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Review

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Fear of Childbirth: A Bibliometric Analysis

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ABSTRACT

Background: Fear of childbirth (FOC) is an increasingly recognized maternal health issue that affects women's physical, psychological, and overall well-being and is associated with adverse outcomes, including increased obstetric interventions and perinatal mental health problems. This study aimed to analyze global research trends, collaboration patterns, and thematic developments in FOC research over the past decade using a bibliometric approach.
Subjects and Method: This was a bibliometric study using the Scopus database. A literature search was performed from database inception January 27, 2026 using the search query: TITLE-ABS-KEY ("fear of childbirth" OR "tokophobia" OR "anxiety childbirth"). The search was english-language, open-access, and final published articles were included. A total of 1,022 publications met the eligibility criteria. Annual scientific production, institutional productivity, author productivity, and publication trends by source and country were descriptively analyzed, while thematic analysis was conducted using VOSviewer.
Results: A total of 1.022 publications, demonstrating a consistent increase in scientific production, with the highest output recorded in 2025 (n=184). Iran contributed the largest number of publications (n=137), while the United Kingdom showed the strongest international collaboration network with the highest total link strength (TLS=135), followed by the United States (TLS=112). Citation analysis revealed that the most cited article received 472 citations. Keyword co-occurrence analysis identified four major research themes: social and healthcare system factors, clinical and physiological aspects of childbirth, perinatal mental health, and methodological and psychological measurement approaches.
Conclusion: Research on fear of childbirth has expanded substantially, reflecting a multidimensional field encompassing psychological, clinical, social, and healthcare perspectives. Key research gaps, particularly regarding family involvement and healthcare system factors, highlight priorities for future research and the development of comprehensive, woman centered maternal healthcare strategies.

Keywords: fear of childbirth, tokophobia, bibliometric analysis, perinatal mental health

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BACKGROUND

Women's experiences during childbirth encompass a wide spectrum of emotions, ranging from happiness to anxiety and fear. Although childbirth is often regarded as a significant life event for women, the process also presents various physical and psychological challenges. In some women, negative emotions may develop into fear of childbirth (FOC), an excessive fear of the childbirth process that can affect women's health and well-being before, during, and after delivery (Nieminen et al., 2017).

FOC is a complex emotional response that is often difficult to overcome. Fear of childbirth has been associated with various adverse outcomes, including sleep disturbances, anxiety, somatic complaints, prolonged labor, and an increased risk of cesarean delivery. In some cases, women choose cesarean section to avoid vaginal birth because they perceive the childbirth process as threatening or difficult to control (Wigert et al., 2020).

The prevalence of FOC varies considerably across countries. A study conducted in Iran reported an FOC prevalence of 71.5% (Khalesi, 2022), whereas a study in China found a prevalence of 67.1% (Huang et al., 2021). These variations suggest that social, cultural, and healthcare system factors may influence women's experiences of childbirth-related fear. Furthermore, several factors have been reported to be associated with FOC, including socioeconomic status, social support, educational level, psychological stress, and fear of labor pain (Khwepeya et al., 2023).

Over the past decade, publications on FOC have increased steadily, reflecting growing recognition of the psychological dimensions of maternal health. Previous studies have primarily focused on prevalence, associated factors, measurement instruments, and intervention strategies. However, despite the growing volume of evidence, the global knowledge structure and evolution of FOC research remain unclear. Specifically, the patterns of scientific production, contributions of key authors and institutions, international collaboration networks, and development of research themes have not been comprehensively characterized. A bibliometric analysis is therefore needed to provide a systematic overview of the research landscape, identify emerging priorities, and reveal potential gaps that may guide future investigations.

Understanding the research landscape of FOC has practical implications for various stakeholders. For researchers, bibliometric findings can identify emerging topics and underexplored areas to support future research directions. For healthcare professionals, these findings may facilitate the development of evidence-based approaches for addressing FOC within maternal care. For policymakers, the identification of research priorities may support the strengthening of maternal health strategies that incorporate psychological well-being as an essential component of pregnancy and childbirth care.

Therefore, this study aimed to analyze publication characteristics, research trends, collaboration patterns, and thematic developments in fear of childbirth research over the past ten years using a bibliometric approach.

SUBJECTS AND METHOD

1. Study Design

Bibliometric analysis was employed to map and quantitatively evaluate the development of research within a specific field of study (O'Connor et al., 2025). This was a bibliometric study conducted using the Scopus database as the primary source of bibliographic data. Scopus was selected

because it provides broad multidisciplinary coverage, comprehensive citation information, and standardized bibliographic metadata that are well suited for bibliometric analysis. Literature retrieval was performed on January 27, 2026. The study analyzed publications related to fear of childbirth published over the last ten years.

2. Population and Sample

The target population consisted of all scientific publications related to fear of childbirth. The accessible population included publications indexed in the Scopus database. Literature searching was conducted using the keywords TITLE-ABS-KEY ("fear of childbirth" OR "tokophobia" OR "anxiety childbirth"). The initial search identified 2,660 documents.

The inclusion criteria were: (1) English-language publications, (2) open-access articles, and (3) documents with final publication status. The exclusion criteria were conference papers, conference reviews, and book chapters. After applying the eligibility criteria, 1,022 articles were included in the final analysis.

