

The research focus of academicians in analyzing women entrepreneurship intentions: A 40-year scientometric review with thematic analysis and NGT

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ABSTRACT

This paper aims to present a robust view of the research focus of academic scholars on women entrepreneurship intentions over the last four decades by applying a scientometric approach that integrates thematic analysis and the Nominal Group Technique (NGT). The scientometric analysis of articles was conducted at three levels, i.e., micro, meso, and macro levels through article level, author level, and journal level analysis, respectively. Crucial themes in the field of entrepreneurial intentions of women were found through co-occurrence analysis. The consistency of themes was evaluated across the three levels. Themes consistent across all levels, i.e., Country/Place Centric, Gender Specific, Education Related, Tool Centric, Theory Centric, Motivation Centric, Self-efficacy, Entrepreneurialism, and Personal Factors, were considered to be more impactful because of their importance at all levels. The process of NGT was then carried out to identify the most impactful factors from the identified themes. The most impactful factors identified in the study were attitude, self-efficacy, motivation, role models, culture, politics, and entrepreneurial education. The findings of the study will help in shaping future policies by the government in order to meet the needs of potential women entrepreneurs. To the best of the authors' knowledge, no such study across the levels of research has been conducted in the domain of women entrepreneurship.

1. Introduction

Entrepreneurship has always been regarded as a sign of economic prosperity and has been proved to bring stability to the societal construct of the countries (Abegaz et al., 2023; Van Praag & Versloot, 2007). The pioneering works of scholars on the concept of entrepreneurship can be dated back to Adam Smith (1776), followed by Jean Baptiste Say (1845), Joseph Schumpeter (1934), and Everret E. Hagen (1962). Although the advent of research on entrepreneurship took place in the seventeenth century, the past four decades have seen exponential growth in entrepreneurial literature (Mitchelmore & Rowley, 2010). Entrepreneurship has been proven to stimulate the growth of nations by cultivating a culture of innovation, increasing healthy competition, and spawning new jobs to curb the problem of unemployment (Autio et al., 2014; Bilan & Apostoaie, 2023; Foelster, 2000). Entrepreneurship plays a particularly crucial role in developing countries, as they support the government in generating new wealth and jobs (Acs & Szerb, 2007; Duran-Sanchez et al., 2019). Governments have recently diverted their attention towards entrepreneurship and are providing schemes and

subsidies to support entrepreneurial firms (Grajzl et al., 2024; Ribeiro-Soriano & Galindo-Martín, 2012). The governments are focusing on creating more novel firms by establishing a supportive entrepreneurial ecosystem. The Indian government, in recent terms, has endorsed free loan schemes for a period of 3 years, subsidies, and rebates on taxes to inculcate the culture of entrepreneurship (David et al., 2021). Specifically, hordes of schemes by banks, the central government, and the state government have been devised for women. Nonetheless, it is evident that only schemes and subsidies are not enough to motivate individuals to start their own entrepreneurial firms (Amann et al., 2020). Earlier researchers have brought to light that factors at the individual level, social level, and contextual level play a crucial role in encouraging entrepreneurial behavior. Research has also identified critical entrepreneurship theories (Ferreira et al., 2019). Research has determined specific inter-personal and intra-personal factors that lead to entrepreneurial motivation (Dries et al., 2008; Walker & Stephan, 2024). The psychological aspects control the negative effects of barriers to entrepreneurship (Arshi et al., 2021). The prevailing cultures and societal norms have been known to inculcate these personality traits that in turn

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inspire individuals to take up entrepreneurship as a source of income, although it may vary among societies and may not be considered worthwhile in other societies. Classical works have recognized entrepreneurial behavior at different levels of hierarchy in various nations originating as a result of the prevailing culture in the geographical area Schumpeter (1934), and Hofstede (1984). The report of Global Entrepreneurship Monitor (GEM) in 2003 recognized that the culture and society bolster the entrepreneurial orientation among the employees of all organizations in a country, which in turn leads to the behavior of entrepreneurship and the establishment of novel ventures (Reynolds et al., 2004). Prior research states that no individual is born an entrepreneur, but individuals can be trained to become successful entrepreneurs (Casson, 1982; Kotha et al., 2023). Taking the aforementioned point into consideration, it is vital to analyze the variables that shape the entrepreneurial mindset and lead to the emergence of new entrepreneurs (McGrath & MacMillan, 2000). This paves the path for scrutinizing specific forerunners like cognitive traits, personal and psychological factors, social norms, and contextual factors that have been proven to materialize entrepreneurial intentions (EI). EI has been analyzed in a variety of contexts and has shown influence in directing an individual on a path of entrepreneurship. The birth of EI took place after the convergence of the entrepreneurship concept and the concept of intentions from the field of psychology. Pioneering works on EI have been done by Shapero and Sokol (1982), Shapero (1984), Bird (1988), Ajzen (1991), and Boyd and Vozikis (1994). Personality plays an important role in making women ready for change and helps in conceiving EI (Ammeer et al., 2021). Uncertainty can also play an important role in shaping the entrepreneurial decisions of individuals (Tracey & Phillips, 2011). The high-tech ventures setup by women having a desire to establish a venture can help in solving problems of unemployment and poverty (Freund et al., 2020).

The objectives of this article in relevance to the EI of women are: -

RO1: To identify the most relevant themes in women entrepreneurship intentions (WEI) research

RO2: Identify the most influential factors affecting WEI research

RO3: Analyze the important themes of research and their evolution at all levels in WEI research

Bibliometrics is the science of the application of quantitative techniques to study bibliographical information (Mas-Tur et al., 2020). Scientometrics is a bibliometric study that makes visual maps by integrating data mining techniques to analyze a huge corpus of bibliographic information taken for research. Various techniques from scientometrics can be clubbed together to reveal the evolution of various fields of sciences, humanities, and management. Employing various analytical tools of scientometrics analysis on bibliometric data from Scopus. This study focuses on the micro-level using the co-occurrence network analysis of most cited articles, meso-level analysis of important authors, and macro-level analysis of core journals to analyze research trends. The three levels of analysis help in the identification of important themes in the history of research on the entrepreneurial intentions of women (1985–2024) and bring to light how they changed with time. This study correlates with earlier review studies of EI research and uncovers how the prior literature stays in line or deviates from findings. This article attempts to trace essential themes and other visualization techniques to map EI research's evolution.

2. Literature review

The literature review brings to light the origin of literature on women's entrepreneurial intentions, the evolution of women's entrepreneurial intentions, and the factors of EI of women. Studying the entrepreneurial intentions of women could open avenues to understand why cognition processes work the way they do, which may eventually help the important stakeholders understand why these women are

inadequately participating in entrepreneurship (Gupta et al., 2008). Analysis of the entrepreneurial intentions of potential women entrepreneurs who are at the stage of making their own career decisions can help find the challenges faced and possible solutions that can be implemented (Pfeifer et al., 2016).

This paper uses a four-phase Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) framework: identification, screening, eligibility, and inclusion for identification of documents to be analyzed based on transparency. The articles found from various databases were merged to obtain the corpus of articles (Lim et al., 2024). The PRISMA framework for the study is illustrated in Fig. 1.

The process of identifying the critical articles is divided into four stages:

1. The keywords entrepreneurial*, intentions*, woman*, female*, and propensity* were used in a string for searching the articles. In the first step articles and review papers in English which published in journals are included. Case studies, conference papers, and reports were excluded. The research articles were screened from major databases like Scopus, EBSCO-host, and Proquest.
2. The second stage included the procedure of reading the abstract for its appropriateness and suitability towards the research topic. Several articles were identified as duplicates and excluded. Additionally, a few papers were added from the cross-referencing method and papers that are regarded as seminal works that helped in the development of the field.
3. In the third step, the papers were read critically to eliminate articles that did not meet the criteria of the research topic. Abstracts were considered first before reading the whole text.
4. The set of selected papers for review was obtained and irrelevant and inappropriate documents were excluded.

The primary information of the articles is represented in Table 1.

The data files from databases were merged and a total of 270 articles from 134 Journals in the time frame of 1985–2024 were reviewed thoroughly by a traditional literature review as well as scientometric analysis (Lim et al., 2024). The duplicates were removed while downloading the Bibtex files from the databases so that they could be easily merged. Research articles only published in Journals were taken for consideration as they are considered the most reliable and validated source of information because of their blind peer review process (Podsakoff et al., 2005). The primary information conveys that most of the documents had multiple authors, which portrays that the field is maturing.

