

Women entrepreneurship: A bibliometric insights and future directions

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Abstract

Purpose: This study showcases the development of publications on women's entrepreneurship over a decade (2012 to 2021) using bibliometric analysis.

Design/methodology/approach: From the Scopus database, 314 articles on women's entrepreneurship were reviewed. Harzing's Publish or Perish software were use to assess the publication performance, and VOSviewer was employed to visualise the bibliometric networks.

Findings: The findings indicate a notable increase in both publications and citations within the research area over the 10-year period. The network visualization analysis revealed five main themes of women's entrepreneurship.

Research limitations/implications: This paper concentrated on bibliometric analysis using publications from a single source, Scopus, which may not yield as comprehensive datasets as using multiple databases. However, the study serves as a reference for current and emerging topics and methodological concerns in future research on women's entrepreneurship.

Practical implications: The emerging research trends on women's entrepreneurship found in this study provides practical insights for researchers and policy makers to develop suitable research initiatives, fostering a holistic entrepreneurial ecosystem for women's entrepreneurs.

Originality/value: This study proposes an integrated framework and multidisciplinary perspectives of women's entrepreneurship studies.

Keywords: Bibliometrics, Harzing's platform, VOSviewer, Women Entrepreneurship, Network visualisation

Introduction

Research on women entrepreneurship has received considerable attention among scholars since many decades ago. Women's entrepreneurship is defined by researchers as the entrepreneurial endeavours of women who establish, operate, and manage businesses (Mohamed, 2022; Dangi,

2014). Most studies on women who are entrepreneurs have primarily concentrated on identifying the factors contributing to success (e.g. Strawser, Hechavarria & Passerini, 2021; Hassan, Mahdee, Rahman & Sade, 2017; Raghuvanshi, Agrawal, & Ghosh, 2017) and the significant impact it brought to academic and socio-economic well-being through contribution towards household and global income (e.g. Ge, Abbas, Ullah, Abbas, Sadiq & Zhang, 2022; Muhamad, Kong, Saqib & Beutell, 2021; Sajjad, Kaleem, Chani & Ahmed, 2020). From an academic perspective, women's entrepreneurship has made a substantial contribution through innovation, creating job opportunities, and generating income (Feng, Ahmad & Zheng, 2023). In addition, women entrepreneurship witnessed a significant impact on the social aspect as it allows women's empowerment in managing and improving the household economy and family's living conditions; and allowing flexibility and work-life balance (Datta, 2023).

The mainstream literature has continuously emphasized that women's entrepreneurship as a gender-specific phenomenon, often rooted in family contexts (Pfefferman, Frenkel & Gilad, 2021; Jennings & Brush, 2013). This activity can arise from both necessity and opportunity, aiming to achieve both financial and non-financial objectives. Meanwhile, the emerging literature points out some significant areas in the field of women's entrepreneurship that have not received much scholarly attention. These areas include understanding the difficulties and obstacles associated with expanding a business (Topimin, 2020; Lim, Sonko & Cham, 2022) and addressing the political, legal, institutional, and cultural aspects of the support ecosystem (Foss, Henry, Ahl & Mikalsen, 2019; Nziku, Henry, 2020). Recent research indicates that building a successful entrepreneurial ecosystem for women entrepreneurs should align with socio-economic and policy-driven needs, for example, to investigate the effects of race and ethnicity of women entrepreneurs (e.g. Ojong, Simba & Dana, 2021), business development support and social assistance for a start-up (e.g. Hendratmi & Sukmaningrum, 2018; Izyumov & Razumnova, 2000), and the network resources for business collaboration and growth (e.g. Neumeyer, Santos, Caetano & Kalbfleisch, 2019).

Undeniably, numerous research studies have been conducted on women entrepreneurs, ranging from descriptive investigations to theoretical examinations that offer unique insights into a wide range of topics, perspectives, and research approaches. This supports the literary argument of literature on women entrepreneurship may have new significance than previously identified if they are quantified and expressed in a more methodical manner. It's thought that bibliometric analysis, as a scientific analytical approach, can be a valuable tool for uncovering the progression of articles. This method can create a knowledge structure map that illustrates the associations between research fields, specializations, disciplines, individual papers, and authors (Rojas-Sánchez, Palos-Sánchez and Folgado-Fernández, 2023). Therefore, it is important to scientifically measure, track and analyse the research growth route of women entrepreneurship literature by involving large bibliometric materials for the analysis of different subject areas, the most influential journals by countries, and key themes, which may lead to the development of emerging models or themes as a useful basis for future research imperatives.

Examining the progression of studies and publications on women's entrepreneurship is essential to grasp the emerging research patterns within the discipline. Analysing the properties of a collection of published academic works (i.e. books, articles, reports, etc.) is a powerful technique among scholars, not only to be able to track the evolution of the observed field of interest but also offer a valuable focus for concerted scholarly research (Ahmi, 2021). This analytical technique is called 'bibliometrics'. A bibliometric analysis involves examining a collection of metadata of scholarly articles from various sources of journals and publishers (Pritchard, 1969; Ahmi, Tapa & Hamzah, 2020), which yields valuable results and insights that enhance the understanding of the subject matter (Ahmi, 2021).

Most past bibliometric studies on woman and entrepreneurship literature used vague title search, for example, Raman, Subramaniam, Nair, Shivdas, Achuthan and Nedungadi (2022) used six title search for searching papers on women entrepreneur including “women entrepreneur”, “women start-up”, “women self-employed”. Deng, Liang, Li and Wang (2020) used more than 10 title search for their study on female entrepreneurship including “female entrepreneurship”, “women led startup”, “female owned small business”, “women business founder” and more. According to Ahmi (2021), limiting the search of articles by using ‘title with focused keywords’ in a bibliometric study provides relevant and focused articles compared to multiple title search and keywords. Thus, researching the literature about women who become entrepreneurs is crucial via constriction of the article search to “women entrepreneurship” only as it allows ease of comparing and analysing documents.