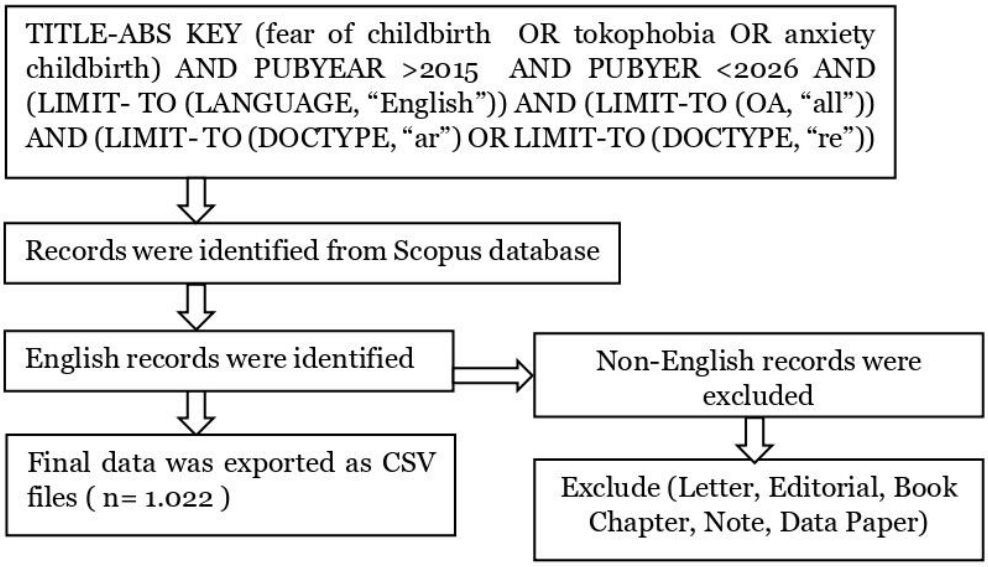

Figure 1. Publication Screening Flowchart

3. Study Variables

The variables analyzed in this study included annual scientific production, institutional productivity, authors productivity, publication trends by source, publication trends by country, and thematic analysis**.**

4. Operational Definition of Variables

Annual scientific production: the number of publications related to fear of childbirth produced in each year during the study period.

Institutional productivity: the number of publications contributed by each institution in the field of fear of childbirth.

Authors productivity: the number of publications contributed by individual authors in the field of fear of childbirth.

Publication trends by source: the distribution and number of publications across journals or publication sources in the field of fear of childbirth.

Publication trends by country: the distribution and number of publications contributed by authors affiliated with different countries.

Thematic analysis: the identification and distribution of major research themes based on keyword co-occurrence analysis.

5. Study Instruments

Bibliographic data were retrieved from the Scopus database. Data management, visualization, and bibliometric analyses were conducted using VOSviewer software.

6. Data Analysis

The selected articles were extracted to obtain information regarding authors, affiliations, publication year, journal sources, citations, and keywords. Data were exported in CSV format and analyzed using VOSviewer version 1.6.20. Network visualization was generated using the full counting method with association strength normalization. For keyword co-occurrence analysis, only keywords with a minimum occurrence of 10 were included. Network visualization, overlay visualization, and density visualization was generated to identify publication trends, collaboration patterns, and thematic structures.

7. Research Ethics

This study used publicly available bibliographic data retrieved from the Scopus database and did not involve human participants. Therefore, ethical approval and informed consent were not required.

RESULTS

1. Sample Characteristics

A total of 1,022 publications on fear of childbirth published between 2016 and 2025 met the eligibility criteria and were included in the analysis.

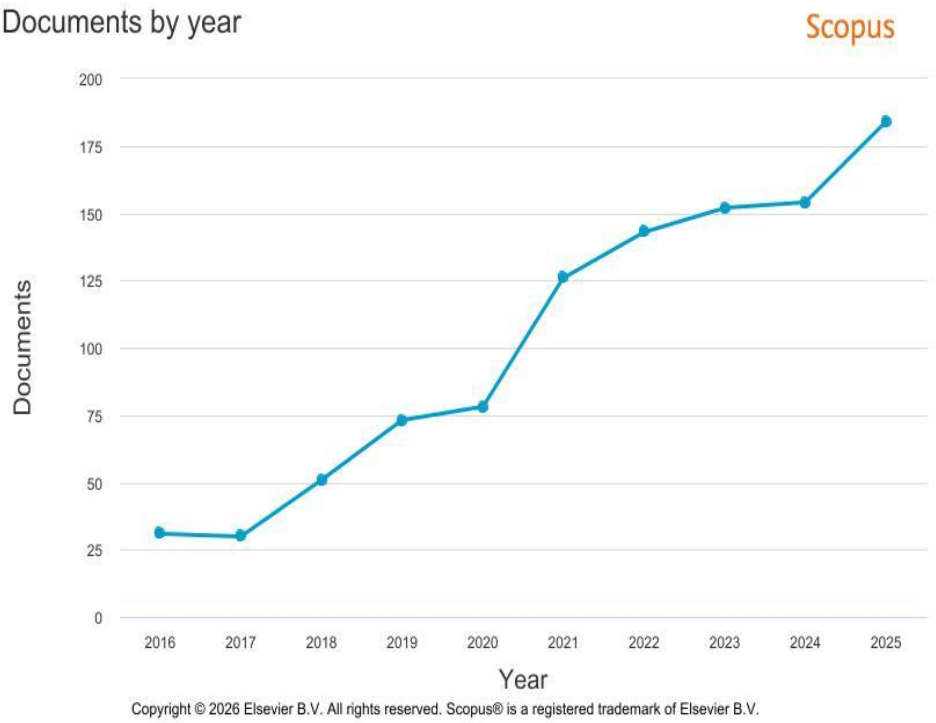

Figure 2. Publication Trends by Year

The annual scientific production showed a consistent upward trend throughout the study period. Publication output remained relatively limited during the early years and increased steadily after 2019, with a more pronounced growth observed from 2021 onwards. The highest number of publications was recorded in 2025 (n=184), followed by 2024 (n=154) and 2023 (n= 152), indicating sustained growth in scientific interest in fear of childbirth research.