While the initial research relevant to EI started in 1985, it was in 2007 that the research gained momentum. The Annual Growth Rate is recorded at 2.51 %. The corpus of articles can be segregated into three categories, i.e., initiation phase (1985–2004), growth phase (2005–2014), and maturity phase (2015–2024). The time interval taken for the initiation phase is more than the time period for other phases because of the fact that founding a research domain on a particular theme takes the time and effort of pioneering researchers.

Fig. 2 portrays the Journals which have published the maximum number of articles on EI of women. The number of journals in the First Quartile (Q1), Second Quartile (Q2), and Third Quartile (Q3) in the top 13 most publishing journals in the domain of EI were six, five, and two, respectively. Authors published 63 articles in Q2, 37 articles in Q1, and 12 articles in Q3. These articles' publication trend portrays that authors have focused on publication in high-quality journals as a better quartile indicates better quality of the journal.

2.1. Scientometric analysis

The scientometric analysis integrates tools and techniques to excavate the facts and information in a given domain or body of knowledge and analyze the most relevant sources, most publishing authors, most

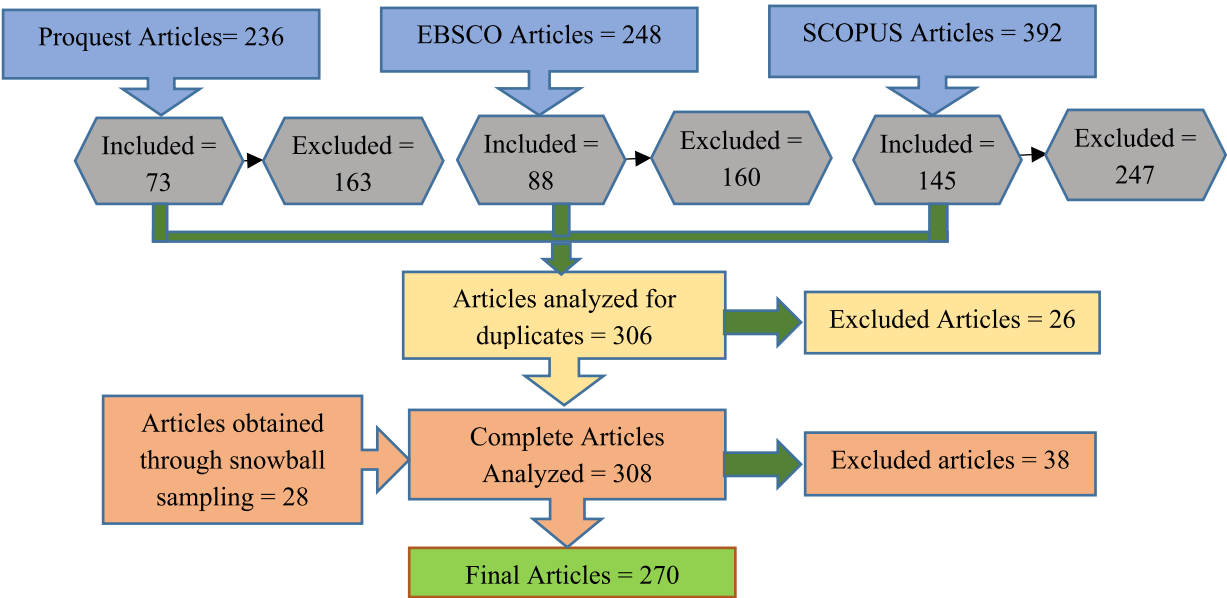


Fig. 1. Prisma flow outline.
Source: Authors.

Table 1
Primary information.

Description	Results
Documents	270
Sources (journals)	134
Keywords plus	241
Author's keywords	616
Time frame	1985–2024
Average citations/documents	37.06
Authors	628
Authors of multi-authored documents	587
Single-authored documents	44
Documents per author	0.43
Authors per document	2.33
Co-authors per documents	2.57
Collaboration index	2.6

Source - Authors

cited articles, and publishing trends of articles. It provides authors with sufficient information to conduct “Scientific Mapping” to collaborate on the discovery and recommendations of earlier researchers, determine the quality of published articles, and bring to light the intellectual and conceptual structure of the research field. Current progress in research in scientometrics has brought to the picture information visualization by mapping the different networks of collation among the authors and institutes and co-occurrence networks of keywords and essential groups of words in an article. This information visualization is made possible by applying advanced data mining techniques on the bibliographical data and corpus of text obtained from the selected research articles. In this research article, three major scientometric procedures have been applied to determine the consistency of research in the field of entrepreneurial intentions as a whole. The research is divided into performance analysis and scientific mapping. In the performance analysis, first, the most relevant sources of articles are identified, followed by Bradford's Law to determine the core journals in the field. Secondly, most publishing authors are identified, and Lodka's Law is applied to determine the number of publications by authors. In scientific mapping, first, the co-occurrence network of important keywords is used to identify the most prominent areas of research. This undertaken path of analysis is also called the multiple methods scientometric analysis and the process of triangulation of the techniques as mentioned above to

determine the results and their most appropriate explanations. Secondly, the co-citation analysis of the articles is also conducted to have a comprehensive view of the intellectual structure.

2.2. Performance analysis

The performance analysis explores the author's productivity, core journals, and citation analysis.

2.3. Core journals: Bradford's Law

Bradford's Law in Fig. 3 brings to light that the number of articles found in a journal will be decreasing exponentially when searching for references. Bradford's law was given by Samuel C. Bradford in the year 1934. Research suggests that if journals of a specific domain are segregated into three categories then based on the number of articles, and each category has an equal number of articles, then the ratio of journals in each category can be given by the formula,

$$x : xn : xn^2$$

where x is the number of journals. A simplified equation of Bradford Law is as follows:

$$R(r) = a \log(1 + br)$$

where, R(r) is total paper given by a journal ranked 1 to r, and a and b are the criteria.

The journals in the first category are also known as the core journals in the specific domain. Analysis in the current scenario recovered 9 core journals in the domain of EI of women.

2.4. Author productivity: Lotka's Law

Alfred J. Lotka was a researcher who framed the Lotka's Law. Lotka's Law determines the frequency of publication in a specific domain by the researchers as represented in Fig. 4. The Lotka's law can be represented as follows:

$$x^n y = i$$

where, y is the frequency of authors and x is the number of articles, n and

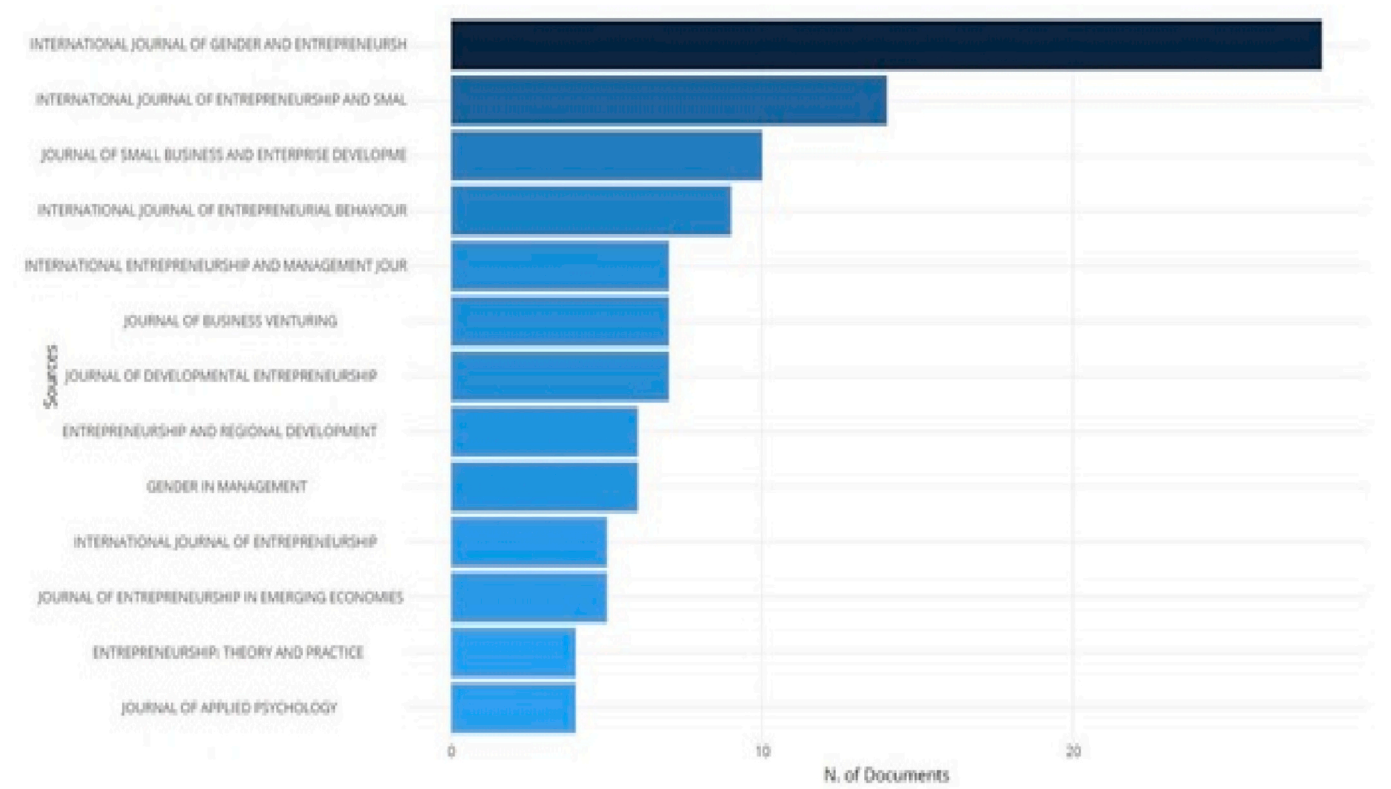


Fig. 2. Most relevant sources.
Source - Authors.



