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The Trends and Hotspots of Research on Lactation in Migrant Women: A Bibliometric Analysis (1980–2024 Years)

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Abstract

Background: The trends and focal points of studies on lactation in migrant women contribute to a deeper understanding of this field.

Research Aim: This study, conducted from a macro-level perspective, aims to comprehensively examine the primary focal points, trends, and depth of global research on the lactation experiences of migrant women.

Methods: Synonyms for the keywords "migrant, woman, and lactation" were standardized using Boolean search operators. A literature search was then conducted in the Web of Science database on January 6, 2025. Articles were then downloaded and analyzed using RStudio (Version 1.4.1717) and the "biblioshiny for bibliometrix" application, an R-based bibliometric analysis tool. The PRISMA 2020 checklist was used solely to guide the transparent reporting of the search and screening process.

Results: 275 articles were selected, with English-language articles appearing in 166 different journals between 1980 and 2024. The highest number of publications occurred in 2018. The *International Breastfeeding Journal* was the most prolific in terms of publications, while *Pediatrics* received the highest number of citations. The most cited article was titled "Couples' immigration status and ethnicity as determinants of breastfeeding." The most frequently used keywords were "migrant, duration, and infant," while trending topics included "women, duration, and health." Thematic mapping revealed that core themes of the field were women, duration, health, risk, children, infants, migration, mortality, and malnutrition.

Conclusion: This study maps global research trends on lactation among migrant women, identifying key thematic emphases and gaps within the literature. The findings highlight an outcome-focused and predominantly descriptive evidence landscape, while pointing to the need for more intervention- and implementation-oriented research to advance culturally responsive breastfeeding support.

Keywords

Bibliometric Analysis, Biblioshiny, Breastfeeding, Lactation, Migrant, Woman

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ÖZET

Arka Plan: Göçmen kadınlarda laktasyon üzerine yapılan çalışmaların eğilimleri ve odak noktaları, bu alanın daha derinlemesine anlaşılmasına katkı sağlamaktadır.

Araştırmanın Amacı: Bu çalışma, makro düzeyde bir bakış açısıyla, göçmen kadınların emzirme deneyimlerine ilişkin küresel araştırmaların temel odak alanlarını, eğilimlerini ve kapsamını bütüncül bir şekilde incelemeyi amaçlamaktadır.

Yöntem: "Göçmen, kadın ve laktasyon" anahtar kelimelerinin eş anlamlıları Boolean arama operatörleri kullanılarak standartlaştırılmıştır. Ardından, 6 Ocak 2025 tarihinde Web of Science veri tabanında literatür taraması yapılmıştır. Makaleler indirildikten sonra RStudio (Sürüm 1.4.1717) ve R tabanlı bibliyometrik analiz aracı olan "biblioshiny for bibliometrix" kullanılarak analiz edilmiştir. PRISMA 2020 kontrol listesi, yalnızca arama ve tarama sürecinin şeffaf biçimde raporlanmasına rehberlik etmek amacıyla kullanılmıştır.

Bulgular: 1980–2024 yılları arasında yayımlanan ve İngilizce dilinde olan toplam 275 makale seçilmiş, bu makaleler 166 farklı dergide yer almıştır. En fazla yayın 2018 yılında yapılmıştır. Yayın sayısı açısından en üretken dergi International Breastfeeding Journal, en fazla atıf alan dergi ise Pediatrics olmuştur. En çok atıf alan makale "Couples' immigration status and ethnicity as determinants of breastfeeding" dir. En sık kullanılan anahtar kelimeler 'migrant, duration ve infant' olurken, trend olan konular 'women, duration ve health' şeklinde belirlenmiştir. Tematik analiz, alanın çekirdek temalarının kadınlar, süre, sağlık, risk, çocuklar, bebekler, göç, mortalite ve malnütrisyon olduğunu ortaya koymuştur.

Sonuç: Bu çalışma, göçmen kadınlarda laktasyona ilişkin küresel araştırma eğilimlerini haritalandırarak literatürdeki temel tematik vurguları ve boşlukları ortaya koymaktadır. Bulgular, sonuç odaklı ve ağırlıklı olarak betimleyici bir kanıt yapısına işaret ederken, kültürel açıdan duyarlı emzirme desteğinin geliştirilmesi için daha fazla girişim ve uygulama odaklı araştırmaya ihtiyaç olduğunu göstermektedir.

Anahtar Kelimeler
Bibliometrik Analiz, Biblioshiny, Emzirme, Laktasyon, Göçmen, Kadın

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Background

"Culture" can be defined as the sum of knowledge, beliefs, and behaviors acquired through individuals' social experiences, whereas "acculturation" refers to the process of mutual adaptation that arises from the interaction of different cultures (Berry, 2006; Izumi et al., 2024). In this context, migrants represent one of the groups in which cultural change is most evident. Migration refers to the temporary or permanent movement of individuals either within a country or across borders, encompassing people with diverse linguistic and cultural backgrounds (International Organization for Migration [IOM] UN Migration, 2024a, 2024b, 2024c; McAuliffe & Oucho, 2024).

According to the World Migration Report (2024), approximately 281 million people live outside their country of birth, accounting for 3.6% of the global population. Forced migration continues to increase due to conflict, disasters, and political or economic instability; in 2022 alone, 117 million people were forcibly displaced, 45 million of whom migrated internationally. During the same period, the number of asylum seekers increased by 30% (McAuliffe & Oucho, 2024). Migrants and refugees face disadvantages in accessing healthcare due to discrimination, financial difficulties, inadequate living conditions, and linguistic and cultural barriers. Consequently, migrant health has become a global priority, with maternal and child health, continuous and quality primary care, and breastfeeding support identified among the World Health Organization's strategic targets (WHO, 2023a, 2023b).

Breastfeeding is a fundamental practice with direct impacts on maternal and child health while also being recognized as a public health and human rights issue. The WHO recommends initiating breastfeeding within the first hour after birth, exclusive breastfeeding for the first 6 months, and continued breastfeeding up to 2 years of age (WHO, 2017). Adequate breastfeeding is associated with better health outcomes in childhood and adulthood, reduced risk of chronic diseases, improved educational achievement, and enhanced productivity (Seoane Estruel & Andreyeva, 2025; WHO, 2017). Therefore, it is essential to support migrant women's breastfeeding experiences, considering their disadvantaged circumstances.

Migration influences the breastfeeding process in multifaceted ways. Factors such as socioeconomic deprivation, poor nutrition, limited access to healthcare, cultural restrictions (Dhestina et al., 2025; Hirani, 2024; WHO, 2023a), language barriers, and migration-related stress (Cook et al., 2021; Kuswara et al., 2016), as well as reduced family support (D'Hollander, 2025; Izumi et al., 2024), negatively affect

Key Messages

- Although studies on lactation among migrant women exist, this bibliometric analysis maps the main research trends, thematic emphases, and focal areas within the literature.
- Cultural and language-related themes are prominently represented in the literature, particularly in relation to breastfeeding duration, as reflected in keyword co-occurrence patterns.
- This study is the first to provide a bibliometric overview of global research trends addressing breastfeeding-related disparities in migrant populations.
- Themes related to healthcare access and cultural adaptation are frequently examined in the literature, highlighting areas of concentration as well as gaps for future empirical and intervention-focused research.

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breastfeeding. Conflicting advice from healthcare professionals (Leung, 2017), workload (Yalcin et al., 2022), the accessibility of infant formula (Lim et al., 2022), and differing breastfeeding norms and policies across societies further shape the process (Izumi et al., 2024; WHO, 2023a). These multilayered factors highlight the importance of culturally sensitive healthcare services. The breastfeeding behaviors of migrant women cannot be fully understood without integrating broader theoretical frameworks that explain how social context and structural forces shape health. Acculturation Theory (Berry, 1997; Sam & Berry, 2006) provides an essential lens for understanding how cultural adaptation influences feeding practices, suggesting that breastfeeding initiation and duration may decline as migrants adopt host-country norms, face disruptions in traditional support systems, and experience new social expectations. However, behavioral change alone does not explain the disparities observed across migrant groups. The Social Determinants of Health Framework (Solar & Irwin, 2010) demonstrates that health behaviors are profoundly shaped by structural conditions—including socioeconomic position, legal status, housing, food environments, language access, healthcare entitlements, and discrimination. These determinants interact with migration-related vulnerabilities such as displacement, trauma, and restricted social networks, producing inequities in breastfeeding opportunities. Complementing this perspective, the WHO's Health Equity Framework emphasizes that inequities arise not from individual choices but from avoidable and unjust structural conditions that disproportionately affect migrant women (WHO, 2023a, 2023b). Together, these frameworks situate breastfeeding within a multilevel system shaped by cultural adaptation, social position, and structural barriers, underscoring the need to interpret global research patterns through a socio-ecological and equity-oriented lens.