Acknowledging the expanding body of research on women entrepreneurs, this study aims to investigate the trends and performance of such research over a decade (2012 to 2021) through bibliometric analysis using data from the Scopus database. This study focuses on a single domain, i.e. “women entrepreneurship” and involves displaying the co-occurrence of keywords to determine the prevailing topics in the field of study. The type of analysis involves (i) the evaluation of the publication performance on women entrepreneurship by using Harzing’s platform which involved total publications, citations per year, publications categorized by topic, title of source, and countries, and (ii) the use of VOSviewer to map the bibliometric network according to keyword co-occurrence. In explaining the significance of this study to the body of literature of women entrepreneurship, this study is inspired by the efforts of feminist theory (Bristor & Fischer, 1993) and resource-based view (Barney, 1991). This study aims to serve as a reference for current and emerging topics and guide methodology choices for future research on women’s entrepreneurship. In addition, the study also could reflect on current policies and support that women entrepreneurs currently require.

The paper presents an overview of the development of research on women entrepreneurship. Then, discussion on the research methodology, followed by research findings. Finally, the conclusions and suggestions for potential studies in the future.

Literature Review

The Trend in Women Entrepreneurship Research

Women entrepreneurship signifies a progressive and growing category of entrepreneurial establishment worldwide. The Women’s Entrepreneurship Report (Global Entrepreneurship Monitor, 2020) indicates that the worldwide growth rate of entrepreneurial activity among women has increased from 6% to 10% every year since 2015. This trend is reflected in the great growth of research on women entrepreneurship and is receiving significant attention among academics, which contributes to understanding the factors which explain the why women start and grow a venture. Major literature on women entrepreneurship has been focused on describing the nature of women entrepreneurship from a snapshot or selective approach, for instance, identifying the motivation to start a business (e.g. Simon & Marathe, 2023; Shastri, Shastri, Pareek & Sharma, 2021), and linking personal traits to business performance (e.g. Maseda, Iturralde, Cooper, Aparicio, 2021). Emerging literature is stirring towards a more dynamic approach to understand the entrepreneurial process, for example understanding the challenges in growing a venture (e.g. Noor, Isa & Shafiq, 2022; Fattah & Halbusi, 2022), and the contextual factors surrounding the evolution of a business (e.g. Shaheen, Ahmad, Hussain & Hussain, 2021). These substantial studies have provided a baseline understanding of the women’s entrepreneurship field for decades. However, the dramatic growth of women’s entrepreneurship studies makes it essential for researchers to review this academic field more

systematically to provide a comprehensive research trajectory. For instance, Yadav and Unni (2016) examined 185 papers on women entrepreneurs from various leading entrepreneurship journals to evaluate the field's growth and inform future research directions.

The use of bibliometric methodology has become increasingly popular for literature reviews, involving the identification of research outputs through keyword analysis. Bibliometric analysis is a quantitative metric and analytical method that utilizes open library and information science (LIS) databases to assess trends in publications on particular field of research. Many researchers argue that bibliometric analysis provides valuable insights, enabling a comprehensive understanding of research themes and the changing trends in keywords for future research prospects. For instance, Moreira, Marques, Braga and Ratten (2019) undertook the analysis of women's entrepreneurship documents through a bibliometric study to understand the trend of leading journals and topics on women entrepreneurship over time. Deng, Liang, Li, and Wang (2020) performed a bibliometric analysis to examine the trends in women's entrepreneurship research across countries, institutions, journals, and authors. For the current study, to gather insights on the keywords to be used to represent the topic under investigation (i.e. women entrepreneurship), the initial stage of article searching was conducted on Google Scholar. The utilization of Google Scholar is due to its openly available academic citation catalogues, that can be suggested as a supplement to databases of commercial citation like Scopus. Based on the document search strategy employed on Google Scholar, (i.e. allintitle: bibliometric "women entrepreneurship"), it was found that the application of the bibliometric analysis in women's entrepreneurship study is scarce. Only four publications were shown in Google Scholar from 2012 to 2021. Nevertheless, these articles were examined as the foundational methodology for this study for confirming the appropriate keywords to produce relevant documents to the selected topic (Ahmi, 2021). Once the topic and keyword has been identified, the researcher then searched for the relevant articles from the Scopus database, using "women entrepreneurship" as the final document search strategy.

Table 1 shows the list of past studies on women entrepreneurship using the bibliometric analysis and literature reviews retrieved from Google Scholar. Mainly, past authors used the keyword "women's entrepreneurship", "women entrepreneur", "female entrepreneur", or "women entrepreneurship" as a method for retrieving document results. Some of the bibliometric attributes that were largely used by past authors were mapping analysis (e.g. Raman, Subramaniam, Nair, Shivdas, Achuthan & Nedungadi, 2022; Singh & Ritu, 2021), co-citation analysis (e.g. Deng, Liang, Li & Wang, 2020; Cardella, Hernández-Sánchez & Sánchez-García, 2020), and distributions of articles by year and country (e.g. Cardella, et al, 2020). Few of them examined the keywords co-occurrence (e.g. Raman, et al, 2022; Cardella, et al. 2020) with different search strategy, i.e. "female entrepreneur", "women" and "entrepreneur" which provided different map of knowledge. This study focuses on a single domain, i.e. "women entrepreneurship" and includes keywords co-occurrence to visualise the dominant topics in the study.