Fig. 3. Core journals.
Source - Authors.

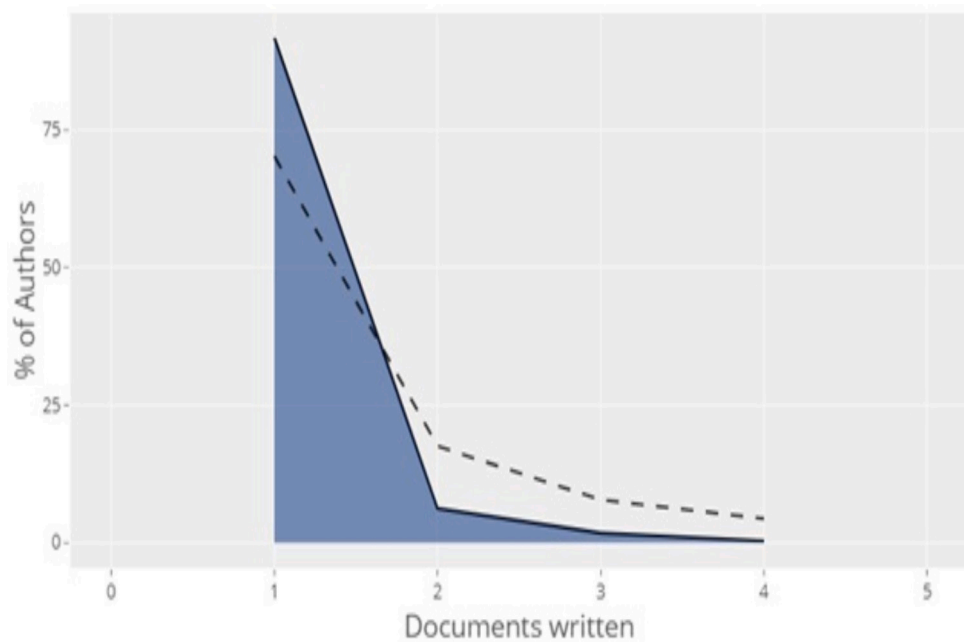


Fig. 4. Lotka's law.
Source - Authors.

i are constants specific to women entrepreneurial intentions. The study portrays that most of the authors had single publications.

2.5. Most cited articles: citation analysis

The importance of article is based on the number of citations received by the authors. More citations for a particular article reflects that many authors consider the article important. The article details with the citations received over the years is represented in Fig. 5.

2.6. Scientific mapping

2.6.1. Core journals' articles: co-occurrence analysis

A systematic literature review was conducted to identify the publishing trends of the core journals in the domain of EI of Women.

Fig. 6 portrays the journal level co-occurrence analysis that was conducted, taking 95 articles from 9 core journals.

Table 2 represents the Theme mapping of important keywords of Core Journals. The generic words like Entrepreneurship, entrepreneurs, entrepreneurship intention, entrepreneurial intentions, entrepreneurial intentions, women's entrepreneurship, women, women entrepreneurs, female entrepreneurship, female entrepreneurs, women entrepreneurship, and male entrepreneurs were not used in the Focus cluster Mapping.

2.7. Influential authors' articles: co-occurrence analysis

Fig. 7 represents the author level co-occurrence analysis, that was conducted taking 23 articles published by 15 most influential authors.

Table 3 represents the Theme mapping of important keywords of

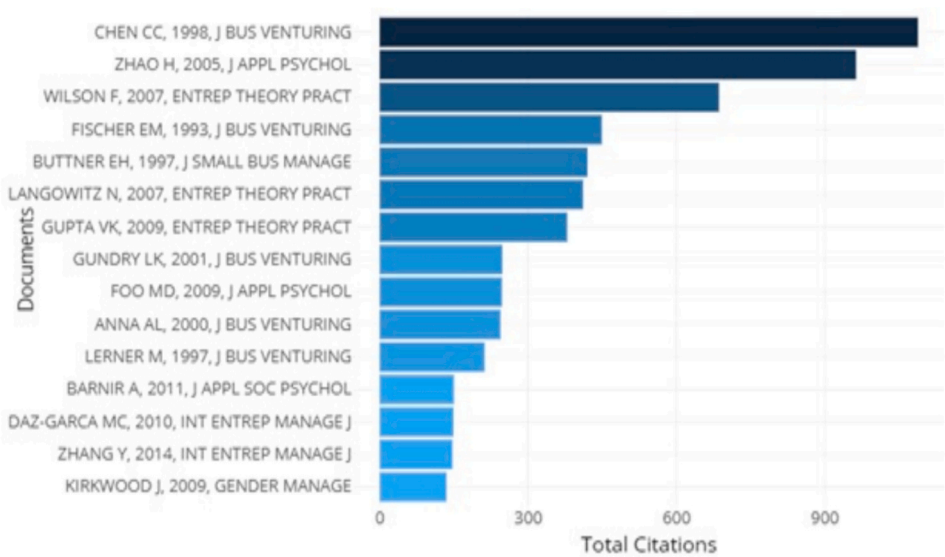


Fig. 5. Most cited articles.
Source - Citations from Google Scholar.

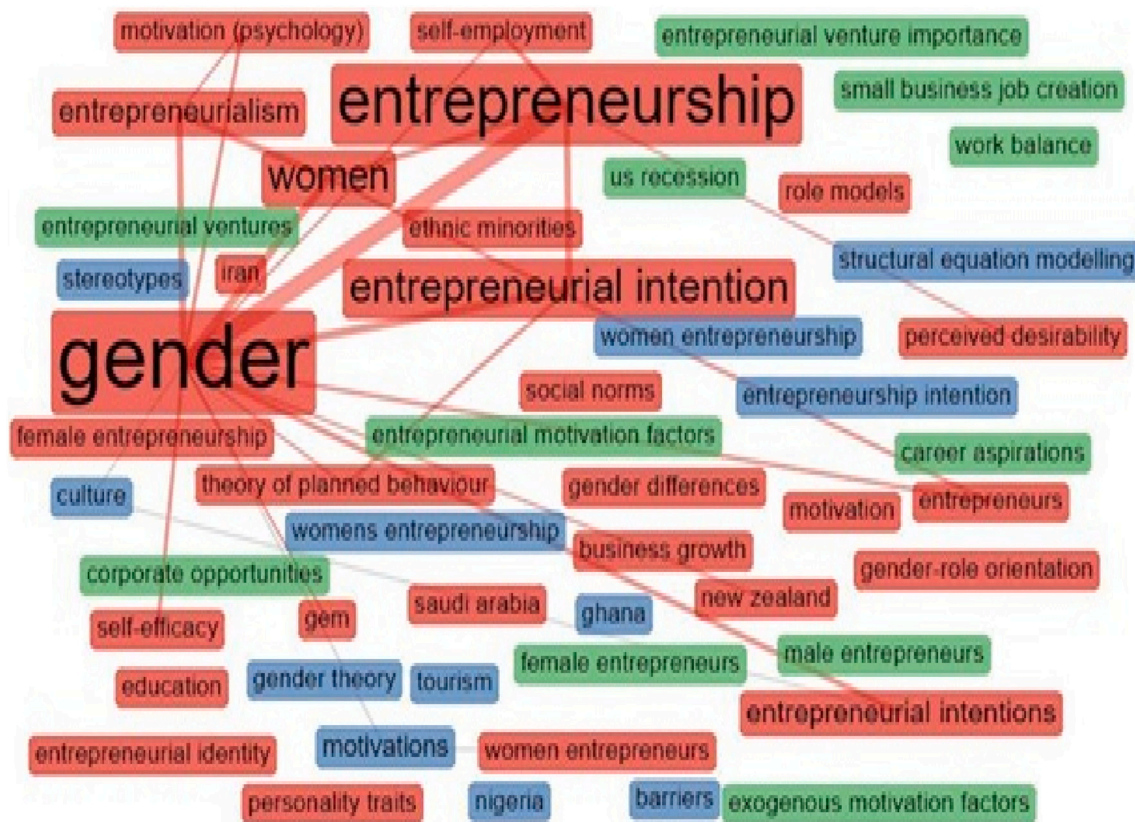


Fig. 6. Co-occurrence analysis of core journals.
Source - Analysis on Biblioshiny.

influential authors. The generic words like entrepreneurs, intentions, women entrepreneurial intention, entrepreneurial intentions, women, women entrepreneurship and entrepreneur were not used in the Focus cluster Mapping.