Cultural differences also play a significant role in breastfeeding behavior among migrant women. For instance, the lower exclusive breastfeeding rates of Middle Eastern migrant mothers in the United States compared to their countries of origin (Khasawneh et al., 2023; WHO, 2023b) highlight the influence of cultural norms, beliefs, and spousal support. Such findings emphasize the need for culturally sensitive policies and practices targeted at migrant women. In conclusion, breastfeeding is of critical importance for both individual and public health. Increasing migration trends necessitate a more comprehensive understanding of the breastfeeding experiences of migrant women (Dhestina et al., 2025; D'Hollander, 2025; Khasawneh et al., 2023; WHO, 2023a, 2023b). Although the literature includes studies on the breastfeeding experiences of migrant women, research specifically addressing the role of acculturation and cultural dynamics remains limited (Cook et al., 2021; Dennis et al., 2019; Izumi et al., 2024). Existing reviews have primarily focused on specific regions or themes, without capturing the global structure, collaborations, and evolving trends of this field (Murcia-Baquero et al., 2024; Pereira et al., 2022). For example, systematic and scoping reviews have examined the experiences of exclusive breastfeeding among migrant women in high-income countries (Izumi et al., 2024), or the impact of migration on breastfeeding practices (Murcia-Baquero et al., 2024); however, these works do not address research collaboration networks, thematic evolution, or global trends.

With the rise in migration movements, research on migrant health has also expanded (McAuliffe & Oucho, 2024; Olajide et al., 2024). Nonetheless, no macro-level bibliometric analysis has been identified that examines the breastfeeding processes of migrant women without restrictions related to time, country, or professional discipline (Heidary et al., 2025; Roess & Robert, 2025). Also, existing evidence on breastfeeding among migrant women remains fragmented and unevenly distributed across countries, limiting the field's ability to address the structural drivers of inequity—such as migration-related vulnerabilities, cultural dislocation, and unequal access to maternal health services. While previous reviews have synthesized thematic findings, they have not systematically examined how global research patterns themselves might reinforce or obscure these inequalities. Mapping the geographic distribution of publications, collaboration structures, and thematic trajectories is therefore essential to understanding not only what is known, but also which populations, contexts, and determinants remain underrepresented in the global evidence base. This perspective is critical for generating actionable insights that can support equitable breastfeeding outcomes.

The objective of this study was to conduct a bibliometric analysis of global research on lactation among migrant women in order to (1) identify research trends, thematic hotspots, and emerging areas of focus; (2) highlight gaps in knowledge where further investigation is needed; and (3) provide insights that can inform future empirical research, hypothesis generation, and research prioritization, with potential relevance for clinical and policy-oriented inquiry. By systematically mapping this body of literature, we aim not only to describe its evolution but also to generate actionable knowledge that supports equitable breastfeeding outcomes for migrant populations. By mapping global research productivity, collaboration patterns, and thematic evolution, this bibliometric analysis aims not only to summarize the existing evidence but also to reveal structural research gaps related to health inequities, migration-related barriers, and culturally specific determinants of breastfeeding. Identifying these gaps is essential for informing equitable policy development and service planning for migrant populations. Therefore, the present study extends the field beyond previous systematic reviews by linking bibliometric trends to real-world maternal health disparities. The study seeks to answer the following research questions within this framework:

- What are the key characteristics of publications on this topic?
- What are the trends in publication output and average citations over time?

- Which journals have published the most articles and received the most citations?
- Which institutions and countries have contributed the most publications?
- What is the distribution of authorship productivity according to Lotka's Law?
- Which are the most highly cited articles?
- What are the most frequently used and field-specific keywords?
- What are the trending topics, and how have they evolved?
- What are the thematic maps and thematic evolution of the most frequently used keywords?

Method

Research Design

This study adopts a cross-sectional design and follows a two-stage methodological approach. In the first stage, the Web of Science (WoS) was selected as the primary data source. WoS provides a robust foundation for ensuring the validity and reproducibility of bibliometric analyses through its high-quality citation data, standardized bibliographic records, and multidisciplinary scope. Unlike other databases (such as Scopus, PubMed, and CINAHL), WoS enables the extraction of complete citation metadata and reference information in formats directly compatible with bibliometric software (such as Bibliometrix and Biblioshiny). Furthermore, thanks to its strict indexing criteria and international visibility, WoS is widely accepted as the reference standard in bibliometric research. While other databases place greater emphasis on specific fields (such as health, nursing, midwifery, or public health), WoS incorporates them while also being recognized as the most reliable source in terms of methodological quality, scope, and suitability for bibliometric analyses.

Search Strategy

A preliminary literature review was conducted to identify relevant keywords related to the research topic. Based on this review, the most frequently used terms for "migrant" in the literature were identified as "refugee, migrant, immigrant, settler, and "asylum seeker." Keywords related to "lactation" included "lactate", "lactation", "lactating", "breastfeeding, exclusive", "breast feeding, exclusive", "exclusive breastfeeding", "breastfeed", "breast-feed", "breast-fed", "breastfeeding", "breast feeding", "breast-feeding", "breastfeeding", "breast feeding", "breast-feeding", "human milk", "breastmilk", "breast milk", "breast-milk", "human-milk", "human feed", "human fed", "human-feed", "human-fed", "human feeding", "colostrum", "foremilk", "suckle", "suckling", "give suck" and "wet nurse." These terms were searched in the Abstract (AB), Title (TI), and Author Keywords (AK) sections of WoS-indexed articles. The search strategy was standardized using Boolean operators. The standardized search query (which is presented in Appendix 1 in the online supplemental material) was executed in the "Advanced Search" section of the WoS database to retrieve the relevant articles.

Eligibility Criteria

The inclusion criteria were defined as follows: original research articles written in English, with full-text access, and a study population consisting of migrant women. Exclusion criteria included books, book chapters, data papers, conference abstracts or proceedings, review articles, systematic reviews and/or meta-analyses, scale development/adaptation studies, animal studies, studies not involving migrant women, duplicate publications, and engineering-focused research not related to the topic.

Study Selection and Data Extraction

The search was conducted on January 6, 2025, and yielded 555 articles published in English between 1980 and 2024. In the WoS, 114 records were excluded through Quick Filters because they were review articles, early access publications, enriched cited references, or had a publication year of 2025, leaving 445 articles. Subsequently, 34 records were excluded because they were meeting abstracts, editorial materials, notes, or book chapters, resulting in 441 articles. Thereafter, 34 articles published in languages other than English were excluded, leaving only 398 articles in English. The researchers then conducted a detailed review of the full texts of these 398 articles. Among them, 123 articles were excluded because they did not meet the inclusion criteria, as they were systematic reviews, meta-analyses, narrative reviews, studies involving non-human subjects, scale development or adaptation studies, studies with non-migrant women as the sample, duplicates, or engineering-focused research. As a result, a final analysis was conducted on the remaining 275 articles. The data collection and screening process is illustrated in Figure 1. The PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist was used solely as a reporting framework to transparently document the search and screening process. The study did not aim to conduct a systematic review but employed a bibliometric approach to analyze publication patterns and research trends. The flow diagram (Hür, 2021; Page et al., 2021) provides detailed information on the data search strategy.

In the second stage, full records and cited references for 275 articles were downloaded in plain text format (TXT) from the WoS database. These files were merged and uploaded to the Biblioshiny application of the Bibliometrix package in RStudio for analysis. The Biblioshiny tool was used to generate tables and visual representations of the findings.

