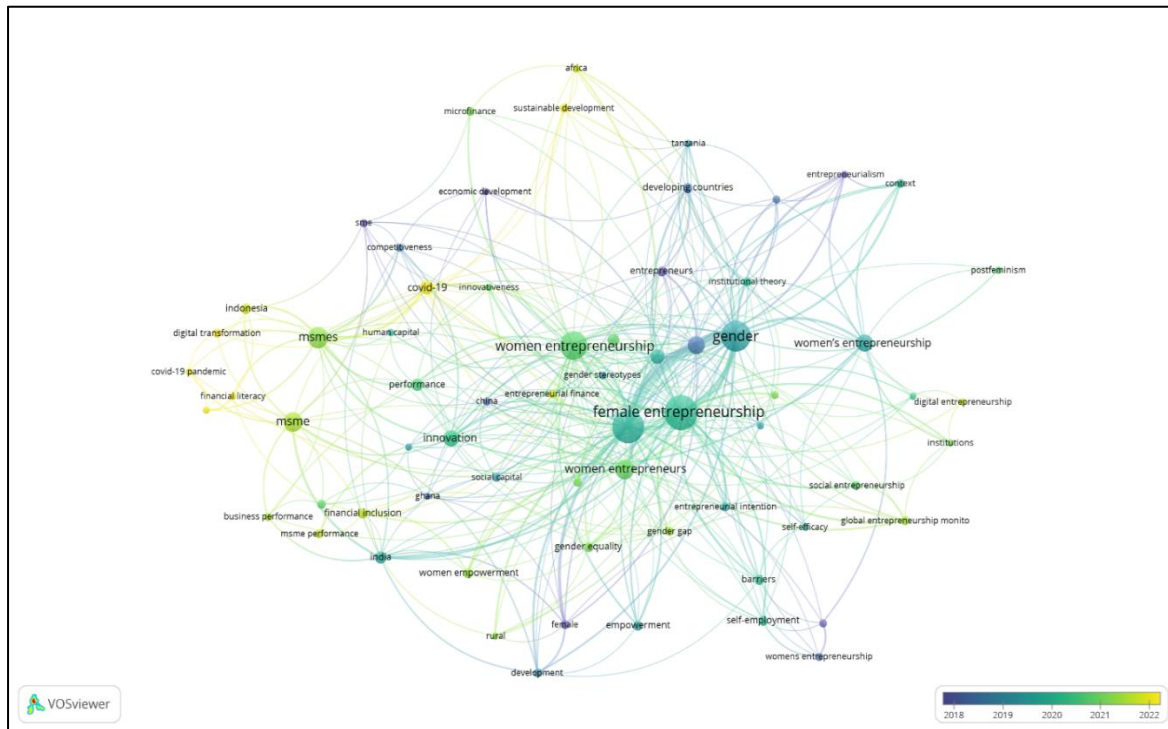


Figure 9 Overlay Visualization of all keywords

Trend Analysis

The trend analysis reveals several key insights into the evolving focus and priorities within the field of women's entrepreneurship in the MSME sector. Figure 10 shows the trend issues for the selected study field. Indonesia, with a term frequency of 9, is the phrase most popular in use in 2023. In 2022, the topics "business development" (12), "small and medium-sized enterprises" (15), and "business" (18) were in trend. In 2021, the phrases "women's employment" (18), "sustainability" (18), and "entrepreneur" (68) were popular. This illustrates the continuous investigation of novel ideas in the area of women entrepreneurship in MSMEs.

Additionally, the trend analysis shows that there has been a growing emphasis on wider socio-economic effects; in recent years, concepts such as "women's status" and "empowerment" have gained popularity. Furthermore, from 2016 onward, the terms "gender relations," "gender role," and "gender issue" have become more common, which indicates a deeper investigation of gender dynamics in entrepreneurship. When taken as a whole, these patterns show a broad and dynamic field of research that emphasizes the complex aspects of women's entrepreneurship in the MSME sector, including gender dynamics, socioeconomic effects, company development, and regional studies.