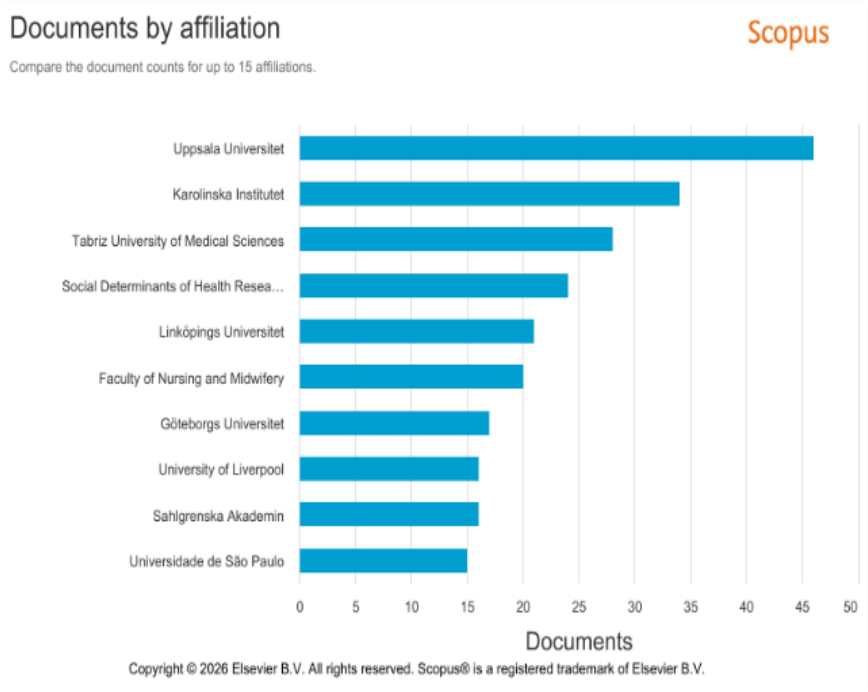

Figure 3. Documents by Affiliation

Institutional productivity analysis revealed that Uppsala Universitet was the most productive institution with 46 publications, followed by Karolinska Institutet (n=34), Tabriz University of Medical Sciences (n=28), Social Determinants of Health Research Center (n=24), and Linköpings Universitet (n=21). These findings indicate substantial contributions from institutions in Sweden and Iran.