2.8. Most cited articles: co-occurrence analysis

Fig. 8 represents the article level co-occurrence analysis, that was conducted taking 30 most cited articles.

Table 4 represents the Theme mapping of important keywords of most cited articles. The generic words like Entrepreneurship, entrepreneurial intention, women, female entrepreneurship, and entrepreneurs were not used in the Focus cluster Mapping.

2.9. Co-citation analysis

The Co-citation analysis analyzed the relationship among articles and evaluated how frequently they are cited together in the corpus of 270 articles. Fig. 9 illustrates the co-citation network of articles.

The co-citation network gives 3 clusters of co-cited articles. [Ajzen \(1991\)](#), [Wilson et al. \(2007\)](#) and [Krueger et al. \(2000\)](#) are the most co-cited articles, which portray the importance of these articles in evolution and development in the field.

3. Methodology

The scientometric analysis was conducted using the biblioshiny tool which works the R interface. The themes identified in all the levels were analyzed for their consistency.

3.1. Thematic consistency analysis

From the research, the authors can derive that there is consistency as well as the uniqueness of research themes across all levels. Even in the themes that were consistent, the keywords constituting the theme were different. Some articles were the same across the sections as an important article may have been written by one of the most influential authors or may have been published in one of the core journals. The consistent, as well as the unique themes of research that were obtained from the research, are depicted in [Table 5](#).

3.2. Factor identification

In addition to the important themes of research, the major factors can also be identified through this research as many themes of research can directly be taken as important factors after considering the advice of experts and stakeholders in the field.

3.2.1. Nominal Group Technique (NGT)

Nominal Group Technique (NGT) is a systematic, group-oriented approach to developing and ranking ideas in a step-by-step process. The NGT was used to identify the most significant factors affecting women's entrepreneurial intentions through a panel of stakeholders and experts who evaluated the results from a literature review. Authors were moderators of the process and facilitated discussion while following a structured approach.

3.2.2. Participant selection

Seventeen participants who were relevant to the theme of entrepreneurship were chosen after careful selection based on experience and expertise relevant to the field. This population included: (i) 5 Established Entrepreneurs: People who had set up businesses and were still

Table 2

Theme mapping of important keywords (Core Journals).

Sl. no.	Core journal focus clusters	Important words	The occurrence of specific Focus words in the time period		
			Initiation phase (1985–2004)	Growth phase (2005–2014)	Maturity phase (2015–2024)
1.	Country/Place Centric	Saudi Arabia, Iran, New Zealand, US, Nigeria, Ghana	0 0 0 12 0 0	4 4 11 24 5 2	10 11 3 23 3 18
2.	Gender specific	Gender-role orientation, Gender, Gender differences	0 2 0	2 97 7	3 142 10
3.	Education related	Education	0	8	13
4.	Tool Centric	Structural equation modeling	0	1	1
5.	Information Source Centric	GEM	25	55	51
6.	Theory Centric	Theory of planned behavior, Gender theory	0 0	2 0	3 3
7.	Motivation Centric	Motivation (<i>Motivation (psychology), Motivations, Entrepreneurial Motivation Factors, Exogenous Motivation Factors</i>)	2	19	24
8.	Self-efficacy	Self-efficacy	2	7	0
9.	Entrepreneurialism	Entrepreneurialism	0	9	0
10.	Role models	Role models	0	0	6
11.	Barriers	Stereotypes, Barriers	0 0	0 0	4 8
12.	Culture	Culture, Ethnic minorities	0 0	0 0	8 2
13.	Personal factors	Perceived desirability, Personality traits, Entrepreneurial identity	0 0 0	0 1 0	4 4 5
14.	Business related	Business growth, Entrepreneurial venture importance, Entrepreneurial ventures	0 0 0	0 0 0	6 1 3
15.	Job related	Career aspirations, Corporate opportunities	0 0	0 0	1 1
16.	Tourism	Tourism	0	0	12
17.	Self-employment	Self-employment	0	1	7
18.	Social	Social norms	0	1	3

Source - Authors.

running them; that is, people who adopted a practical and experience-based approach. (ii) 4 Nascent Entrepreneurs: People at the early stages of starting their ventures. (iii) 3 Academicians: Entrepreneurship research experts; they base their contribution to the paper on theory and research findings in entrepreneurial intention. (iv) 5 Potential entrepreneurs: Professional students majoring in different courses interested in the launch of their business ventures.

The above diversity has made for a comprehensive review of factors from different angles of perspective. Therefore, this paper suggests that the factors established have been reasonably reliable in use.

3.2.3. Phases of NGT

The method of workshop data collection was adopted. In the workshop method the nominal group assembles at a designated place and then guided by the moderators through the process of NGT. A set location was designed where the nominal group congregated; they were to be directed by the moderators in the process as indicated below:

Phase 1: Briefing and Initial Factor Identification

In the introductory stage, moderators explained to the nominal group the essential themes that according to literature review influence entrepreneurial intentions in women. Each participant was then asked to identify factors from these themes considering their area of expertise, and hence, this led to harmonization of thoughts and their reflection on various factors while considering theoretical background and experience.

Phase 2: Group Discussion and Consensus Building

In this step, the opinion of all was gathered and everyone's ideas were portrayed on a dashboard that not only brings transparency but also openness. Invitations for suggestions were also provided about whether any factor needs to be included, removed, or any change is required from a personal perspective. Open sessions were maintained by group facilitators so that everyone present could voice their opinion.

Members carried on this cyclical process until they all agreed about the importance of each factor. This stage organized factors in an orderly fashion to indicate their relative significance based on feedback from the group. A consensus was reached through rounds of discussion wherein participants review and refine factors in a collaborative manner.

Third Phase: Final Review and Documentation

In the final stage, copies of the refined factors with a hard copy for individual review were given to the participants. It is at this point that all of the participants would finally know what they were in for—having the same mindset of the factors that needed their consideration. The process of NGT was used to identify the crucial factors in the domain of EI of women. Broad variables like personal, psychological and social were not taken by the nominal group to identify focused factors that directly influence the Entrepreneurial intentions of women. Likewise demographic variables like age, gender and country were not included.

The most important factors that influence EI of women as identified through the process of NGT were attitude, self-efficacy, motivation, role models, culture, politics, and education.