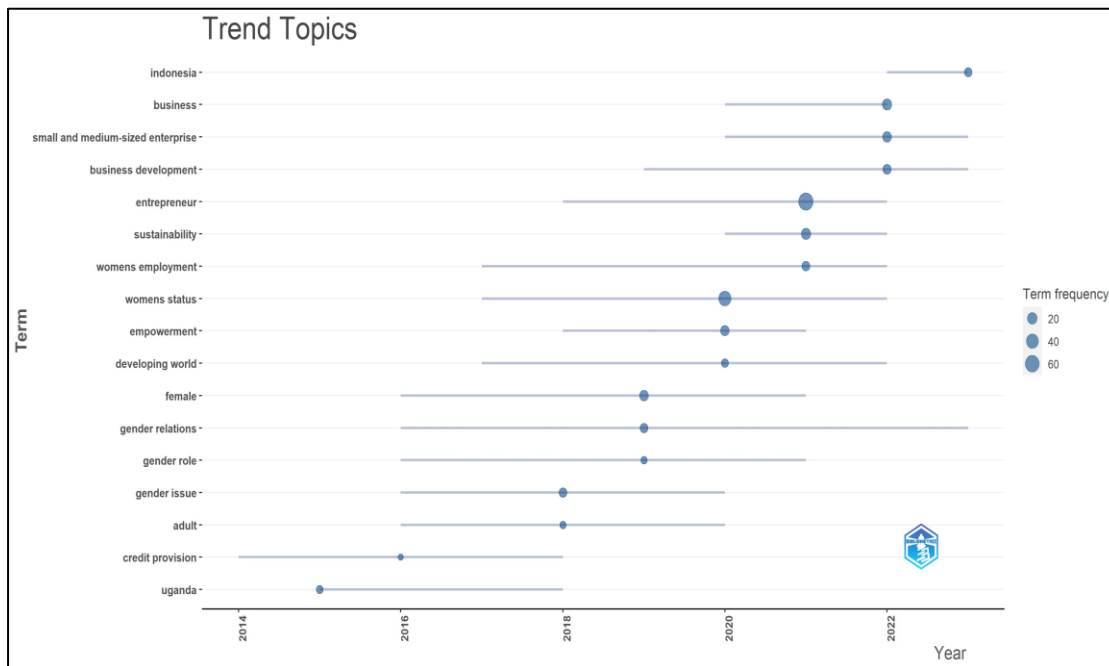


Figure 10 Trend Topics

CONCLUSION

The goal of the study is to give a thorough bibliometric analysis of women's entrepreneurship in the MSME sector. Performance analysis based on the Scopus database and science visualization deploying the VOS viewer software and biblioshiny were used in the analysis. The study analyzed articles published from 1997 to 2023. The results show that academics have continued to pay more attention to studies on women entrepreneurs in the MSME sector, especially since 2009. Furthermore, according to statistics, the top three countries for publishing articles on women entrepreneurs in the MSME sector are Indonesia, the UK, and the United States. The research also showed that the terms "women entrepreneurship," "female entrepreneurship," "gender women entrepreneurs," "business performance," and "SME" are frequently used. Based on the findings, Indonesia is the trending topic in the year 2023, and more terms are also emerging in the selected topic, which shows there are serious and deep studies upcoming on the topic of women's entrepreneurship in the MSME sector.

Research on women entrepreneurs in the MSME sector offers a common thread for a range of subject areas. In light of this, it is possible that the field's adaptability allowed a number of authors to incorporate female entrepreneurship theory into their business, management, and other pertinent research fields. The results demonstrate that encouraging female entrepreneurship in the workforce has a significant impact on economic and national growth. The study of women entrepreneurs in the industrial and IT sectors is still in its nascent stages, as seen by the paucity of publications on the topic. In addition, the statistical research shows a strong correlation between women entrepreneurs and entrepreneurial intention, financial literacy, and financial inclusion. As a result, this bibliometric study can give academics a thorough perspective on women entrepreneurs' research, guiding future pathways.