Table 1. List of previous bibliometric studies on women entrepreneurship (from Google Scholar)

Author	Domain / Search Strategy	Database	Total documents examined	Bibliometric attributes
Raman, R., Subramaniam, N., Nair, V.K., Shivdas,	((“women entrepreneur”) OR (“female entrepreneur”) OR (“female start*”) OR	Dimensions	3,157	bibliographic mappings and

A., Achuthan, K., Nedungadi, P. (2022)	("women start*") OR ("women self-employed") OR ("female self- employed"))			keyword co- occurrences
Singh, S. & Ritu (2021)	("women entrepreneurs" OR "women entrepreneurship" OR "women's entrepreneurship")	Scopus	1,789	Mapping analysis, co-authorship networks of authors
Deng, W., Liang, Q., Li, J. & Wang, W. (2020)	"female entrepreneurship" or "women entrepreneurship" or "female entrepreneur" or "women entrepreneur" or "female-led start-up*" or "women-led start-up*"	Web of Science	2,849	co-citation networks of contributing countries, institutions, cited journals and authors
Cardella, G. M., Hernández-Sánchez, B. R. & Sánchez- García, J. C. (2020)	"entrepreneur" and "women," using the "AND" Boolean connector and including "all fields"	Scopus	2,848	Occurrence of most relevant keywords, author co-citation analysis, journal analysis

Research Questions

To better understand the emerging research focus in women's entrepreneurship studies, this article seeks to give an overview of the development of publications on women in entrepreneurship. In particular, this paper wishes to respond to the following questions: -

Research Question I:

What is the trend for the 10-year research on women in entrepreneurship?

Research Question II:

What information can be obtained by looking at the co-occurrence of author keywords in published articles on women's entrepreneurship?

Methods

This study uses bibliometric analysis to objectively and algorithmically examine previous literature, focusing on trends and performance of research in women entrepreneurship throughout the past ten years (2012-2021) and the dominant topics on women entrepreneurship research. Bibliometric analysis has been employed across various research disciplines, enhancing the future direction and significance of research (Ahmi, 2021; Rodriguez-Soler, Uribe-Toril & Valenciano, 2020). The bibliometric analysis involves analysing the quantitative data and statistical analysis to examine the research topic in terms of the publication trends and the leading authors, institutions, journals, and countries (Bagis, Kryeziu, Kurutkan & Ramadani, 2022; Ellegaard & Wallin, 2016) and to visualise dominant topics in the research ground through co-occurrence amount of keywords (Raman, et al, 2022; Radhakrishnan, Erbis, Isaacs & Kamarthi, 2017).

The majority of bibliometric studies on women entrepreneurs used publication performance analysis to look at the most popular journals, authors, and countries as well as citation analysis and keyword analysis (e.g., Molina-Garcia, et al., 2022; Casprini, et al, 2020). Some studies only used one database (i.e. either the Web of Science or Scopus database, e.g. Raman, et al., 2022; Deng, et al., 2020), while others merged two or more databases, i.e. both the Scopus and Web of Science (e.g. Anwar, Clauss & Meyer, 2023. This study uses single database, i.e. Scopus, as it can adequately provide a more focused and relevant publications to the study

topic. Furthermore, it is contended that combining two databases for bibliometric analysis can be quite complicated as the merging process involves significant data consolidation and correction (Kumpulainen & Seppanen, 2022; Bibliometrix.org, 2023).

Ahmi (2021) highlights several key purposes of undertaking bibliometric analysis to some researchers, they are (i) to investigate suitable methodologies and metrics, (ii) to engage with a cooperative research network in the field of research, and (iii) to create a research evaluation instrument for upcoming studies.

This paper used Scopus for document search because it is the largest curated platform of abstracts and citations containing scientific content on both global and regional levels (Elsevier, 2020). Figure 1 shows the flow of the search strategy for documents on women entrepreneurship. Figure 2 illustrates the research model, which includes (i) assessing research trends and performance by analysing yearly publications and citations, publications by subject area, countries and title, and (ii) to identify the dominant topics on women entrepreneurship literature using co-occurrence of author keywords.

Prior to Scopus, Google Scholar was used to investigate the most popular articles on women entrepreneurs in the literature as well as the most often used keywords by writers when discussing women entrepreneurs in bibliometrics research. Searching for documents in the Scopus database utilized the keyword "women entrepreneurship" and was narrowed down by ten-year period (2012–2021) to show the direction of the field's study, which yielded 314 article results. The trends of publications in women's entrepreneurship research were assessed using Harzing's software- Publish or Perish, and the association of keywords was visualized using VOSviewer. The dataset from Publish or Perish software was exported to a CSV file, then merged and sorted for analysis based on publication trends and performance by (i)year, (ii)subject area, (iii)source title, and (iv)country. For the descriptive analysis, Microsoft Excel was used to create pertinent graphical presentations and calculate the frequency or percentage of publications. The subsequent stage of analysis involved visualizing the bibliometric web based on author's keywords in women's entrepreneurship research.