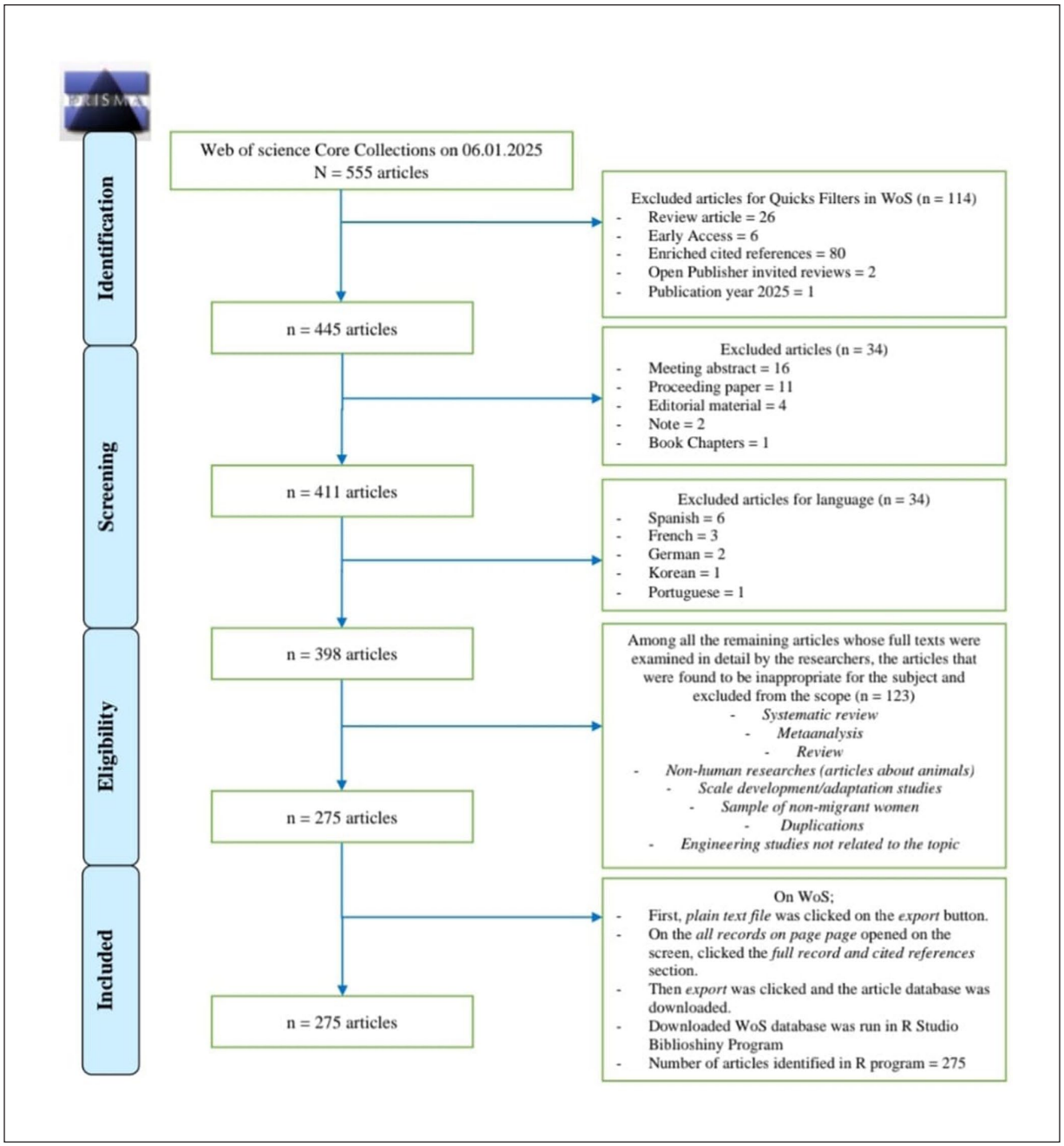

Figure 1. PRISMA 2020 research flow chart on the process of scanning publications focusing on lactation in immigrant women in the WoS database for bibliometric analysis method (Hür, 2021; Page et al., 2021).

Data Analysis

Bibliometric data were extracted from the selected database and analyzed using the Biblioshiny interface of the Bibliometrix package in RStudio, which is widely used for quantitative bibliometric analysis and science mapping. Descriptive analyses were first conducted to summarize publication characteristics, including annual publication trends, document types, countries of origin, and source journals. To examine the conceptual structure of the literature, thematic mapping and thematic evolution analyses were conducted exclusively using Keyword Plus terms. Keyword Plus was used as the sole source for all keyword-based analyses, including thematic maps, and Author Keywords were not incorporated. Keyword Plus was preferred because these terms are algorithmically generated from the titles of cited references and therefore provide a more standardized and comprehensive representation of the underlying intellectual

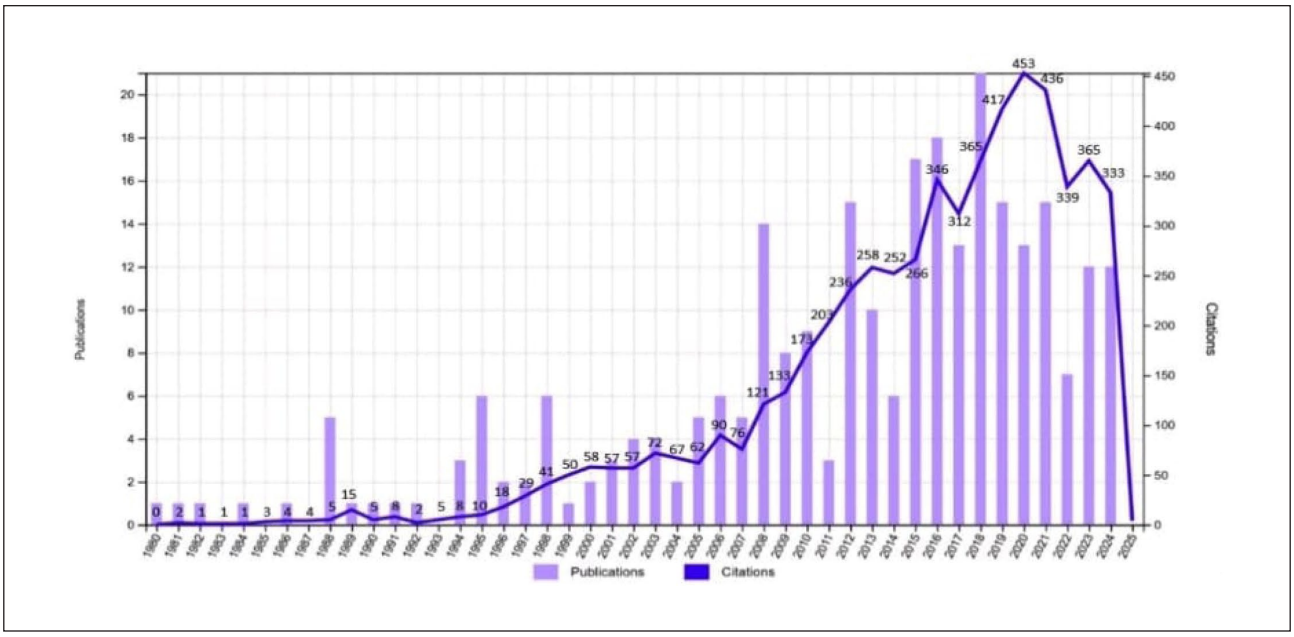

Figure 2. Annual scientific production and average citations per year.

structure of the literature, reducing author-dependent variability commonly observed in Author Keywords. Prior to analysis, Keyword Plus terms were cleaned and standardized by unifying spelling variants and removing duplicates. Keyword co-occurrence networks were generated to identify clusters of frequently co-occurring terms, which formed the basis for thematic mapping based on keyword co-occurrence. Thematic mapping was conducted to visualize dominant thematic areas and their evolution over time. Themes were interpreted using bibliometric indicators of thematic centrality and density, reflecting the relative importance and developmental status of each thematic cluster within the research field. This approach represents a quantitative, macro-level bibliometric technique and does not constitute qualitative thematic analysis. Temporal trend analyses were additionally performed to explore changes in thematic focus across predefined time periods. The results were presented using network visualizations and thematic maps generated via Biblioshiny to illustrate structural patterns, research emphases, and underexplored areas within the global literature on lactation among migrant women.