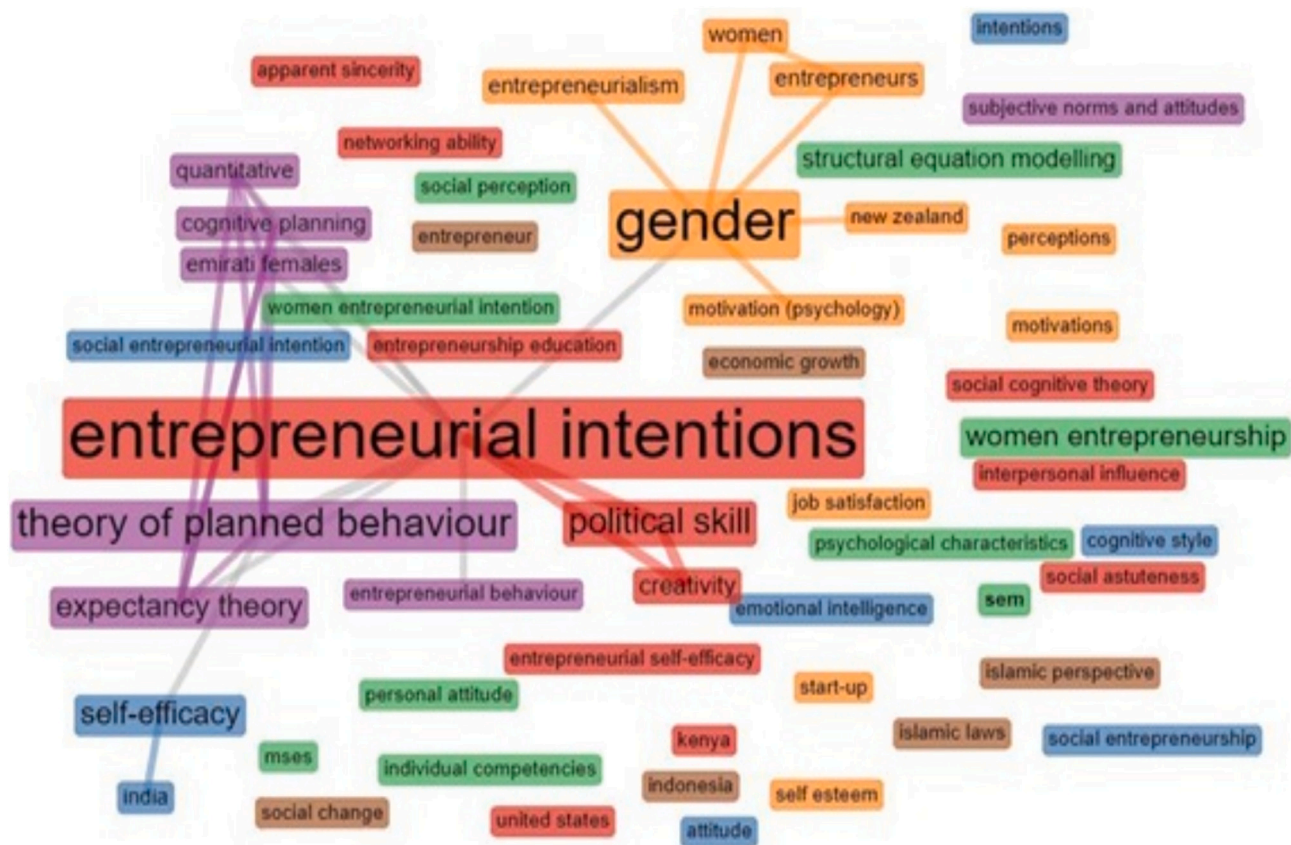


Fig. 7. Co-occurrence analysis of most influential authors.
Source - Analysis on Biblioshiny.

The themes in each level were identified based on the association, relevance and meaning of the keywords. The themes across all levels were later reviewed by experts for their accurateness, to which the experts agreed. The experts were the same group of stakeholders who identified the critical factors. By using the expert analysis the internal consistency was established and many biased were countered.

4. Discussion

The scientometric analysis and NGT led to the identification of important themes of research and factors that are considered crucial as well as impactful.

4.1. Important themes

The identified themes from the scientometric analysis and theme mapping excluding the most important factors identified through NGT can be described as follows:

4.1.1. Themes consistent across all levels

4.1.1.1. Country/Place Centric. Research on female Saudi Arabian students portrays that government policies, support from the government, society, and entrepreneurial training play an essential role in imbining entrepreneurial intentions. In contrast, economic support, infrastructure, and culture have no significant effect on entrepreneurial intentions (Ali et al., 2019; Jiménez et al., 2021). Women from Iran participating in home-based businesses are instigated positively by internal factors like achievement orientation and desire to live freely; and external factors like economic issues, feedback system, and hindrances of work from home businesses (Agarwal, 2024; Modarresi et al., 2016). Family

members and friends acted as significant drivers for women's entrepreneurial intentions in Nigerian Women, and the intentions were further enhanced by the economic and cultural traits (Isiwu & Onwuka, 2017). Fam (2022) looks into the multifaceted experience of Iranian women in entrepreneurship as it looks into the difficulties and unique contributions to the entrepreneurial landscape. Fauzi et al. (2023) traces the evolution of female entrepreneurship in developing countries, outlining past influences, present challenges, and future opportunities.

4.1.1.2. Gender specific. Gender-Role Orientation plays a significant role in strengthening entrepreneurial confidence, which imbines women's entrepreneurial intentions (Mueller & Dato-On, 2008). The gender role orientation is a better predictor of entrepreneurial intentions than biological sex (Perez-Quintana et al., 2017; Lin et al., 2024). Interviews with female entrepreneurs from New Zealand portrayed that desire for free will, and child care acted as major influencing factors (Kirkwood, 2009). Black women in the United States had perceptions pertaining to race and minority status that led to complications in entrepreneurial intentions (Sims & Chinta, 2019). Morales-Urrutia et al. (2022) explores the environmental aspects that influence entrepreneurial intentions specifically in relation to gender-related differences.

4.1.1.3. Tool Centric. Analysis of entrepreneurial intentions using the quantitative method of structural equation modeling suggests that women's attitude towards entrepreneurship is dependent on the psychological factors and the competencies of women (Anggadwita & Dhewanto, 2016). The meta-analysis reveal that of the emphasis on personality traits can help in enhancing entrepreneurial intentions (Şahin et al., 2019).

4.1.1.4. Theory Centric. Researchers have used the theory of planned

Table 3

Theme mapping of important keywords (influential authors).

Sl. no.	Relevant author focus clusters	Important words	The occurrence of specific focus words in the time period		
			Initiation phase (1985–2004)	Growth phase (2005–2014)	Maturity phase (2015–2024)
1.	Country/Place Centric	Kenya,	0	2	0
		Indonesia,	0	5	4
		New Zealand,	0	8	0
		India,	0	0	12
		United States,	1	15	8
2.	Gender Specific	Gender,	0	22	8
		Emirati females	0	0	2
3.	Education related	Entrepreneurship education	0	3	0
4.	Tool Centric	Sem,	0	0	1
		Structural equation modeling	0	1	1
5.	Religion Centric	Islamic perspective,	0	2	0
		Islamic laws,	0	1	0
6.	Theory Centric	Theory of planned behaviour,	0	0	5
		Expectancy theory,	0	1	2
		Social cognitive theory	0	1	0
7.	Motivation Centric	Motivations (<i>motivation (psychology)</i>)	1	4	2
8.	Self-efficacy	Self-esteem,	0	1	0
		Self-efficacy (<i>entrepreneurial self-efficacy</i>)	0	3	6
9.	Entrepreneurialism	Entrepreneurialism, entrepreneurial behavior	0	2	0
			0	1	2
10.	Type of research	quantitative	0	0	2
11.	Type of industry	Mses (micro and small enterprises)	0	1	1
12.	Psychology	Psychological characteristics,	0	0	1
		Emotional intelligence,	0	0	1
		Cognitive style,	0	0	2
		Cognitive planning	0	0	2
13.	Personal factors	Apparent sincerity,	0	1	0
		Interpersonal influence,	0	1	0
		Creativity,	0	8	0
		Perceptions,	0	1	1
		Individual competencies	0	0	1
14.	Business related	Economic growth,	0	2	0
		Start-up,	0	1	2
15.	Job related	Job satisfaction	0	1	0
16.	Political	Political skill	0	8	0
	Attitude	Attitude (<i>personal attitude, subjective norms and attitudes</i>)	0	1	11
18.	Social	Social astuteness, networking ability,	0	1	0
		Social change,	0	1	0
		Social entrepreneurial intention,	0	2	0
		Social perception,	0	0	4
		Social entrepreneurship	0	0	3
			0	0	1

Source - Authors.

behavior to analyze various factors and their mediation and moderation effects on entrepreneurial intentions (Haus et al., 2013; Gera et al., 2024). Academicians have utilized gender theory to emphasize the importance of gender in shaping the entrepreneurial attitude that affects entrepreneurial intentions (Micozzi & Lucarelli, 2016).

4.1.1.5. Entrepreneurialism. Entrepreneurialism in women's case is mostly motivated by the need for independence and family commitments, which can be taken as the push and pull factors (Dawson & Henley, 2012). The entrepreneurialism can help in transforming the cities by integrating the state of art technologies resulting in overall economic prosperity (Levenda & Tretter, 2020).

4.1.1.6. Personal factors. Perceived desirability positively affects the entrepreneurial intentions of women and motivates them to be entrepreneurs (Suratno et al., 2019). Research suggests certain personality traits like risk-taking and self-confidence can differentiate entrepreneurs from non-entrepreneurs (Chen et al., 1998; Xiaobao et al., 2023). The entrepreneurial identity plays a crucial role through identification, self-verification, and identity-enactment to motivate women to be entrepreneurs (Lewis et al., 2016).