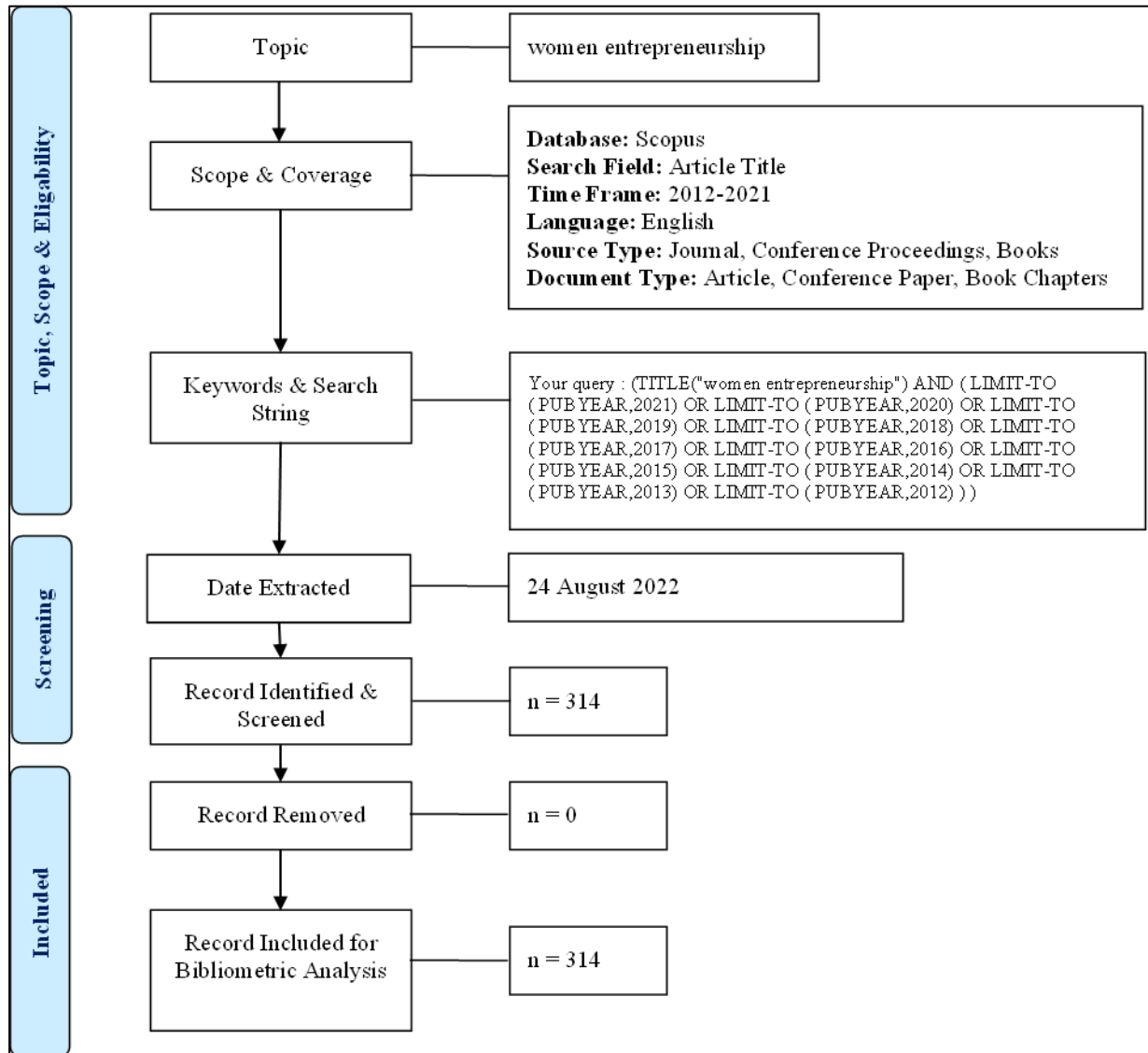


Figure 1. Flow of the Data Searching Strategy

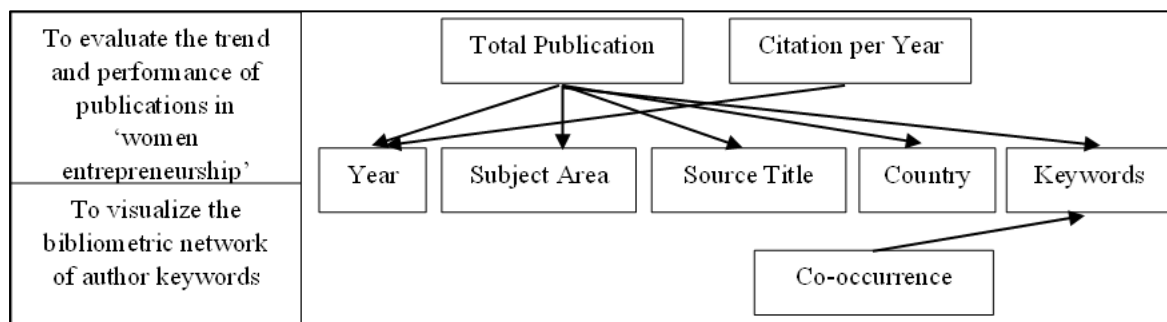


Figure 2. The research model for the study

Findings

Table 2 summarises the 314 documents analysed in this study over a 10-year period (2012-2021). The documents analysed in this study predominantly comprise journal articles, followed by book chapters, conference papers, books, reviews and editorial articles. Table 3 illustrates the total publications and cited publications on women entrepreneurship is increasing in recent years, nonetheless, the citations report and h-indexed show a slower growth.

Table 2. Total Publication and Citation Metrics

Item	Data
Publication period	2012-2021
Period for Citation	10
Number of papers	314
Citation/Year	255.80
Citations/Paper	8.15
Authors/Paper	2.55
Citation impact (<i>h</i> index)	26

Table 3. Publication trends (2012-2021)

Year	TP	NCP	TC	<i>h</i>
2012	20	52.6	526	9
2013	12	6.67	60	4
2014	15	18.5	148	5
2015	15	36.29	254	8
2016	26	22	132	6
2017	29	77	385	11
2018	37	97	388	12
2019	39	101.67	305	9
2020	59	136	272	10
2021	62	88	88	5
Total	314			

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; h=h-index

Research Trend and Performance Analysis

In this section, the researcher conducted trend and performance evaluations based on citation and publication counts, identified the top prolific countries and authors, and determined the most significant journals and subject areas in women entrepreneurship across 314 articles in the Scopus database.