Sensitivity Analysis

To assess the robustness and reliability of the findings, a sensitivity analysis was systematically performed. Three complementary approaches were applied: (1) different citation and publication thresholds were tested in the determination of bibliometric indicators; (2) analyses were repeated for three distinct time periods (1980–2005, 2006–2015, 2016–2024); and (3) subgroup analyses were performed by country and institution. These methodological steps were undertaken to assess the robustness of the results against variations in parameters and subgroup conditions.

Results

The Key Characteristics of Publications on This Topic

A total of 166 academic journals published 275 articles between 1980 and 2024. The mean age of the publications was found to be 12.8 years.

The Trends in Publication Output and Average Citations Over Time

An increasing trend was observed in both the number of articles published and the average number of citations per article over the study period. The year with the highest number of publications was 2018, while the peak in citation count occurred in 2020 (Figure 2).

Journals With the Highest Number of Articles Published and the Highest Number of Citations

The journals with the highest number of publications on the topic were *International Breastfeeding Journal*, *Maternal and Child Health Journal*, *Maternal and Child Nutrition*, *Journal of Human Lactation*, and *Journal of Immigrant and Minority Health*, respectively. The most highly cited journals were *Pediatrics*, *Journal of Human Lactation*, and *American Journal of Public Health* (Table 1). The sensitivity analysis revealed that applying different citation thresholds did not

Table 1. Analysis of the Most Relevant Sources, the Most Local Cited Sources, the Most Relevant Affiliations, the Most Relevant Country, Countries' Scientific Production, the Most Frequent Words, and Trend Topics.

Most Relevant Sources Analysis

No	Journal name	Number of articles published
1.	*International Breastfeeding Journal*	11
2.	*Maternal and Child Health Journal*	10
3.	*Maternal and Child Nutrition*	10
4.	*Journal of Human Lactation*	9
5.	*Journal of Immigrant and Minority Health*	8

Most Local Cited Sources Analysis

No	Journal name	Citation count
1.	*Pediatrics*	374
2.	*Journal of Human Lactation*	200
3.	*American Journal of Public Health*	156
4.	*LANCET*	143
5.	*Birth: Issues in Perinatal Care*	131

Most Relevant Affiliations Analysis

No	Affiliation Name	Country	Number of Articles Produced
1.	University of Toronto	Canada	36
2.	University of Oslo	Norway	14
3.	Universite Paris Cite	France	11
4.	McGill University	Canada	11
5.	Vanderbilt University	USA	10

Most Relevant Country Analysis (Corresponding Author's Countries)

No	Country Name	Article Count	SCP Value	MCP Value	MCP Ratio
1.	USA	77	65	12	.156
2.	Australia	32	23	9	.281
3.	Canada	18	15	3	.167
4.	China	12	8	4	.333
5.	United Kingdom	12	9	3	.25

Most Frequent Words Analysis (Keywords Plus)

No	Word Name	Count
1.	Migrant	161
2.	Duration	50
3.	Infant	48
4.	United States	32
5.	Initiation	31
6.	Determinants	24
7.	Acculturation	23
8.	Risk	22
9.	Care	17
10.	Pregnancy	17

Trend Topics Analysis (Keywords Plus)

No	Trend Topic Name	Count
1.	Women	53
2.	Duration	50
3.	Health	49
4.	United States	32
5.	Initiation	31
6.	Mothers	30
7.	Risk	22
8.	Pregnancy	17
9.	Care	17
10.	Experiences	15

Note. SCP = single-country publications; MCP = multi-country publications.

yield significant changes in the ranking of leading journals, indicating the stability of the results. Moreover, when publication thresholds were varied, the journals with the highest output remained the same, further demonstrating the robustness of the findings against parameter changes.

Institutions and Countries With the Highest Number of Publications

The leading institutions in terms of research output were the University of Toronto, University of Oslo, Université Paris

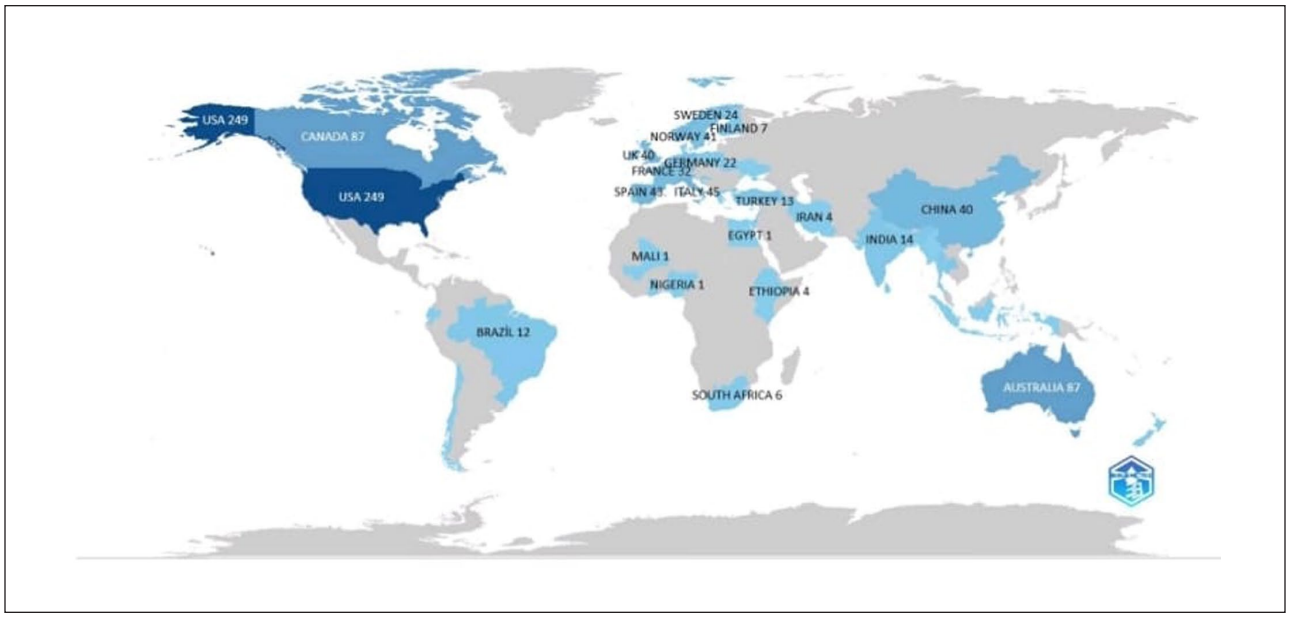

Figure 3. Countries' scientific article production.
Note. USA is a single country. As the blue color darkens, the number of articles produced increases.

Cité, and McGill University (Table 1). Based on the corresponding authors' affiliations, the countries contributing most substantially to the field were the United States, Australia, and Canada. The United States demonstrated the highest values in both Single-Country Publications (SCP) and Multi-Country Publications (MCP; Table 1; Figure 3). The low MCP ratios observed across most countries indicate that international scientific collaboration in this field remains limited and uneven, despite the global nature of migrant breastfeeding challenges. Sensitivity checks based on different time periods and institution-based subgroup analyses indicated that the most productive institutions and countries remained unchanged, confirming the stability of the findings.

The Distribution of Authors' Productivity According to Lotka's Law

Among the included articles, 89.6% of all authors had published only one article related to the topic (Figure 4).

The Most Highly Cited Articles

The three most highly cited articles were "Couples' immigration status and ethnicity as determinants of breastfeeding," "Nativity/immigrant status, race/ethnicity, and socioeconomic determinants of breastfeeding initiation and duration in the United States, 2003," and "The effect of time in the U.S. on the duration of breastfeeding in women of Mexican descent" (see Table 2). The sensitivity analysis demonstrated that when different citation thresholds were applied, the most highly cited articles consistently remained at the top of the rankings.

The Most Frequently Used and Field-Specific Keywords

The most frequently used and field-specific keywords were "migrant," "duration," "infant," "United States," "initiation," "determinants," "acculturation," "risk," "care," and "pregnancy" (Table 1). Analyses conducted with different thresholds revealed that the most frequently used keywords (e.g., breastfeeding, acculturation, duration) consistently appeared under all conditions.