4.1.2. Themes consistent across macro and meso levels

4.1.2.1. Social. The research on entrepreneurial intentions, statistically social astuteness, and networking ability has significant positive effects on the intent of women (Phipps & Prieto, 2015). Social Change is brought about by the entrepreneurs through their entrepreneurial personality and working strategically to achieve their goals (Rahmana et al., 2019). Society and self-control moderate the effects of understanding of an individual in order to shape entrepreneurial intentions (Pathak, 2021). The social entrepreneurial intention is driven by Social Capital, personality, social perception, and the motivation to do something good for society (Vijaya & Kamalanabhan, 1998). Empirical research has also shown that entrepreneurial intentions and social entrepreneurial intentions have the same origin and approach (Santos et al., 2021).

4.1.2.2. Business related. The business growth of women is lower due to their limited choices and cultural barriers, specifically for Muslim women, and after marriage, the choice of women decreases even more (Muhammad et al., 2019). The importance of entrepreneurial ventures for the economic growth of women limited due to their low social connections and less political ties that ultimately leads to lower growth

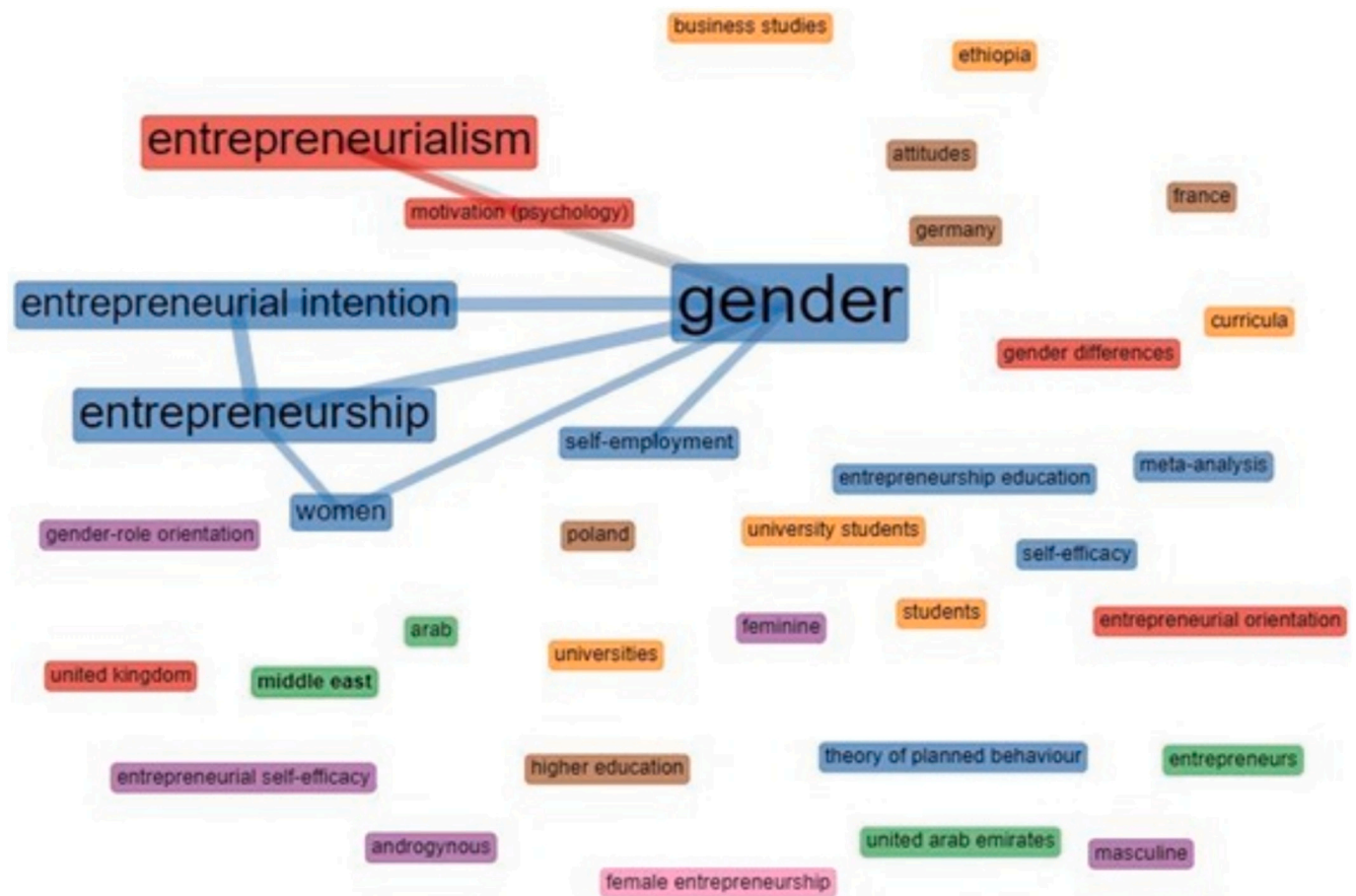


Fig. 8. Co-occurrence analysis of important articles.
Source - Analysis on Biblioshiny.

Table 4
Theme mapping of important keywords (most cited articles).

Sl. no.	Top cited articles focus clusters	Important words	The occurrence of specific focus words in the time period		
			Initiation phase (1985–2004)	Growth phase (2005–2014)	Maturity phase (2015–2024)
1.	Country/Place Centric	United Kingdom, United Arab Emirates, Middle East, France, Germany, Poland	1 0 0 0 0 0	3 0 0 1 1 1	5 3 1 0 1 0
2.	Gender specific	Gender (<i>gender differences, gender-role orientation</i>) Androgynous, Feminine, Masculine	2 0 0 0	19 1 1 1	19 0 0 0
3.	Education related	Entrepreneurship Education, Students (<i>university students</i>), Higher education	0 0 0 0	6 1 2 0	2 1 0 1
4.	Tool Centric	Meta-analysis	0	0	1
5.	Entrepreneurial orientation	Entrepreneurial orientation	0	0	1
6.	Theory Centric	Theory of planned behavior	0	1	1
7.	Motivation Centric	Motivation (<i>psychology</i>)	3	4	4
8.	Self-efficacy	Self-efficacy (<i>entrepreneurial self-efficacy</i>)	5	6	2
9.	Entrepreneurialism	Entrepreneurialism	0	2	2
10.	Self-employment	Self-employment	1	0	2
11.	Personal factors	Attitudes	0	6	2

Source - Authors.

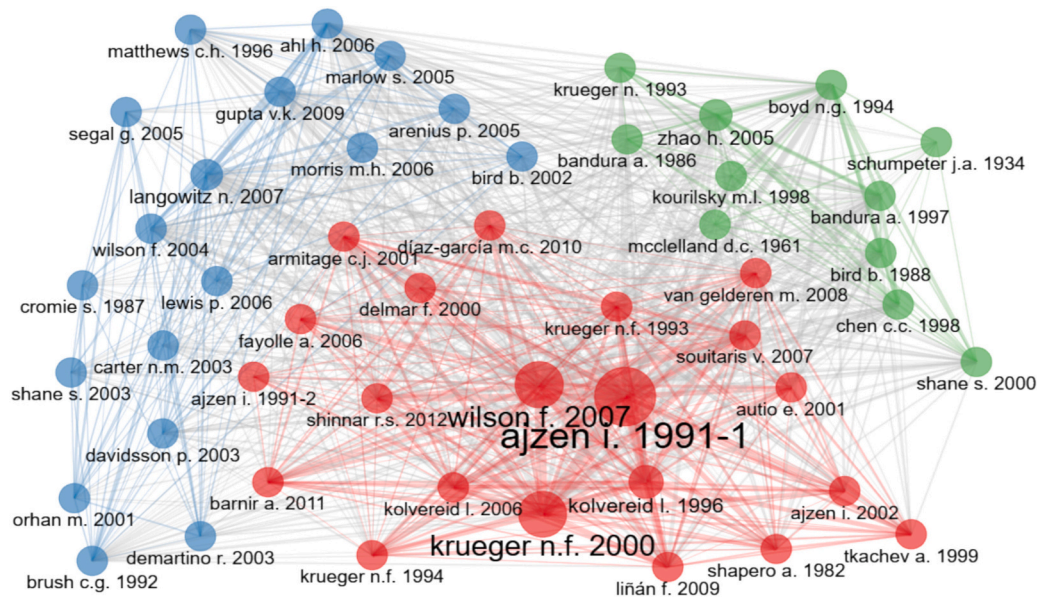


Fig. 9. Co-citation analysis.
Source - Analysis on Biblioshiny.

Table 5
Consistency analysis of themes.