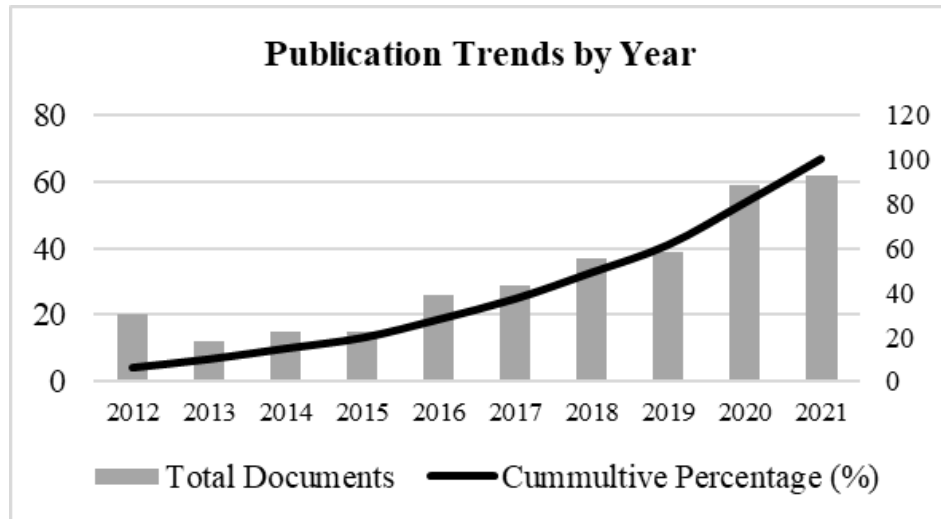


Figure 3. Publications Trends by Year

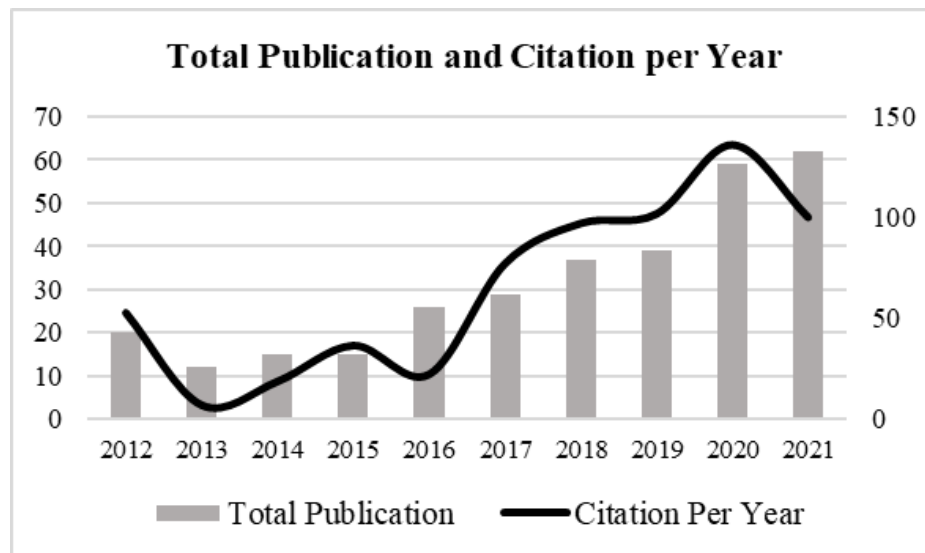
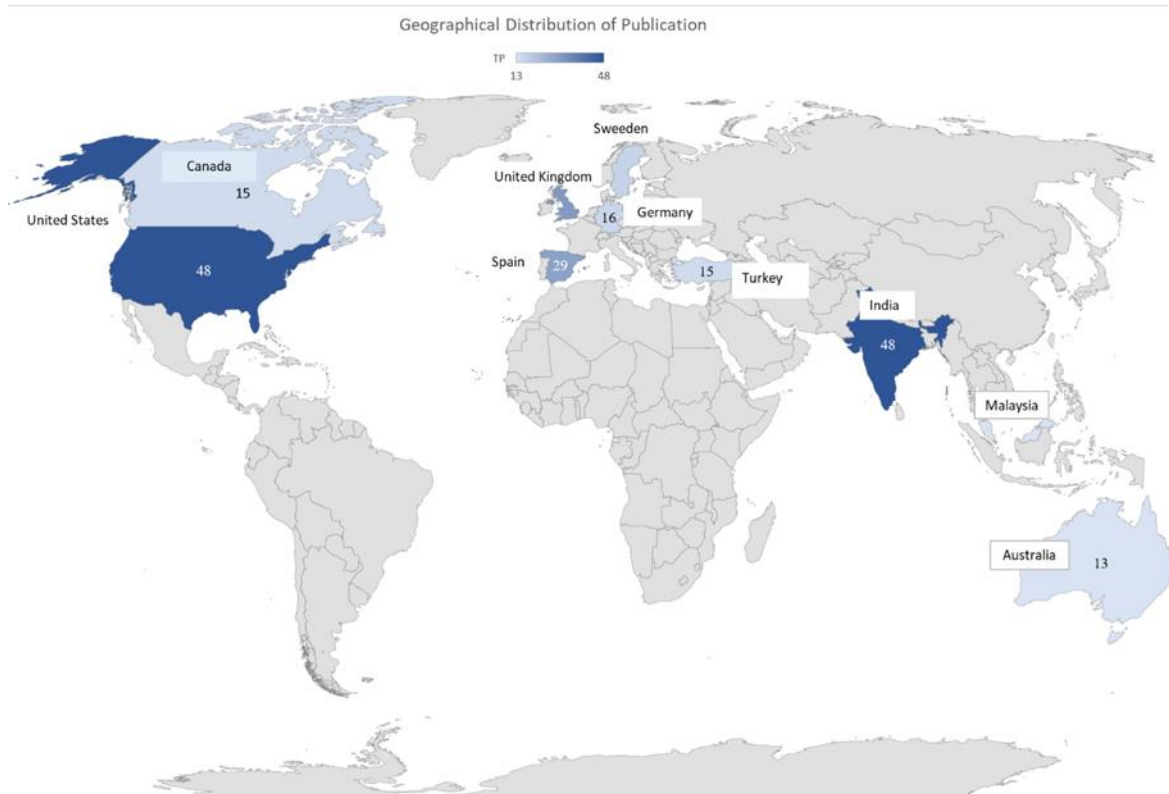


Figure 4. Total Publication and Citation per Year

Despite a slowing trend, the number of published documents about women entrepreneurs has climbed dramatically during the previous ten years since 2012. The cumulative proportion of research productivity on women entrepreneurs is depicted in Figure 3; it increased slowly between 2012 and 2017, averaging between 4 and 8 percent; however, between 2018 and 2021, it increased by 10 to 20 percent. Likewise, in terms of the citation frequency on women's entrepreneurship publications as showed in Figure 4 shows the fluctuating course from 2012 to 2016 but has gradually increased from 2017 to 2019 and reached its peak with 136 citations in 2020. This trend aligns with previous studies by Bagis et al. (2022), indicating that interest in women's entrepreneurship research has been growing, both in terms of publication and citation. Thus, there is a call for further research recognizing the significant impact women's entrepreneurship has on society and the economy.