The Most Trending Topics and How They Have Changed Over Time

The leading trend topics were "women, duration, health, United States, initiation, mothers, risk, pregnancy, care, and experiences" (Table 1). An analysis of topic trends over time revealed that, in 2015, the most prominent subjects were women, duration, and initiation. In 2016, the focus shifted to health, mothers, and risk. From 2019 onwards, frequently studied themes included depression, migration, interventions, experiences, disparities, and education (Figure 5). Sensitivity checks indicated that, although minor variations were observed in secondary keywords, the key trend topics (e.g., acculturation, migration, maternal health) consistently emerged as dominant themes.

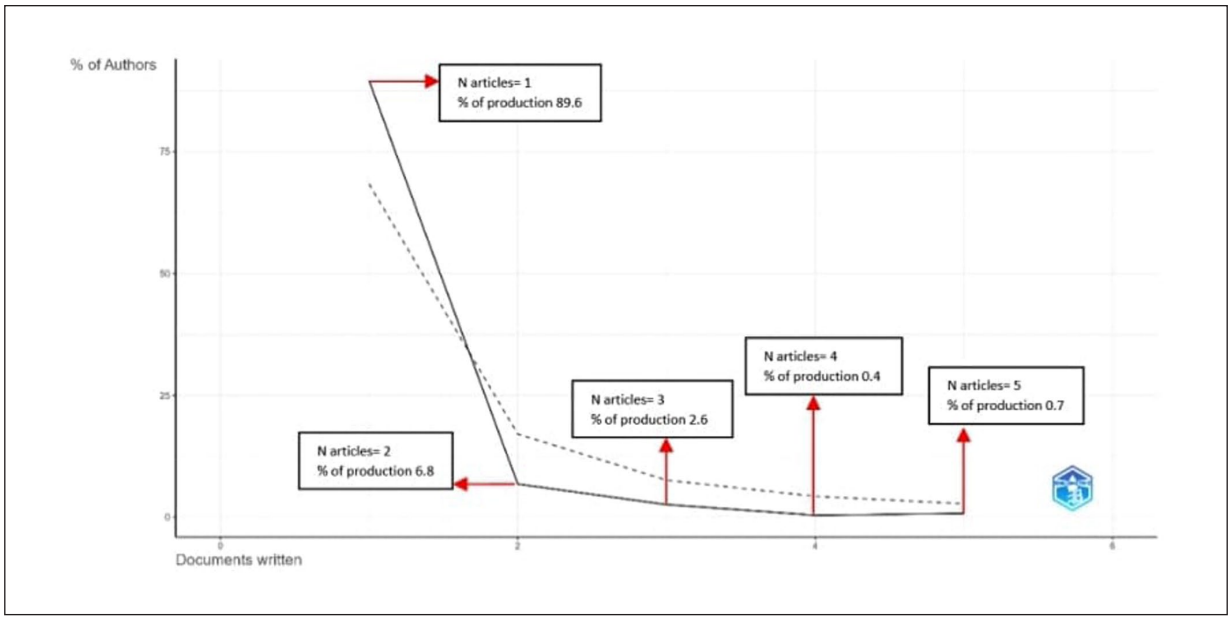

Figure 4. Author productivity through Lotka's Law.

The Thematic Maps of the Most Frequently Used Keywords

In the thematic map, constructed based exclusively on Keyword Plus co-occurrence, themes are positioned according to their centrality (x-axis), indicating their relevance within the overall research field, and their density (y-axis), reflecting the degree of internal development of each theme. Accordingly, the four quadrants represent motor themes (high centrality, high density), basic themes (high centrality, low density), niche themes (low centrality, high density), and emerging or declining themes (low centrality, low density). *The thematic map*: the analysis of the thematic map (conceptual structure), constructed based on the most frequently co-occurring keywords in the publications, shows the emergence of several distinct thematic clusters. The upper-right quadrant of the map consists of motor themes, which are characterized by high density (degree of development) and high centrality (degree of relevance). The size of the circles on the map indicates the frequency of these themes within the field, with larger circles representing more prevalent themes. The lower-right quadrant contains basic themes, which, despite having lower density, exhibit strong centrality, indicating their conceptual importance within the field even if they are not yet fully developed. In contrast, the upper-left quadrant comprises niche themes, defined by high density and low centrality. These themes are well-developed but peripheral, with limited impact on the broader research landscape. Lastly, the lower-left quadrant includes emerging or declining themes, characterized by low density and low centrality, which represent either newly developing topics requiring further investigation or areas of waning scholarly interest (Kumar et al., 2023). The dominant motor themes, as indicated by circle size and relevance, were identified as the following conceptual clusters: women, duration, and health; risk, children, and infants; migration, mortality, and malnutrition; complementary foods, home fortification, and sprinkles; antibodies, cell lymphotropic virus, and Type-1; and exposure, bone, and metabolism. Despite variations in threshold values, the core motor themes remained stable, confirming the robustness of the thematic map findings. The basic themes included the clusters: risk factors, adolescents, and Europe; growth, preschool children, and iron; breast milk and human milk; and antiretroviral therapy and ethnic groups. The identified niche themes comprised birth, delivery, and experience; adolescent, dietary, and lactating women; growth factor-beta, inflammatory bowel disease, and soluble CD14; lactation, post-traumatic stress disorder, and protein; and birth management, Mexico, and strategies. Finally, the emerging or underexplored themes were clustered around the concepts of blood lead, reliability, deficiency, epidemiology, and serum (Figure 6).

The Analysis Focused on the Thematic Evolution of the Most Frequently Used Keywords

Thematic evolution of keywords over time: an analysis of the thematic evolution of keywords, that is, their progression over time, was conducted using bibliometric software, which divided the timeline into three distinct periods: 1980–2005, 2006–2015, and 2016–2024. Within the first period (1980–2005), the most frequently used themes were identified as duration, health, mortality, immigrants, and blood lead. During the second period (2006–2015), the dominant themes shifted

Table 2. Most Local Cited Documents.

No	Author	Journal	Title	Year	DOI	Local Citations	Theme, Basic Subject, Domain	Design	Sample	Measurement	Results
1.	Gibson-Davis CM & Brooks-Gunn J	*American Journal of Public Health*	Couples' immigration status and ethnicity as determinants of breastfeeding	2006	10.2105/AJPH.2005.064840	28	Determinants of breastfeeding	Longitudinal birth cohort study	4207 mothers and 3013 fathers The sample was stratified by immigration status (foreign-born or U.S.-born) and ethnicity (Mexican and non-Mexican).	How couples' immigration status and ethnicity determine the decision to initiate breastfeeding and breastfeeding at 6 months.	Compared to foreign-born mothers, U.S.-born mothers were 85% less likely to breastfeed and 66% less likely to breastfeed for 6 months. Each additional year of residence in the United States reduced the probability of breastfeeding by 4%.
2.	Singh GK, Kogan MD & Dee DL	*Pediatrics*	Nativity/immigrant status, race/ethnicity, and socioeconomic determinants of breastfeeding initiation and duration in the United States, 2003	2007	10.1542/peds.2006-2089G	20	Race/ethnicity, and socioeconomic determinants of breastfeeding initiation and duration	Cross-sectional study	Cross-sectional data on 33 121 children aged 0-5 years from the 2003 National Child Health Survey were used to calculate breastfeeding rates and duration at 3, 6 and 12 months by social factors.	Multivariate logistic regression method was used to predict the rates of never breastfeeding and not breastfeeding at 6 and 12 months.	Breastfeeding duration decreased to 52%, 38% and 16% at 3, 6 and 12 months, respectively. Rates of never breastfeeding showed large differences among 12 different ethnic immigrant groups, and it was reported that breastfeeding duration shortened and breastfeeding rates decreased as acculturation increased. In addition, socioeconomic factors were found to affect 6-month breastfeeding rates in immigrant women.
3.	Harley K, Stamm NL & Eskenazi B	*Maternal and Child Health Journal*	The Effect of time in the U.S. on the duration of breastfeeding in women of Mexican Descent	2007	10.1007/s10995-006-0152-5	19	Effect of immigration duration on breastfeeding duration	Longitudinal birth cohort study	Pregnant women ($n = 490$) attending antenatal clinics serving a predominantly Mexican population in an agricultural region of California.	Women were interviewed during pregnancy, shortly after birth and when their children were 6 months, 1 year, 2 years and 3.5 years old. In the United States, the relationship between duration of life (≤ 5 years, 6-10 years, 11 years and over) and duration of breastfeeding and exclusive breastfeeding were investigated.	After controlling for maternal age, education, marital status and employment status, lifelong U.S. residents were 2.4 times more likely to discontinue breastfeeding and 1.5 times more likely to discontinue exclusive breastfeeding than immigrants who had lived in the United States for 5 years or less.
4.	Rio I, Castello-Pastor A, Sandín-Vazquez MV, Barona C, Jane M, Mas R, Rebagliato M, & Bolumar F	*European Journal of Clinical Nutrition*	Breastfeeding initiation in immigrant and non-immigrant women in Spain	2011	10.1038/ejcn.2011.121	15	Breastfeeding initiation	Cross-sectional study	154 127 Hispanic women and 38055 immigrant women	The geographical origin of women in Spanish hospitals and the rate of initiation of breastfeeding in hospital after childbirth.	Except for Chinese women (48.3%), breastfeeding rate was higher among immigrant women (between 90% and 92.8% for Latin American, Eastern European, Maghreb, Sub-Saharan and other immigrants) than among Hispanic women (80.3%).
5.	Kimbro RT, Lynch SC & McLanahan S	*Population Research and Policy Review*	The influence of acculturation on breastfeeding initiation and duration for Mexican-Americans	2008	10.1007/s11113-007-9059-0	13	Effect of acculturation on breastfeeding initiation and duration	Birth cohort	Includes 3,712 births to unmarried parents and 1,188 births to married parents in 20 major U.S. cities between 1998 and 2000.	Starting and maintaining breastfeeding DS was performed with interviews in the first 48 hr and after 1 year and 3 years, with a 5-year follow-up.	Breastfeeding rate and duration of breastfeeding: Among Mexican immigrants, 86.4% and an average of 6.13 months. Mexican Americans 55.9% and an average of 3.68 months. Low levels of acculturation have been reported to increase breastfeeding initiation and maintenance in Mexican immigrants.