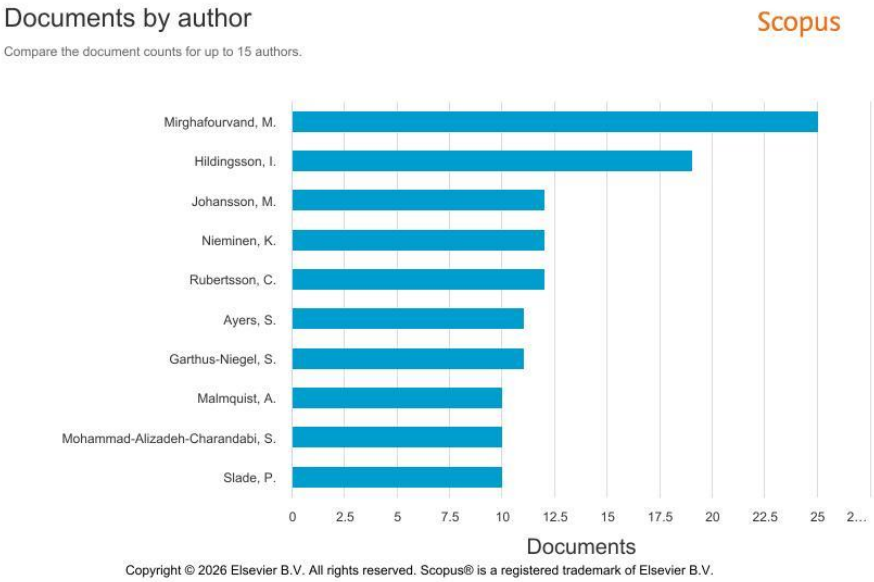

Figure 4a. Authors Productivity Based on Number of Publication in Scopus

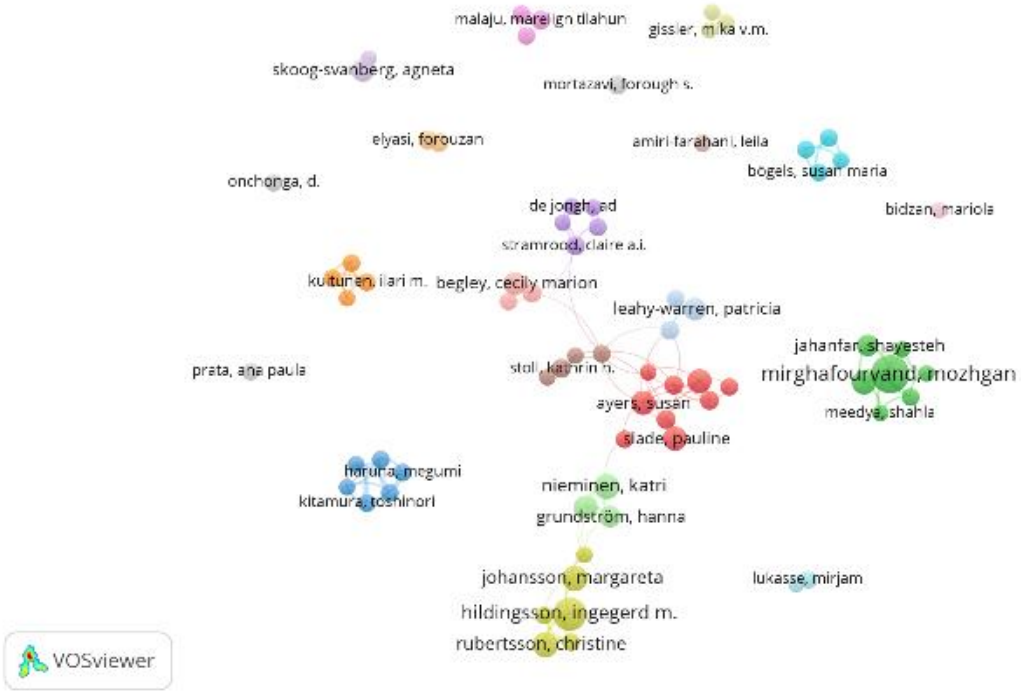

Figure 4b. Authors Productivity

The most productive author was Mirgha-fourvand, M., with 25 publications, followed by Hildingson, I. (n=19) and Johanson, K. (n=12). The distribution of publications suggests the presence of several influential researchers who have contributed substantially to the develop-ment of fear of childbirth research.

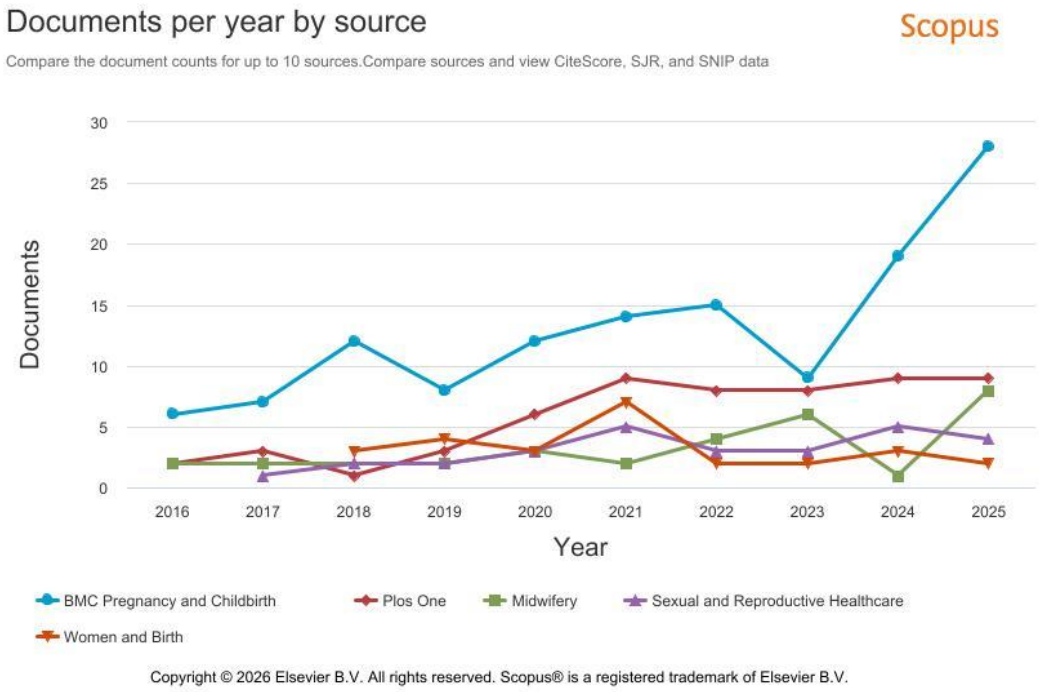

Figure 5. Publication Trends by Source

Publications were distributed across various journals, with BMC Pregnancy and Childbirth contributing the highest number of articles (n=130). Other major publication sources included PLOS ONE (n=58), Midwifery (n=30), Sexual and Reproductive Healthcare (n=28), and Women and Birth (n=26), reflecting the multidisciplinary nature of fear of childbirth research.