Table 4. Top 5 most significant authors by Institutions or Affiliations

Name of Author	Total Documents	%	Institution/ Affiliation	Country
Brush, C. G.	11	3.50%	Babson College	United States
Foss, L.	8	2.55%	UiT The Arctic University of Norway	Norway
Dana, L P.	7	2.23%	Montpellier Business School	France
Ratten, V.	7	2.23%	La Trobe University, Melbourne	Australia
Henry, C.	7	2.23%	Dundalk Institute of Technology	Ireland

**Figure 5.** The geographical distribution of articles by corresponding authors

The productivity of publications was also analysed based on the author's affiliation. Table 4 presents the five most active authors of women entrepreneurship study, namely Brush, Foss, Dana, Ratten and Henry. These five most active authors provide a ranking of the affiliated institutions as follows: Babson College (USA) with 11 articles, the UiT The Arctic University (Norway) with eight articles, and Montpellier Business School (Spain) with seven articles. Figure 5 shows the geographical distribution of articles on women entrepreneurship by corresponding authors, i.e. 15% of the articles were yielded by the USA and India, 9.6% by the United Kingdom, 9% by Spain, 5% by Germany, and 4.8% by Turkey and Canada.

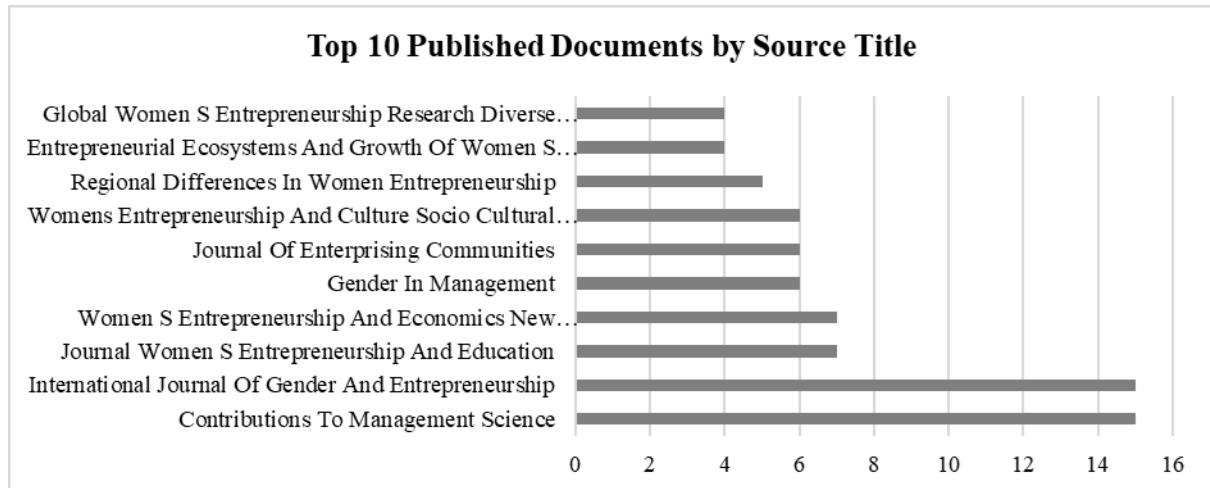


Figure 6. The Top 10 Journals on Women Entrepreneurship

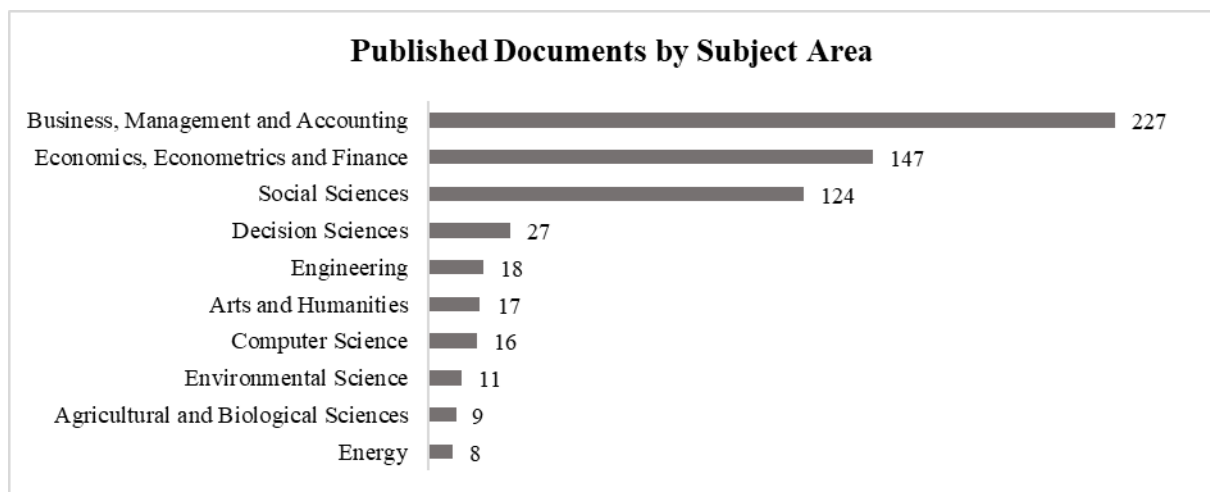


Figure 7. Top subject areas in women entrepreneurship research

Figure 6 displays top 10 journals that published research on women entrepreneurship. Contribution to Management Science and International Journal of Gender and Entrepreneurship emerge as particularly active journals in this area. Following closely are Journal of Women's Entrepreneurship and Education, and Women's Entrepreneurship and Economics, ranking third and fourth, respectively, in terms of article count. To assess the most dominant topics in women entrepreneurship research, the number of publications by source title was analysed. Figure 7 reveals that women's entrepreneurship has been approached from the viewpoints of the five important research fields: (i)"business and finance (ii)accounting", (iii)"economics", (iv)"decision sciences", and (v)"engineering". These findings indicate that women's entrepreneurship research spans multiple disciplines, encompassing both scientific fields like biological sciences, engineering, environmental science, computer science, agricultural and, as well as non-scientific fields like business and management, economics, social sciences, and arts.