(continued)

Table 2. (continued)

No	Author	Journal	Title	Year	DOI	Local Citations	Theme, Basic Subject, Domain	Design	Sample	Measurement	Results
6.	Sussner KM, Lindsay AC & Peterson KR	*Journal of Biosocial Science*	The influence of acculturation on breast-feeding initiation and duration in low-income women in the US	2008	10.1017/S0021932007002593	12	Effect of acculturation on breast-feeding initiation and duration in low-income women	Randomized controlled trial (12-month follow-up)	The sample consisted of 165 low-income Latina immigrant women and 274 non-immigrant women living in the United States.	Acculturation and duration of initiation and maintenance of breastfeeding, postpartum breastfeeding decisions were examined.	Breastfeeding initiation rate is higher than that of non-migrants, and breastfeeding duration decreases with increasing acculturation level, it was emphasized that the duration of breastfeeding decreased as the local dietary habits of the region of residence were adopted.
7.	Chen S, Binns CW, Zhao Y, Maycock B & Liu Y	*Journal of Human Lactation*	Breastfeeding by Chinese mothers in Australia and China: The healthy migrant effect	2013	10.1177/0890334413475838	10	Healthy migrant effect and breastfeeding	Survey	239 Chinese mothers living in Perth, Australia and 1844 Chinese mothers living in Chengdu, Sichuan Province, People's Republic of China. It compared breastfeeding behaviors in the context of the healthy migrant effect with samples of Chinese mothers living in Australia and China.	Postpartum breastfeeding initiation rates, duration of breastfeeding and timing of transition to supplementary feeding. The cultural adaptation processes of Chinese mothers living in Australia and their access to health services were evaluated.	Chinese Australian mothers had a higher breastfeeding initiation rate (94.1%) than Chinese mothers (86.2%). Chinese Australian mothers had longer breastfeeding duration, higher rates of "exclusive breastfeeding" at 6 months and higher rates of "any breastfeeding" at 6 and 12 months. The location of the mother (Australia or China) was associated with breastfeeding practices.
8.	Groleau D, Souliere M & Kirmayer LJ	*Health and Place*	Breastfeeding and the cultural configuration of social space among Vietnamese immigrant woman	2006	10.1016/j.healthplace.2005.08.003	9	Breastfeeding and the cultural configuration of social space	Qualitative study	19 Vietnamese immigrant women in Canada.	Association between cultural factors and breastfeeding discontinuation.	It was reported that the decision to stop breastfeeding and bottle feed was not due to acculturation but to conflicts between Vietnamese cultural practices and the configuration of the new social space in Canada.
9.	Hawkins SS, Lamb K, Cole TJ, Law C & Millennium Cohort Study Child Health Group	*BMJ: British Medical Journal*	Influence of moving to the UK on maternal health behaviors: prospective cohort study.	2008	10.1136/bmj.39532.688877.25	9	Effect of migration on maternal health behaviors	Prospective nationally representative cohort study	1374 migrant women 6478 local women (British/Irish).	Breastfeeding initiation and breastfeeding rates for at least 4 months.	Breastfeeding initiation and breastfeeding for at least 4 months were reported to be lower among immigrant mothers. First and second generation immigrant mothers were less likely to initiate breastfeeding. For every additional 5 years spent in the country of immigration, the probability of breastfeeding for at least 4 months decreased by 5%.
10.	Zhou Q, Younger KM, Kearney JM	*BMC Public Health*	An exploration of the knowledge and attitudes towards breastfeeding among a sample of Chinese mothers in Ireland	2010	10.1186/1471-2458-10-722	9	Knowledge and attitudes towards breastfeeding	Cross-sectional self-administrated survey	Assessed the breastfeeding knowledge and attitudes of 322 Chinese mothers living in Ireland.	Mothers were asked about their level of knowledge about breastfeeding, their attitudes towards breastfeeding and factors affecting the duration of breastfeeding.	Cultural beliefs about the postnatal diet were reported to be more prevalent among mothers who lived in Ireland for a shorter period of time.

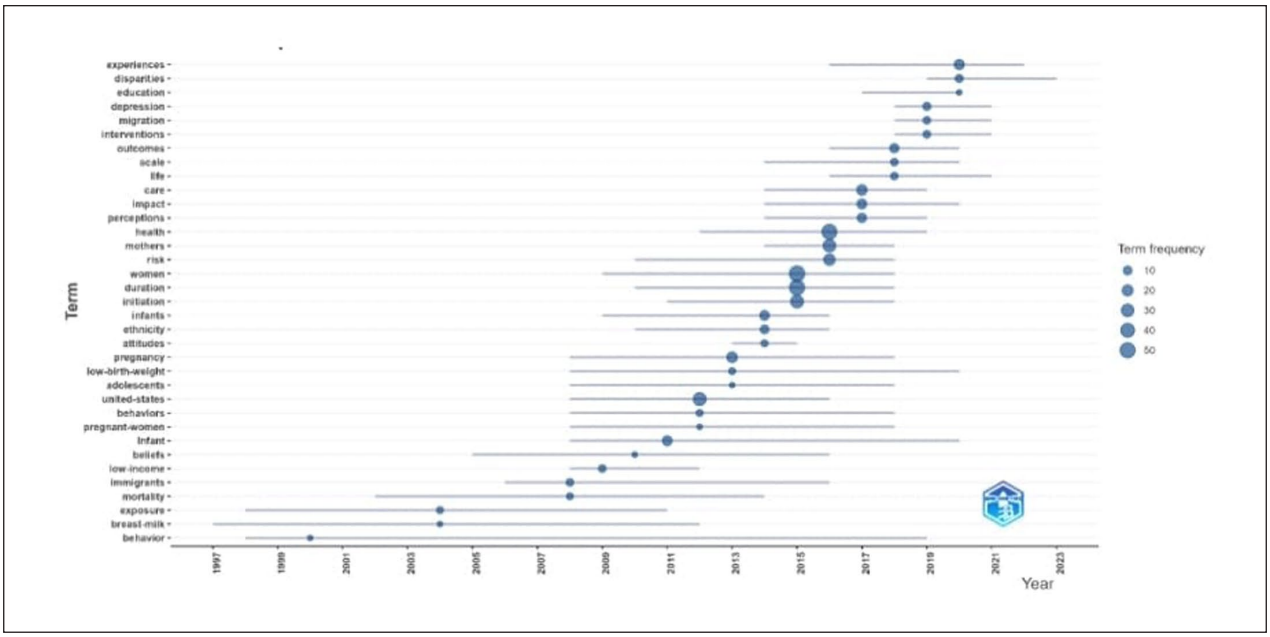

Figure 5. Trend topics by year (Keywords Plus).