Consistency	Core journals	Most influential authors	Important articles
All levels	Country/Place Centric Gender specific Education related Tool Centric Theory Centric Motivation Centric Self-efficacy Entrepreneurialism Personal factors	Country/Place Centric Gender specific Education related Tool Centric Theory Centric Motivation Centric Self-efficacy Entrepreneurialism Personal factors	Country/Place Centric Gender specific Education related Tool Centric Theory Centric Motivation Centric Self-efficacy Entrepreneurialism Personal factors
Macro and meso levels	Social Business related Job related	Social Business related Job related	NA
Macro and micro levels	Self-employment	NA	Self-employment
Unique	Role models Barriers Culture Tourism	Psychology Religion Centric Political Attitude Type of research Type of industry	Entrepreneurial orientation

Source: Authors.

ambitions for women (Wang et al., 2019).

4.1.2.3. Job related. Findings from research highlight that exogenous motivation factors like career aspirations and corporate opportunities act as crucial factors in inspiring women to be entrepreneurs (Daulerio, 2016; Layek & Koodamara, 2024). Women found more job satisfaction in work environments that had an independent work culture, and the women were free to make their own decisions (Kirkwood, 2009). The belief of entrepreneurship being a masculine trait brings a thought of non-belongingness and motives women to take different jobs (Kubberød et al., 2021).

4.1.3. Themes consistent across macro and micro levels

4.1.3.1. Self-employment. The desire for self-employment is motivated

by various factors like perceived social norms, desirability, and feasibility (Saadin & Daskin, 2015). Social skills and entrepreneurial intentions played a significant role in deciding if women will or will not be self-employed (Kan & Xie, 2024; Schoon & Duckworth, 2012).

4.1.4. Unique themes in core journals

4.1.4.1. Barriers. The most crucial barriers to the entrepreneurial intentions of women were found to be fear of failure, inadequate knowledge about economic resources, selecting areas for venture establishment, and discrimination (Cho et al., 2019). A study conducted on women from UAE suggests that stereotypes have a negative effect on entrepreneurial intentions irrespective of the course to which the women belong (Van Ewijck & Belghiti-Mahut, 2019).

4.1.4.2. Tourism. A study on Ghanaian women suggests that women entrepreneurs in the tourism sector were very confident in their abilities even without any formal education (Ali, 2018). Networking and social abilities were found to be significant factors for generating entrepreneurial intentions of women in the field of tourism (Costa et al., 2016).

4.1.5. Unique themes in most influential authors

4.1.5.1. Psychology. Emotional intelligence has a significant impact on the entrepreneurial intentions of women and drives them to be entrepreneurs (Tiwari et al., 2017). The cognitive style and cognitive planning of women lead to establishing pathways for women to be entrepreneurs and hence guide them to be entrepreneurs (Austin & Nauta, 2016). The psychological traits have been strongly linked to resilience and provide the necessary strength to women to develop EI (Ghouse et al., 2021).

4.1.5.2. Religion Centric. The Islamic perspective suggests that women should be privileged and respected, taking this perspective, women can be encouraged to be entrepreneurs, and their intentions should be amplified (Anggadwita et al., 2015). The beliefs of religion play an important role in recognizing opportunities and making a decision to setup a venture (Valliere, 2008).

4.1.5.3. *Type of research.* Research employing quantitative research

suggests that heredity also plays an important role in driving the intentions of women to be entrepreneurs (Nicolaou & Shane, 2010). Quantitative research employing structured equation modeling suggests that students with entrepreneurial education have higher entrepreneurial intentions than those who did not have an entrepreneurial curriculum (Gerba, 2012).

4.1.5.4. Type of industry. Research conducted on women having their own medium and small-scale ventures shows that women were influenced by psychological factors and had excellent competencies that led them to excel in their own fields (Anggadwita & Dhewanto, 2016). Research on women-led micro-enterprises suggests that the entrepreneurial intentions of women are motivated by their urge to earn and support their families financially (Goswami et al., 2019). Research has portrayed that SME's perform better in turbulent conditions (Kraus et al., 2012).

4.1.6. Unique themes in important articles

4.1.6.1. Entrepreneurial orientation. The entrepreneurial orientation of women is motivated by the need for power, economic independence, and achievement (Khanka, 2009). The entrepreneurial orientation becomes more robust with time due to the stored experiences. Women with higher self-efficacy are proven to have a higher entrepreneurial orientation (Isiwu & Onwuka, 2017). The entrepreneurial orientation paves way for a greater venture growth and performance (Gupta et al., 2008).

4.2. Critical factors and relationships

The critical factors to entrepreneurial intentions of women and the theoretical framework representing their inter-relationships are illustrated in Fig. 10.

R1 to R14 indicate the relation among the variables. The relationships R3, R7, R8, R9, R10, R12 and R14 are direct relationships among the identified variables and entrepreneurial intentions of women which have already been established through scientometric study, theme mapping and analysis of existing literature. The variables and their mediation relationships with the theoretical rationale can be elaborated as follows:

4.2.1. Entrepreneurial education

The education system that encourages entrepreneurship may decrease the perceptions of hindrances to becoming an entrepreneur (Mehtap et al., 2017). Study on students from various universities in India suggests that entrepreneurial education helps in strengthening the attitude towards entrepreneurship and thus, R4 can be supported (Agarwal et al., 2020; Shastri et al., 2022). The research on management students in Indonesia elaborates that motivation mediates the effect of entrepreneurial education to entrepreneurial intentions and supports R1 (Mahendra et al., 2017). The quantitative study of a sample of students from Uganda states that the effect of entrepreneurial education is mediated by self-efficacy to entrepreneurial intentions and supports R2 (Oyugi, 2015). Entrepreneurship education can be a significant indicator of entrepreneurial actions (Vukmirović, 2019).

4.2.2. Role models

Research Portrays that the social Norms and the perceived behavioral control mediate the effects of role models on the entrepreneurial intentions of women (Choukir et al., 2019). Women specifically are inspired more by their role models as their role models portray entrepreneurship as a gender-neutral concept (Khan, 2019). Role models have a huge impact on the self-efficacy of an individual, that in turn allows the individual to reflect on themselves and enhances their entrepreneurial intentions supporting R6 (BarNir et al., 2011). The social comparison theory suggests that role models having a successful career motivate individuals to establish an entrepreneurial venture. This the effect of role models is mediated through motivation to influence the entrepreneurial intentions of women and supports R5 (Nowinski & Haddoud, 2019). Entrepreneurial parents can also act as role models and persuade individuals to be entrepreneurs (Palmer et al., 2019).

4.2.3. Motivation

The motivations for women are considerably different from men in the case of establishing a new venture. Work-life balance is the foremost priority for women (McGowan et al., 2012). Women's marital status, parenthood, and age act as major entrepreneurial motivation factors in women's cases (Humbert & Drew, 2010). Work-life balance, ambitions, and hindrances in opportunities were major exogenous motivational factors for women in the field of entrepreneurship (Daulerio, 2016).

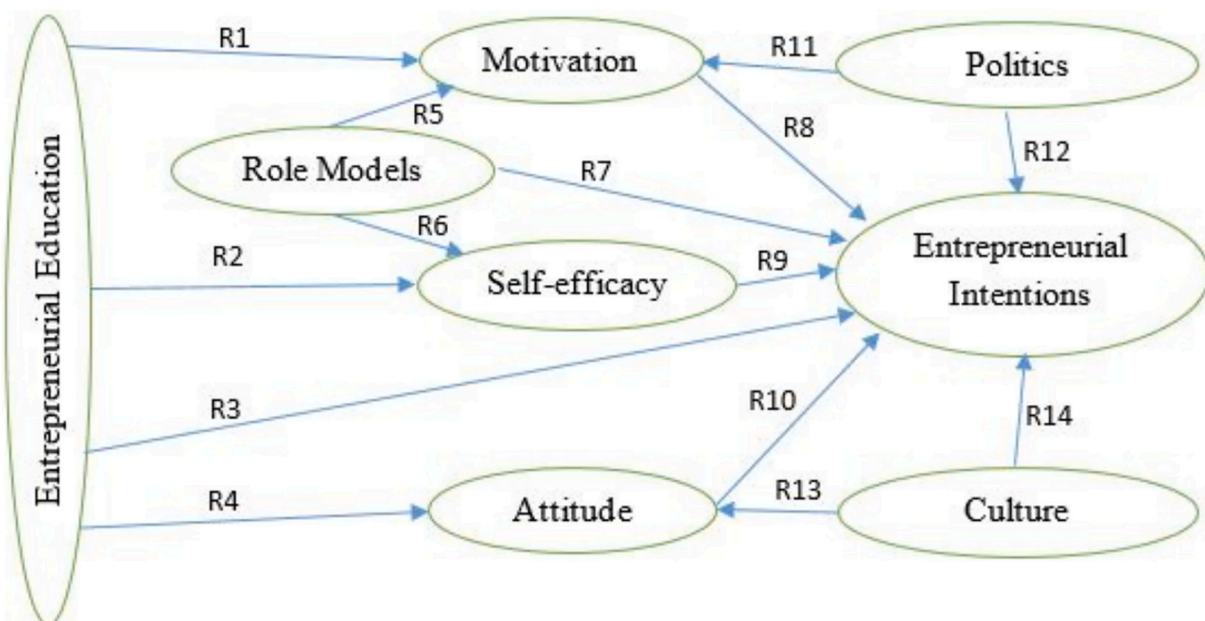


Fig. 10. Influential factors of entrepreneurial intentions of women.
Source - Authors.