Analysis of Keywords– Co-occurrence Network

The investigation of 314 publications identified an initial set of 190 co-occurring keywords. Using VOSviewer, the mapping of keywords by author yielded 190 items grouped into 8 clusters. Figure 8 presents the network of keyword co-occurrences in publications on women

entrepreneurship. The node size indicates how frequent a keyword occurs with others, while the positioning of connections indicates the strength of their relationship. For instance, as depicted in Figure 8, "entrepreneurship" frequently co-occurs with "gender," "women," and "empowerment." Node colours represent clusters of closely related keywords (nodes of the same colour belong to the same cluster). Using the network visualization, the researcher studied the clusters and regrouped keywords with similar meanings into five prominent topics or clusters, as showed in Table 5. The results indicated that the most frequently emphasized research topics in the field of women's entrepreneurship research are (i) information and resources about entrepreneurship, (ii) women entrepreneurs' success factors, (iii) women as a leader and personality (iv) women's roles and involvement, and (v) women in science and technology. This shows that research on women's entrepreneurship issues, especially ease of access to resources like financing and human capital (e.g. Ahl, 2006; Greenberg & Mollick, 2017), environmental and psychological factors affecting women entrepreneurs (e.g. Cardella, et al, 2020; Estrin & Mickiewicz, 2011) and family embeddedness and gender role of women entrepreneur (e.g. Bagis, et al, 2020; Jennings & Brush, 2013) have been the dominant topics discussed by scholars. These keyword clusters provide insights about the research subjects in the women entrepreneurship field and can facilitate researchers in deciding topics for future research, or act as valuable inputs for decision relating to conference tracks, titles for book chapter, or proposal of research.

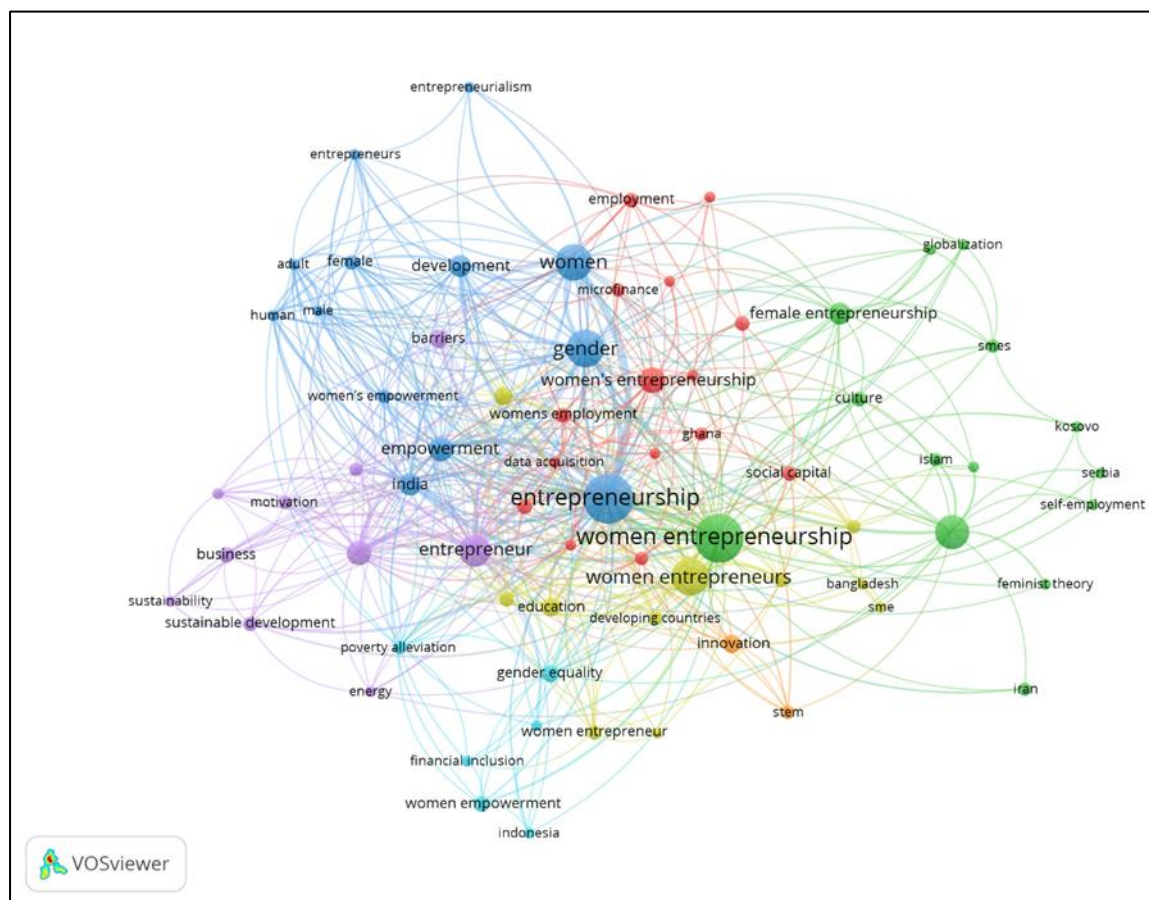


Figure 8. Co-occurrence of keywords visualisation

Table 5. Analysis of keywords from publications on women entrepreneurship

Cluster	No. of items	Author Major Keywords	Proposed Dominant Research Topics on Women Entrepreneurship
1	17	<i>Data acquisition, decision making, human capital, microfinance, social capital, employment</i>	Acquisition of resources & intelligence
2	16	<i>Challenges, barriers, sustainability issues, women status, motivation, financial inclusion, gender equality, poverty alleviation</i>	Success factors of women entrepreneur
3	14	<i>Globalization, internationalization, culture, institutional theory, feminist theory</i>	Women leaders & identity construction
4	13	<i>Female, gender, adult, women's empowerment, family, marriage</i>	Women roles and involvement
5	4	<i>Innovation, STEM, entrepreneurialism, education</i>	Women and Innovation