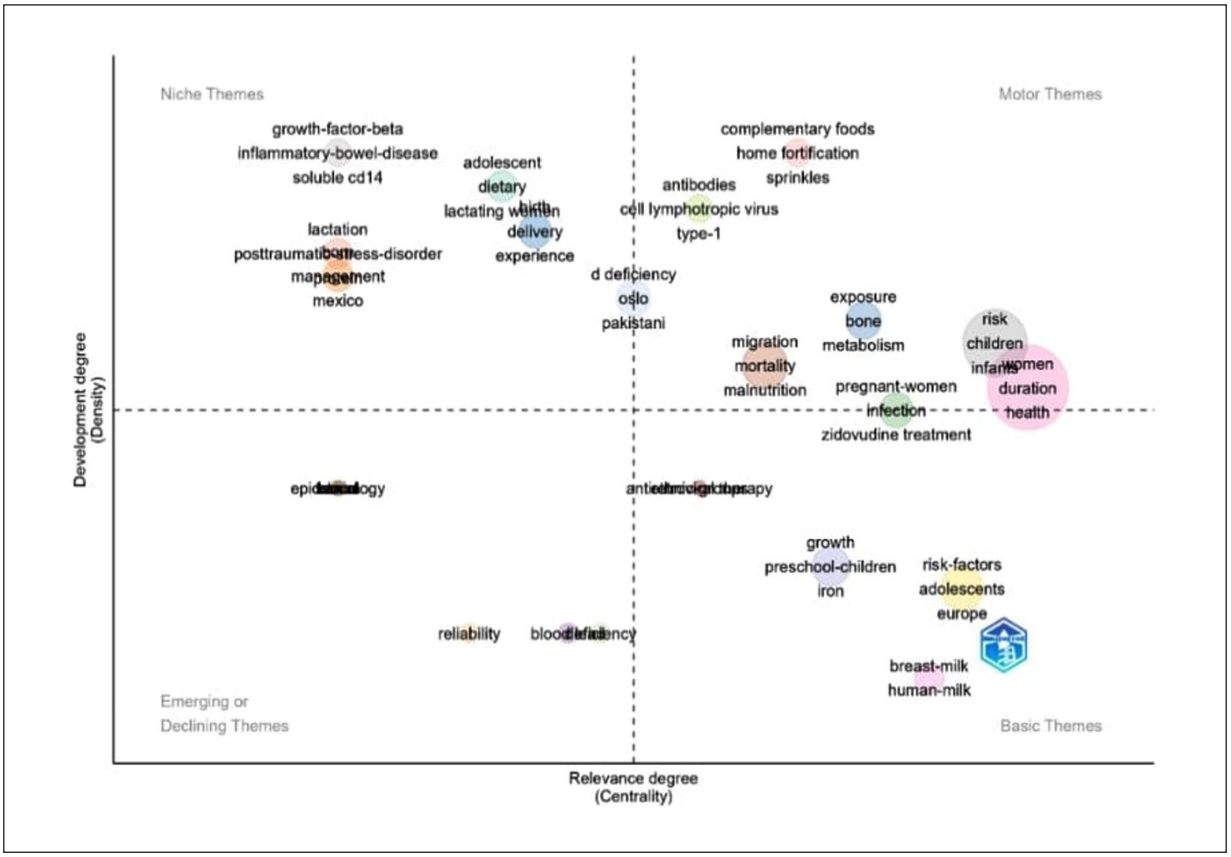

Figure 6. Thematic map (Notation via Keyword Plus).

to include women, immigrants, low-income individuals, community, growth, income, population, postpartum depression, pregnant women, adolescents, and pregnancy outcomes. In the most recent period (2016–2024), the most prominent themes were health, duration, risk, risk factors, nutrition, community, the U.S., cohort, and migration (Figure 7). The thematic

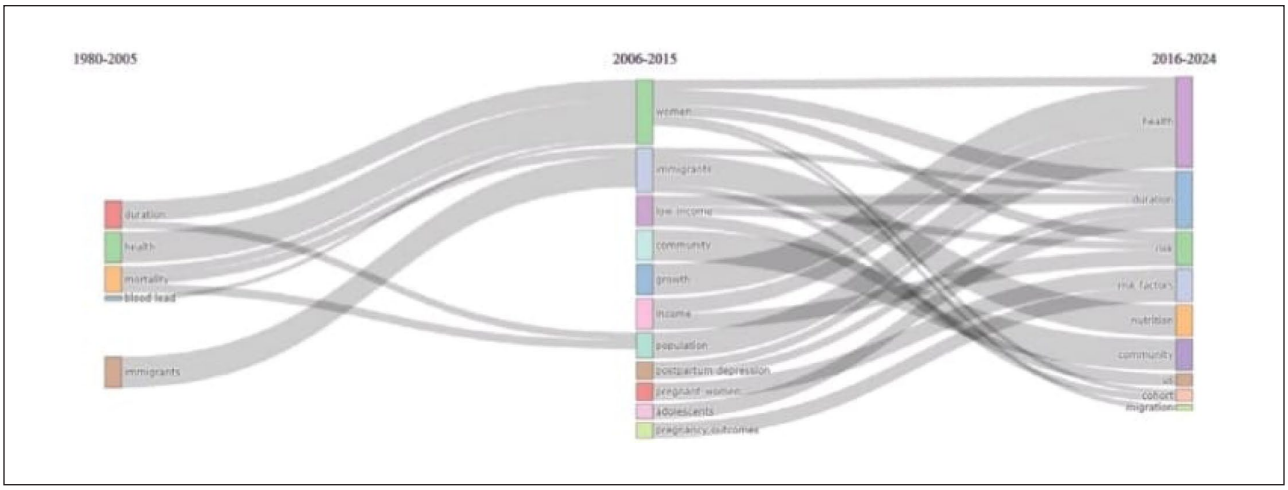

Figure 7. Thematic evaluation (notation via Keyword Plus).

evolution analyses conducted across three different periods revealed that the main themes were preserved over time, with only minor shifts observed in secondary clusters.

Discussion

This study offers a macro-level analysis of global trends and focal areas in scientific publications related to the lactation experiences of migrant women, utilizing bibliometric methods to identify key developments within the literature.

The Key Characteristics of Publications on This Topic and the Trends in Publication Output and Average Citations Over Time

Between 1980 and 2024, a total of 275 publications addressing the breastfeeding experiences of migrant women were identified, with notable increases observed both in publication output and citation rates. This upward trend reflects the growing recognition of the impact of migration on women's and children's health, as well as the increasing academic attention directed toward this field (WHO, 2023a, 2023b). Particularly from the mid-2000s onward, the rise in migration flows from the Middle East and Africa to Europe and North America, along with the 2015 global migration crisis, contributed substantially to the expansion of research on breastfeeding and migration (IOM, 2020; United Nations Department of Economic and Social Affairs, Population Division, 2020; United Nations High Commissioner for Refugees (UNHCR) The UN Refugee Agency, 2018). During this period, the WHO's emphasis on "equity, continuity, and cultural sensitivity" heightened awareness of the health needs of migrant mothers and children and helped shape funding priorities (UNICEF, 2018; WHO, 2023a, WHO, 2023b). Unlike previous reviews, this study uses bibliometric methods to provide a comprehensive mapping of global research trends, thematic concentrations, and emerging areas of focus. The publication peak observed in 2018 appears to reflect not an academic cycle but the broader geopolitical context of 2014–2018, marked by large-scale displacement and increased prioritization of migrant health by international organizations (IOM, 2020; UNHCR The UN Refugee Agency, 2018; UNICEF, 2018; WHO, 2023a). Policies emphasizing continuity of maternal care by WHO, IOM, and UNICEF stimulated both field-based investigations and policy-oriented research (IOM, 2024a, 2024b, 2024c; WHO, 2023b). When interpreted through theoretical frameworks, the bibliometric findings reveal that acculturation processes may explain declines in breastfeeding duration among migrant women (Berry, 1997; Sam & Berry, 2006). Yet, acculturation interacts closely with structural determinants—including socioeconomic position, legal status, language barriers, discrimination, and access to culturally competent health services—which shape breastfeeding opportunities and behaviors (Solar & Irwin, 2010; WHO, 2023a, 2023b). From an equity perspective, disparities in breastfeeding outcomes are understood not as individual choices but as the result of preventable and unjust structural conditions disproportionately affecting migrant women (Marmot et al., 2020; WHO, 2023b). Consequently, the concentration of publications in high-income destination countries reflects prevailing policy priorities, global funding structures, and the broader architecture of knowledge production (IOM, 2024a, 2024b, 2024c). Future research should therefore prioritize comparative studies that include both sending and receiving contexts, mixed-methods research examining the interaction between acculturation and structural barriers, and implementation studies evaluating culturally adapted interventions within equity-focused frameworks (UNICEF, 2018; WHO, 2023b).