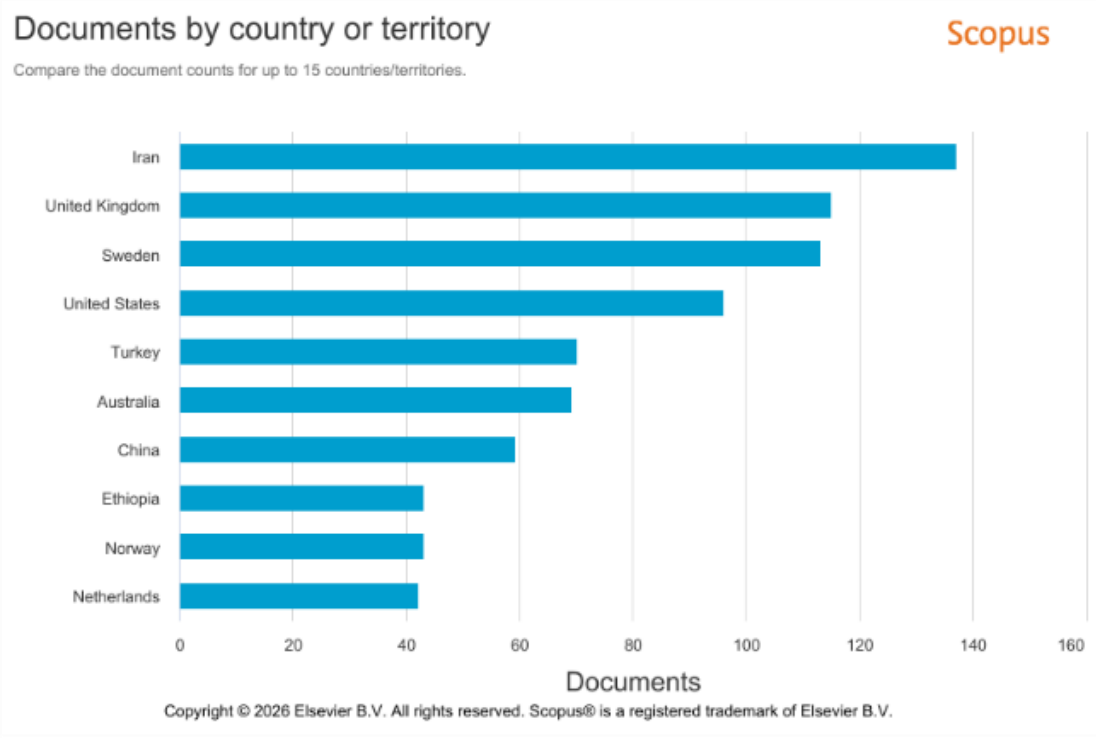

Figure 6a. Publication Trend by Country

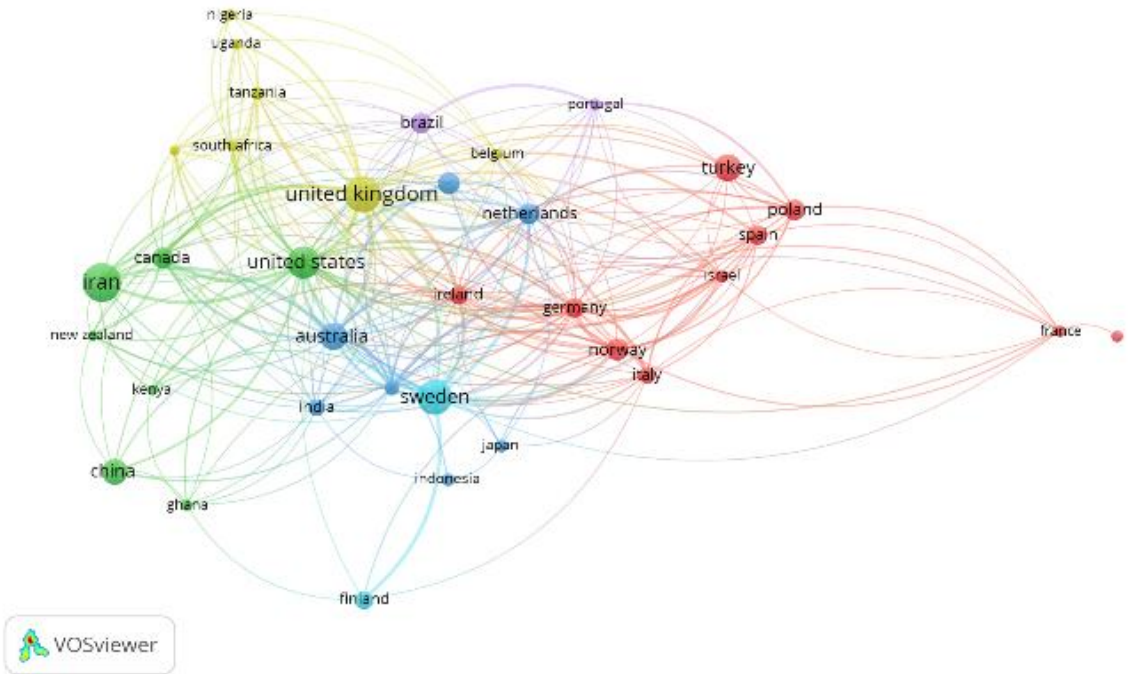

Figure 6b. Country level co-authorship network

Iran was the leading contributor in terms of publication output (n=137), followed by the United Kingdom (n=115) and Sweden (n=113). Country-level co-authorship analysis demonstrated that the United Kingdom (TLS=135) and the United States (TLS=112) occupied central positions within the international collaboration network. In contrast, despite its high publication productivity, Iran showed a relatively lower level of international collaboration (TLS=40). These findings indicate differences between publication productivity and global research connectivity.