Discussion and Conclusion

Theoretical Implications

This study offers insights for developing an integrated framework for women's entrepreneurship, derived from analysing the most popular subject areas and keyword co-occurrences. The proposed research clusters of this study, namely (i) information and resources about entrepreneurship, (ii) women entrepreneurs' success factors, (iii) women as a leader and personality (iv) women's roles and involvement, and (v) women in science and technology are parallel with Mitchell (2004) and Hisrich and Brush (1983) who suggested that women entrepreneur's characteristics, motivations and resources are the important construct for success of a women-owned enterprise. It is also postulated from the resource-based view (Barney, 1991) the most used theory in entrepreneurship study, that two important variables are significant to resources (i.e. intelligence, technical skill - science and technology), and two variables can be crucial to capabilities (i.e. leadership, empowerment). Figure 9 presents a research context for women entrepreneurship, offering an unified view that combines the resource-based thinking, research clusters, and liberal feminist theory identified in this study.

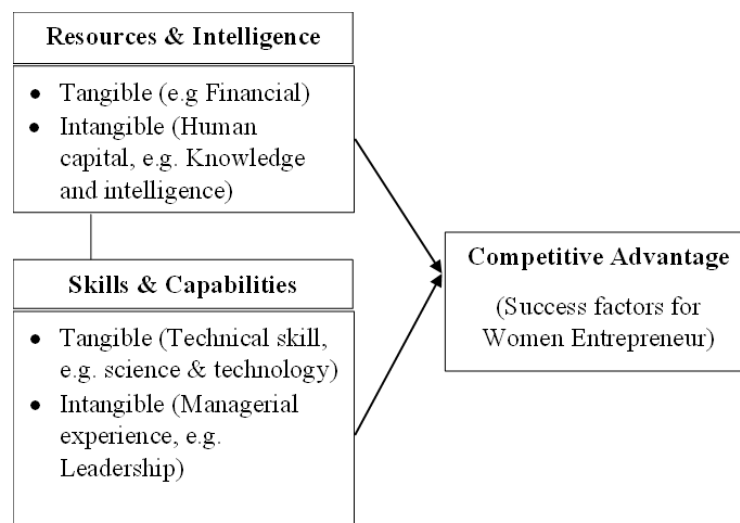


Figure 9. Integrated Research Context for on Women Entrepreneurship
Practical and Social Implications

The study of women's entrepreneurship has seen significant growth, garnering widespread attention from scholars and advancing our knowledge of the elements that support women's achievement in entrepreneurial activities. Acknowledging the increasing research trend in the field, using bibliometric indicators, this paper discusses the current trend of research within ten years (from 2012 to 2021). This study reviewed 314 publications on women's entrepreneurship sourced from Scopus platform. The trend and performance analysis involved examining the number of articles and citations, the most active authors and countries and the most dominant journals and subject areas. Co-occurrence of keywords was also employed in this study to visualise the key themes of research topics in women entrepreneurship to suggest possible future research topics in the field. The bibliometric analysis of studied documents shows that the enthusiasm for the field of study increased significantly back in 2018 to 2020. The analysis of the author's keywords allowed the researcher to create five different themes of research, namely access to resources and intelligence, environmental and psychological factors for women entrepreneurs, women as leaders, women in innovation, and women roles. The results are anticipated as these keywords highlight the shared focus of research in this field and are deemed crucial topics in women entrepreneurship literature.

This study reveals that research on woman in entrepreneurship is a multidisciplinary work, involving economics, political, sciences and technology, and innovation. Therefore, future studies on women entrepreneurship should target to various sectors, including engineering and technology-based business, art-related business, and agricultural sector, which might provide extensive findings on the development of a robust measurement to overcome issues surrounding women and their entrepreneurial careers. It is also proposed that publications on women's entrepreneurship articles can be categorized into business and non-business subjects, as well as scientific and non-scientific areas. In addition, the study found that the USA and Asia are the top countries that produce articles on women entrepreneurship, indicating that both developed and developing countries are increasingly focusing on this research field. Therefore, undertaking cross-national comparative research would be useful to explore the drives, success factors, and barriers associated with starting women-owned enterprises across various regions or countries. The analysis also found emerging research theme surrounding women entrepreneurship studies, i.e. women entrepreneurs and innovation (science and technology), which suggests that research on women entrepreneurship is highly significant in this digital era. In a nutshell, future research on women entrepreneurship should focus on the aspects that drive women to be entrepreneurs, investigating the successful entrepreneurial environment, and the new sector of women entrepreneurs (e.g. gig economy) in developed and developing countries.

Limitations and Suggestions

This article involves document searching based on single keyword (i.e. women entrepreneurship), where women entrepreneurship should include a wider variety of keywords to offer more comprehensive data. Additionally, other documents from academic databases such as Dimensions and Web of Science (WOS) could also be incorporated in future research to obtain extensive datasets for analysis. Using multiple databases in combination is likely to yield more intriguing and valuable findings. Future research on women entrepreneurs may utilize different methods, like systematic literature reviews (SLR) or the R-based Biblioshiny tool, even though this study only focused on bibliometric analysis of the publications. Utilizing multiple databases together can likely produce more compelling and valuable insights. Although this study concentrated only on bibliometric studies of the publications, imminent research on women entrepreneurship could integrate additional methods, like systematic

literature reviews (SLR) on women entrepreneurship, as well as to assess current policies on women entrepreneurship and identify future research directions.

Acknowledgments: This research was supported by Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia (FRGS/1/2020/SS01/UMS/02/1).

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