Agarwal and Agrawal (2023) discusses motivational factors for female entrepreneurs using a competency-based framework. It provides insights on how specific competencies drive entrepreneurial success.

4.2.4. Self-efficacy

Self-efficacy of women can be elevated by reducing the male dominance stereotype hindrances, and this can lead to the establishment of high growth enterprises by women (Henry et al., 2013). Self-efficacy also mediates the effects of other factors like innovation (Sethumadavan et al., 2020). Research has connected self-efficacy to the desire of setting up a novel venture. The self-efficacy differentiated the entrepreneurial intentions of Syrian refugees and Jordanian countrymen (Welsh et al., 2021). Sharma et al. (2023) develops on the issue of factors affecting women's entrepreneurial intentions using entrepreneurial self-efficacy as a mediator.

4.2.5. Attitude

Entrepreneurial attitude plays a major role in shaping the mindset of women to set up a new venture, and it helps them overcome the fear of failure (Cañizares & García, 2010). The effect of the psychological attributes of women is mediated by the attitude to the entrepreneurial intentions of women (Anggadwita & Dhewanto, 2016).

4.2.6. Politics

Research suggests political skills have a positive effect on the entrepreneurial intentions of women but does not affect the relationship between creativity and intentions (Phipps, 2012). Research suggests that political skills like social astuteness, interpersonal influence, and dedication had a positive impact on the entrepreneurial intentions of women (Phipps & Prieto, 2015). The government policies aimed at the development of new ventures will motivate individuals and the motivations in turn will strengthen the entrepreneurial intentions thus R11 can be supported (Teixeira et al., 2018).

4.2.7. Culture

The countries that had a culture that supported entrepreneurship and had better entrepreneurial intentions were found to more prosperous economically (Tamar et al., 2019). Research suggests that the adverse effects of power influenced culture can be decreased by establishing a support system for women and help them in establishing novel firms (Anlesinya et al., 2019). The prevailing culture affects the attitude of individuals which in turn mediates the effects to shape the intentions of the individual that supports R13 (Urban & Ratsimanetrimanana, 2015). Avoiding uncertainty has a positive influence, while cultural barriers have a negative influence on the entrepreneurial intentions of women in Ghana. The support system for women has a buffering effect on the disrupting effect of cultural barriers (Anlesinya et al., 2019).

5. Conclusion

The article highlights the most researched themes pertaining to women's entrepreneurial intentions through scientometric analysis of research articles and identifies the crucial themes of research. The research focus of academicians highlights a broad and varied spectrum of factors. The micro, meso, and macro level analysis yielded various unique themes to the specific level or shared across the levels. The presence of particular themes across all levels portrays the higher importance of the themes. The themes present across all levels were Country/Place Centric, Gender Specific, Education Related, Tool Centric, Theory Centric, Motivation Centric, Self-efficacy, Entrepreneurialism and Personal Factors. The most important factors that influence EI of women are attitude, self-efficacy, motivation, role models, culture, politics and entrepreneurial education. Studies conducted on women around the world have highlighted the importance of region of place in imbibing creative and innovative thinking that help in structuring the entrepreneurial intentions of women. The lack exposure to a

supportive environment can act as a major hindrance to their entrepreneurial career (Sinkovics et al., 2020). Gender differences and stereotypes also have an adverse effect on women's entrepreneurial intentions. Economic support, government subsidies, and modernization and use of sophisticated machinery led to the enhancement of women's entrepreneurial intentions. Education has been proven to have a major influence on entrepreneurial intentions of women and helped them to come up with new and innovative ideas to solve modern life problems. The major tools used for research by earlier researchers can be classified into two categories i.e. qualitative analysis tools like nvivo; and quantitative tools like sem, pls-sem, AHP, NGT, etc. The most impactful theories that have shaped the direction of entrepreneurial intention research by women are theory of planned behavior and entrepreneurial event theory. Women who had lack of motivation could not come up with innovative solutions had major hindrance in developing entrepreneurial intentions. An individual's self-confidence (self-efficacy) plays a substantial part in influencing entrepreneurial intentions as well actions and was found to be the most crucial barrier in entrepreneurship (Raskovic & Takacs-Haynes, 2020). The process of NGT helped in identification of the most impactful factors from the identified themes. Research has revealed that women found themselves less related to entrepreneurship as compared to men because of their lack of confidence in their own abilities. The lack of self-confidence also hinders their ability to obtain funds and ultimately stops their growth. Personal factors are because women are more prone to avoid risks of taking up entrepreneurial ventures due to their mindset and thus avoid opportunity for becoming entrepreneurs. Entrepreneurialism is important to drive women to take entrepreneurship. The study shows that currently there are variety of themes of research but only a few get importance in all levels of research. The personal factors are the most researched aggregate of factors. Self-efficacy, motivation and attitude are the most researched personal factors. Role models and culture are the most researched social factors. Politics and entrepreneurial education are the exhaustively analyzed contextual factors. Salamzadeh et al. (2024) explains how digital technology empowers women entrepreneurs by overcoming traditional business barriers and enhancing market access. This study is also in line with existing literature on women's entrepreneurial orientation, extracting the main themes and further directions for future research (Haylemariam et al., 2024).

6. Implications

To the best of authors' knowledge, no such study across the levels of research has been conducted in the domain of women entrepreneurship. The future research avenues can be segregated into practical and research orientations.

6.1. Practical implications

The study's findings will help shape future policies by the government to meet the needs of potential women entrepreneurs. The policy-making bodies can consider the important factors and themes as domains of importance. The entrepreneurial education institutes can have focused programs for important factors or themes like role models, self-efficacy and entrepreneurial attitude.

6.2. Research implications

This article summarizes the major theoretical contributions in the domain of entrepreneurial intentions of women. The article will help future researchers in identifying the most researched areas and the impact they have on entrepreneurial intentions of women. The three direct implications for future researchers are findings of Bradford's law, Lotka's law and citation analysis. The Bradford's Law findings will help future researchers in identifying the important journals to focus for research publications. The Lotka's Law findings will help the future

researchers to find influential authors to collaborate. The Citation analysis of articles will help researchers to adopt writing styles as well as apply the techniques used. The two crucial future avenues for research are to use the findings of the article for conducting expert analysis and exploratory analysis. The major theories identified in the research can be taken as a base to frame and test hypothesis on entrepreneurial intentions.

6.3. Future research directions

Future researchers can analyze the entrepreneurship intentions across different geographical regions to identify issues across the globe. Expert analysis methods like AHP and ANP can be used to identify the priority and level of importance of the identified themes and factors. DEMATEL can be used to determine which themes and factors are causes and which are effects. Exploratory research methods like SEM have been applied extensively by earlier researchers and can be used by future researchers to frame a comprehensive scale and find the reliability and validity of the findings. The effect of emerging technologies like artificial intelligence on entrepreneurial intentions of women can be analyzed.

6.4. Theoretical contributions

The article provides critical theoretical contributions, systematically investigating and integrating some of the key themes and factors of influence on the entrepreneurial intentions of women with an intensive scientometric analysis at micro, meso, and macro levels. It addresses a gap in the literature as it identified those themes that were coherent across levels: Country/Place Centric, Gender Specific, Education Related, Tool Centric, Theory Centric, and Motivation Centric themes. The cross-level approach brings richness in the theoretical meaning by making explicit how a particular set of themes would be essential and pervasive for different levels of analysis that would add strength to its conceptual fit and generalizability across entrepreneurial contexts.

Moreover, an analysis based on Bradford's Law, Lotka's Law, and co-occurrence network analysis illustrates that research on women's entrepreneurship intentions is an intellectual and conceptual landscape. These contributions give methodological insights regarding which future studies can track emerging themes, influential authors, and citation trends. The study thus provides a basis for a more systematic and theoretically grounded exploration of women's entrepreneurial behavior, allowing researchers to map shifts in theoretical emphasis and to develop targeted hypotheses for understanding gender-specific entrepreneurial outcomes.

CRedit authorship contribution statement

Bhairab Chandra Patra: Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Formal analysis, Conceptualization. **Neha Kumari:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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