Table 1. Top 10 Most Cited Articles on Fear of Childbirth (2016-2025)

Authors	Title	Journal	Cited	Document Type
(Ayers et al. 2016)	The aetiology of post-traumatic stress following childbirth: A meta-analysis and theoretical framework	Psychological Medicine	472	Review
(Nilsson et al., 2018)	Definitions, measurements and prevalence of fear of childbirth : A systematic review	BMC pregnancy and Childbirth	329	Review
(O'Conell et al., 2017)	Worldwide prevalence of tocophobia in pregnant women : systematic review and meta-analysis	Acta Obstetricia Et Gynecologica Scandinavica	292	Review
(Ayers et al., 2018)	Development of a measure of postpartum PTSD : The city birth trauma scale	Frontiers in Psychiatry	242	Article
(Hollander et al., 2017)	Preventing traumatic childbirth experiences: 2192 women's perceptions and views.	Archives of Women S Mental Health	178	Article
(Tadinac and Herman, 2018)	Anxiety during pregnancy and postpartum: course, predictors, and comorbidity with postpartum depression	Acta Obstetricia Et Gynecologica Scandinavica	174	Article
(Duncan et al., 2017)	Benefits of preparing for childbirth with mindfulness training : A randomized controlled trial with active comparison	BMC Pregnancy and Childbirth	173	Article
(Liang et al., 2019)	Why do women leave surgical training? A qualitative and feminist study	Lancet	169	Article
(Olza et al., 2020)	Birth as neuro-psycho-social event : An integrative model of maternal experiences and their relation to neurohormonal events during childbirth	Plos One	166	Review
(Ravaldi et al., 2021).	Pregnant Women voice their concerns and birth expectations during the COVID-19 pandemic in Italy	Women and Birth	157	Article

The most highly cited publications were predominantly systematic reviews, meta-analyses, and studies focusing on childbirth trauma, fear of childbirth, and postpartum psychological outcomes. The article by Ayers et al. (2016) received the highest number of citations (n=472), followed by Nilsson et al. (2018) (n=329) and O'Connell et al. (2017) (n=292). The predominance of evidence synthesis studies among the most cited publications highlights the importance of conceptual and theoretical frameworks in advancing fear of childbirth research.