Beyond the favorable outcomes of this analysis, there are limitations. The information is derived solely from Scopus. It is probable that the flaws of the database are being utilized in this effort. The following factors were evaluated for the analysis: co-citation, bibliographic linkage, and author keyword co-occurrence. A country collaboration map, tree map, or word cloud, a summary of sources, or a description of the field of studies in the specified topic were not used in the study for bibliometric analysis. The study's results are dynamic and will vary over time because research on women's entrepreneurship has expanded quickly in recent years. In light of this, it is advised that this study be repeated in the future. According to the statistics, developing countries have invested more in women's entrepreneurial research, even though entrepreneurial abilities are one of the key drivers of entrepreneurial growth and economic growth in developed countries. However, further research on the advantages and restrictions of women's entrepreneurship in the MSME sector is required in many academic subjects in both developing and developed countries.



REFERENCES

1. Bekele, E., & Worku, Z. (2008). Women entrepreneurship in micro, small and medium enterprises: The case of Ethiopia. *Journal of International Women's Studies*, 10(2), 3–19. Retrieved from <https://paperity.org/p/84186599/women-entrepreneurship-in-micro-small-and-medium-enterprises-the-case-of-ethiopia>
2. Berger, E. S., and Kuckertz, A. (2016). Female entrepreneurship in startup ecosystems worldwide. *Journal of Business Research*, 69(11), 5163-5168
3. Bhattacharya, S., and Londhe, B. R. (2014). Micro Entrepreneurship: Sources of Finance and Related Constraints. *Procedia Economics and Finance*, 11, 775-783. ω Bi
4. Castillo-Vergara M, Alvarez-Marin A, and Placencio-Hidalgo D (2018). A bibliometric analysis of creativity in the field of business economics. *Journal of Business Research*, 85: 1-9. <https://doi.org/10.1016/j.jbusres.2017.12.011>
5. Donthu N, Kumar S, Mukherjee D, Pandey N, and Lim WM (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133: 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
6. Gillani SMAH, Senin ABA, Bode J, and Gillani SM (2022). Bibliometric analysis of digital entrepreneurial education and student intention; reviewed and analyzed by vosviewer from Google Scholar. *International Journal of Interactive Mobile Technologies*, 16(13): 48-65. <https://doi.org/10.3991/ijim.v16i13.30619>
7. Guleria D and Kaur G (2021). Bibliometric analysis of ecopreneurship using vosviewer and rstudio Bibliometrix, 1989–2019. *Library Hi Tech*, 39(4): 1001-1024. <https://doi.org/10.1108/LHT-09-2020-0218>
8. Hamdani, N. A., Ramadani, V., Anggadwita, G., Maulida, G. S., Zuferi, R., & Maâlaoui, A. (2023). Gender stereotype perception, perceived social support and self-efficacy in increasing women's entrepreneurial intentions. *International Journal of Entrepreneurial Behaviour & Research*. <https://doi.org/10.1108/ijebr-02-2023-0157>
9. Kumari, A., Garg, C. P., Raghuvanshi, J., & Singh, S. (2022). An integrated model to prioritize the strategies for women entrepreneurship development to overcome its barriers: case of Indian msme. *IEEE Transactions on Engineering Management*, 1–15. <https://doi.org/10.1109/tem.2022.3217356>
10. Rani, V. S., & Natarajan, S. (2023). Impact of financial inclusion on women entrepreneurs in India: an Empirical study. *Journal of Law and Sustainable Development*, 11(7), e1308. <https://doi.org/10.55908/sdgs.v11i7.1308>
11. Rajan, S., & Panicker, S. (2020). The concept of entrepreneurial ability-evidence from women in msme of Karnataka state. *International Journal of Entrepreneurship and Small Business*, 41(1), 1. <https://doi.org/10.1504/ijesb.2020.109429>
12. Singh, A., Das, U., & Kumar, S. (2022). Gender, technology and innovation: the role of women in Indian micro, small and medium enterprises. *World Review of Entrepreneurship, Management and Sustainable Development*, 18(4), 429. <https://doi.org/10.1504/wremsd.2022.123766>
13. Zainol NR and Al Mamun A (2018). Entrepreneurial competency, competitive advantage and performance of informal women micro-entrepreneurs in Kelantan, Malaysia. *Journal of Enterprising Communities: People and Places in the Global Economy*, 12(3): 299-321. <https://doi.org/10.1108/JEC-11-2017-0090>
14. Zhao D and Strotmann A (2015). Analysis and visualization of citation networks. Morgan and Claypool, Chapel Hill, USA. <https://doi.org/10.1007/978-3-031-02291-3>