3. Thematic Analysis

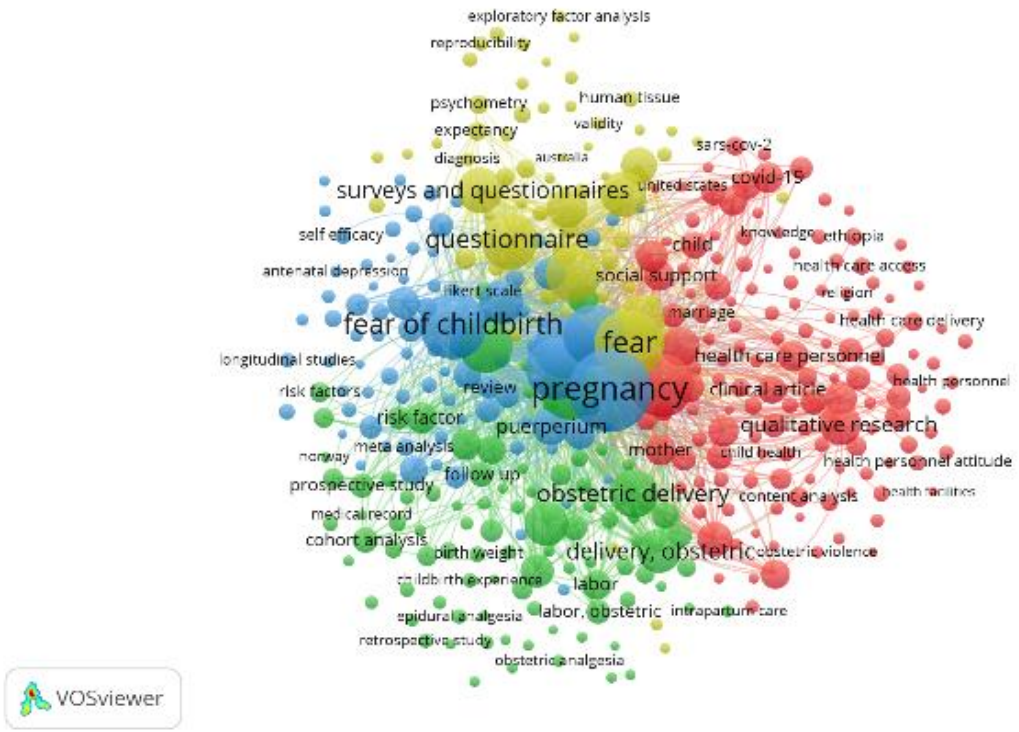

Figure 7a. Thematic clusters of the top index words

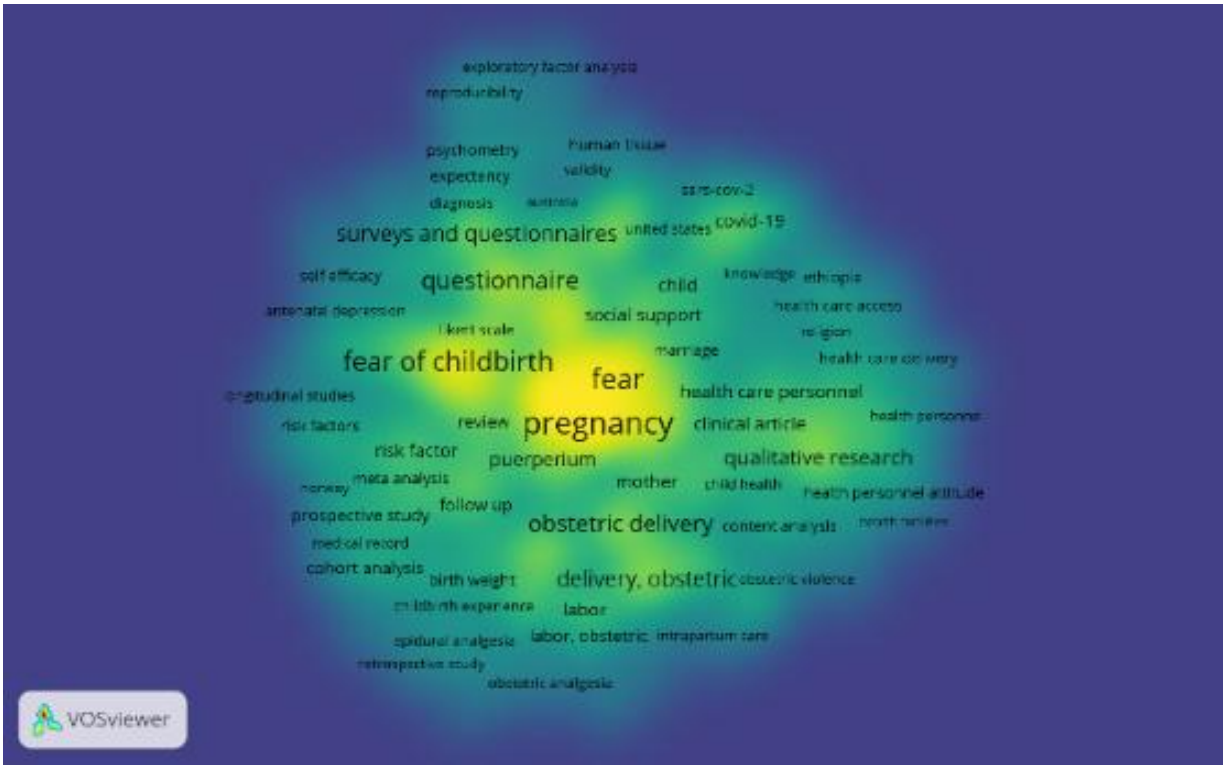

Figure 7b. Density visualization

Keyword co-occurrence analysis identified four major thematic clusters within fear of childbirth research: (1) social and healthcare system factors, (2) clinical and physiological aspects of childbirth, (3) perinatal mental health, and (4) methodological and psychological measurement approaches. The distribution of these clusters indicates that fear of childbirth has been investigated from clinical, psychological, and health-system perspectives.

Density visualization further demonstrated that topics related to maternal mental health, childbirth experiences, anxiety, and obstetric care occupied central positions within the knowledge structure of the field, suggesting their dominant influence on current research trends.

DISCUSSION

This bibliometric study demonstrates that fear of childbirth research has evolved into a multidimensional field encompassing clinical, psychological, social, and methodological perspectives. The identification of four major thematic clusters indicates that fear of childbirth is no longer viewed solely as an individual psychological condition but as a phenomenon influenced by interpersonal, healthcare, and sociocultural factors. The bibliometric findings also demonstrate a shift in research priorities over the past decade, with increasing attention to multidicplinary approaches that integrate psychological, clinical, and health system perspectives. This evolution reflects the growing recognition that addressing fear of childbirth requires coordinated interventions beyond individual-level psychological management.

The first thematic cluster highlights the importance of social factors and healthcare systems in shaping childbirth experiences. Its prominence within the keyword co-occurrence network suggests that recent fear of childbirth research increasingly recognizes childbirth fear as being influenced not only by individual psychological factors but also by interpersonal relationships, quality of maternity care, and healthcare system contexts. This shift reflects growing awareness that childbirth experiences are strongly influenced by respectful communication, continuity of care, and women's interactions with healthcare professionals. This interpretation aligns with the principles of respectful maternity care (RMC), which emphasize dignity, effective communication, informed decision-making, emotional support, and continuity of care throughout pregnancy and childbirth. These principles have increasingly been recognized as essential components of positive childbirth experiences and may contribute to reducing fear of childbirth by fostering trust and supportive relationships between women and healthcare providers (Seger et al., 2026).

Previous studies have similarly demonstrated that disrespectful maternity care, including stigma, neglect, and violations of privacy, may increase childbirth fear and negatively influence women's healthcare experiences (Kaseye et al., 2024). Conversely, interventions aimed at improving empathic communication among healthcare providers have been reported to reduce fear of childbirth and improve women's perceptions of the childbirth experience Akçay & Alan (2025). These findings suggest that the quality of interpersonal care remains a critical component of maternal healthcare services.

Family support also emerged as an important element within this cluster. Evidence indicates that inadequate partner support and limited antenatal care utilization are associated with increased fear of childbirth (Dereje et al., 2023). In addition,

the COVID-19 pandemic introduced new challenges to maternal healthcare delivery and altered women's emotional experiences during pregnancy and childbirth. Ravaldi et al. (2021) reported a shift from predominantly positive emotions to increased fear and uncertainty among pregnant women during the pandemic period. Collectively, these findings suggest that the growing prominence of healthcare system- and relationship-related keywords reflects increasing recognition that fear of childbirth cannot be addressed solely through individual psychological interventions. Instead, strengthening respectful maternity care, effective provider communication, continuity of care, and family involvement may represent important policy and practice priorities for improving women's childbirth experiences.

The second thematic cluster focuses on the clinical and physiological dimensions of childbirth. The continued prominence of keywords related to labour pain, obstetric interventions, maternal outcomes, and neonatal outcomes indicates that concerns regarding childbirth safety remain a central research priority. Rather than being replaced by psychological perspectives, clinical research continues to represent a complementary component of the fear of childbirth literature, reflecting increasing recognition that women's childbirth experiences are influenced by both physical and emotional factors. Research has demonstrated that concerns regarding labor pain often influence women's preferences for epidural analgesia and elective cesarean section (Wang et al., 2025). The prominence of obstetric interventions, maternal outcomes, and neonatal outcomes within this cluster suggests that fear of childbirth continues to be strongly associated with perceptions of physical risk and childbirth safety. These findings support integrated models of maternity care that combine evidence-based obstetric management with psychological support, rather than addressing these dimensions separately.

The third cluster emphasizes perinatal mental health and psychological interventions. The increasing prominence of keywords related to anxiety, post-traumatic stress disorder, coping strategies, mindfulness, psychoeducation, and cognitive behavioural therapy reflects the growing integration of maternal mental health into fear of childbirth research. Rather than viewing fear of childbirth as an isolated psychological condition, the bibliometric findings suggest an increasing recognition of its close relationship with broader perinatal mental health outcomes and the need for multidisciplinary approaches to prevention and management.

Previous studies have shown that traumatic childbirth experiences can have long-term consequences for mothers, partners, and family functioning (Horsch et al., 2024). The increasing focus on psychological interventions observed in this study is consistent with contemporary approaches that emphasize early identification, trauma-informed care, and targeted psychological support throughout the perinatal period.

The fourth thematic cluster relates to methodological development and psychometric assessment. The Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) emerged as one of the most widely used instruments for assessing fear of childbirth. Previous validation studies have demonstrated satisfactory reliability, validity, and acceptability of the instrument across different populations (Míes-padilla et al., 2025). Beyond the W-DEQ, recent methodological developments have focused on improving the clinical assessment of fear

of childbirth through the development and validation of additional measurement tools. The emergence of clinically validated instruments highlights ongoing efforts to enhance the accuracy, reliability, and clinical relevance of fear of childbirth assessment. Furthermore, cross-cultural validation remains essential because the expression and meaning of childbirth fear may vary across populations and healthcare contexts (Sheen et al., 2026).

The prominence of methodological research within the bibliometric network indicates increasing efforts to standardize fear of childbirth assessment, facilitate comparisons between populations, and strengthen the evaluation of intervention effectiveness. Continued refinement of measurement tools, including culturally adapted and clinically relevant instruments, will be important for advancing evidence-based approaches to fear of childbirth management.

The density visualization analysis further revealed an imbalance in research attention across topics. Psychological dimensions of childbirth, including fear, counselling, childbirth education, and maternal experiences, occupied central positions within the research landscape. In contrast, themes related to husbands, fathers, family planning, healthcare access, and healthcare delivery appeared less frequently. The relatively limited representation of partner- and family-related themes suggests that the role of interpersonal relationships in shaping childbirth experiences remains insufficiently explored within the fear of childbirth literature. Although previous research indicates that relationship quality and partner support may contribute to psychological wellbeing and adjustment during the transition to parenthood, their specific contribution to fear of childbirth requires further investigation (Hoffmann et al., 2023). Future research should therefore expand beyond individual psychological factors by examining how partners, families, and social support networks influence the development and management of fear of childbirth across different cultural contexts. Furthermore, the country collaboration network identified in this study highlights opportunities to strengthen multinational research partnerships, which may improve geographical representation, facilitate knowledge exchange, and promote methodological consistency across different healthcare settings. From a maternal healthcare perspective, these findings also highlight the importance of integrating fear of childbirth assessment, childbirth education, respectful maternity care, and psychological support into routine antenatal services to provide more comprehensive and woman-centered care.

This study has several limitations. First, the analysis was restricted to publications indexed in the Scopus database. Although Scopus provides extensive bibliographic coverage and citation data, relevant publications indexed exclusively in other databases, such as Web of Science or PubMed, may not have been captured, which may introduce indexing bias. Second, the inclusion of only English-language and open-access publications may have excluded potentially relevant evidence. Third, bibliometric analyses are influenced by citation patterns, where highly cited publications may receive greater visibility and influence the identification of research trends, potentially resulting in citation bias. In addition, the identification of thematic clusters depends on the selected keywords and search strategy; therefore, differences in terminology and keyword usage may have resulted in keyword selection bias. Finally, bibliometric analyses evaluate

publication characteristics and research trends rather than the methodological quality of individual studies. Therefore, the findings should be interpreted within the context of these limitations.

In conclusion, fear of childbirth research has expanded substantially over the last decade and reflects increasing recognition of the psychological, clinical, social, and healthcare dimensions of childbirth. Although psychological and clinical themes dominate the current literature, family involvement and healthcare system factors remain less extensively investigated. These findings provide valuable evidence for researchers, healthcare professionals, and policymakers in identifying research priorities and strengthening maternal healthcare strategies that address fear of childbirth through comprehensive and woman-centered approaches. Future research should further explore the role of partners and families, evaluate healthcare system-based interventions, and investigate culturally appropriate approaches to fear of childbirth management, particularly in underrepresented populations and low- and middle-income settings. Strengthening international research collaboration may also facilitate the development of more comprehensive and context-specific evidence to improve prevention and management strategies for fear of childbirth.

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CONFLICT OF INTEREST

There was no conflict of interest in this study.

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