Journals With the Highest Number of Articles Published and the Highest Number of Citations

The findings of this study reveal that the journals publishing the highest number of articles on the topic are primarily focused on breastfeeding and maternal health. In contrast, the most frequently cited journals are multidisciplinary in nature, with broad readerships in the fields of pediatrics, public health, and nutrition. This divergence suggests that the lactation experiences of migrant women are of interest not only within the context of maternal health but also as part of broader discussions on child and public health. Given the multifaceted impact of migration on maternal and child well-being and breastfeeding practices, numerous studies advocate for a holistic and multidimensional approach to understanding lactation among migrant women, one that incorporates economic, social, political, and cultural dimensions (Dhestina et al., 2025; D'Hollander, 2025; Pineros-Leano et al., 2022; WHO, 2023a, 2023b; Groleau et al., 2006). This divergence highlights a dual trend: while publication output clusters around specialized maternal health journals, the impact and recognition of the research resonate more strongly within general public health and interdisciplinary platforms. Such a finding is consistent with previous studies in maternal and child health, which emphasize the cross-sectoral relevance of breastfeeding and migration (Dhestina et al., 2025; WHO, 2023a). Thus, our results not only describe where the research is published but also demonstrate the multidimensional significance of this field.

Institutions and Countries With the Highest Number of Publications

At the country level, the United States, Australia, and Canada stand out in terms of both publication volume and citation impact. This prominence is attributable not only to their status as major migrant-receiving countries but also to their strong research capacity, robust academic institutions, and health systems that actively support breastfeeding practices among migrant women (IOM, 2024a, 2024b, 2024c; McAuliffe & Oucho, 2024; Organisation for Economic Co-Operation and Development [OECD], 2024; United Nations Development Programme [UNDP], 2024). The literature shows that research in the U.S. has largely centered on Mexican and other Latin American women, in Canada on Chinese and South Asian women, and in Australia on Chinese, Southeast Asian, and Middle Eastern migrant groups (Chen et al., 2013; Gibson-Davis & Brooks-Gunn, 2006; Harley et al., 2007; Izumi et al., 2024). In particular, Khasawneh et al. (2023) demonstrated that cultural beliefs, language barriers, family influences, and formula-feeding stigma shape breastfeeding behaviors among Middle Eastern migrant women. These findings underscore the importance of considering both geographical and cultural diversity in breastfeeding research. Beyond these regional concentrations, however, our study highlights global trends, allowing comparisons across contexts and drawing attention to contributions from low- and middle-income countries. The fact that the most productive institutions are predominantly academic universities indicates their direct contribution to the scientific output of their respective countries. These institutions, which rank highly in the Times Higher Education World University Rankings (THE WUR; 2025), advance the field through strong research infrastructures, funding opportunities, and extensive international collaborations. Nevertheless, research focusing on Middle Eastern migrant women, while still limited, has steadily increased. For example, Khasawneh et al. (2024) reported that Muslim Arab mothers in the United States had exceptionally high breastfeeding initiation rates (99.2%) and long breastfeeding durations (mean 11.86 months), yet only 21.6% exclusively breastfed at 6 months. Perceived milk insufficiency, infant hunger cues, and beliefs about early weaning contributed to early supplementation, whereas religious teachings, positive attitudes, and social support acted as facilitators. Additionally, Khasawneh et al. (2023) highlighted structural and cultural barriers, such as limited knowledge and discomfort with breastfeeding in public. Collectively, these studies illustrate that the breastfeeding experiences of Middle Eastern migrant women are shaped by a complex interplay of cultural, religious, and social dynamics, offering a more nuanced understanding of global breastfeeding patterns. The concentration of publications in a small number of high-income, migrant-receiving countries has implications beyond academic productivity: it shapes the research questions posed, the populations studied, and the interventions tested. When the evidence base is dominated by destination-country priorities, contextually important determinants in migrant-sending regions—such as pre-migration health status, transnational family support, and local cultural norms—remain underexplored. This imbalance risks producing policy recommendations and clinical guidelines that lack global applicability and may reinforce inequities in breastfeeding support and outcomes. To address this gap, research funders and international consortia should prioritize studies conducted in migrant-sending contexts, foster equitable research partnerships, and invest in capacity-building initiatives that empower locally led scholarship.

The Distribution of Authors' Productivity According to Lotka's Law

The analysis revealed that 89.6% of authors had published only a single article on the topic, while the remaining proportion had produced multiple contributions. This finding suggests that most researchers have approached the subject only superficially, indicating a limited depth of expertise within the field. Such a pattern may hinder the development of

coherent research agendas, limit opportunities for theory building, and restrict the translation of findings into practice or policy. Strengthening this area, therefore, requires long-term institutional support and career pathways that encourage specialization. Targeted funding programs, cross-country collaboration networks, and capacity-building initiatives for early-career researchers could foster continuity and deeper expertise. Enhancing these dimensions is particularly critical in the context of migrant women's breastfeeding, where cultural, social, and structural complexities demand sustained academic engagement.

The Most Highly Cited Articles

The most highly cited studies have made the most influential contributions to the field by focusing on the socioeconomic, cultural, and political factors that shape breastfeeding behaviors among migrant women. While the majority of these publications were cross-sectional or cohort studies with large sample sizes, qualitative research shedding light on individual experiences was also identified. For example, Gibson-Davis and Brooks-Gunn (2006) demonstrated that breastfeeding rates among migrant families decreased by 4% for each additional year of residence in the host country, while Singh et al. (2007) highlighted the decisive role of ethnic differences in breastfeeding initiation. Similarly, Harley et al. (2007) found that Mexican-origin women living in the United States for more than 5 years were 2.4 times more likely to discontinue breastfeeding and 1.5 times more likely to stop exclusive breastfeeding compared to those with shorter residence. Other highly cited studies likewise confirmed that race/ethnicity, migration status, and cultural adaptation play a critical role in both the initiation and continuation of breastfeeding (Chen et al., 2013; Hawkins et al., 2008; Kimbro et al., 2008; Rio et al., 2011; Sussner et al., 2008; Zhou et al., 2010). Collectively, these findings emphasize that breastfeeding is shaped not only biologically but also by social and cultural dynamics and should be viewed as a continuum extending from pregnancy through the long-term postpartum period. The WHO reports similarly indicate that migrant women face risks to the duration and quality of breastfeeding due to limited access to healthcare services, language barriers, and cultural obstacles. Nevertheless, longitudinal studies face limitations such as participant attrition and difficulties in accessing reliable health records. In contrast, large-scale cross-sectional studies often lack the depth needed to capture lived experiences. Therefore, there is a need for research combining quantitative and qualitative approaches. In addition, the concentration of studies in migrant-receiving countries underscores the lack of contributions from migrant-sending regions. Overall, these findings highlight the necessity for health policies to develop culturally sensitive and targeted breastfeeding support programs for migrant women.

The Most Frequently Used and Field-Specific Keywords, the Most Trending Topics and How They Have Changed Over Time

An analysis of keyword usage revealed that the most field-specific terms were "migrant, duration, infant, United States, initiation, determinants, acculturation, risk, care, and pregnancy." In parallel, the most frequently used and interrelated trending topics were identified as "women, duration, health, United States, initiation, mothers, risk, pregnancy, care, and experiences." An examination of the temporal distribution of these trending topics revealed a consistent prominence of similar themes across different periods. These terms represent core elements shaping the lactation experiences of migrant women. The convergence between high-frequency keywords and trending topics suggests that the lactation process among migrant women is closely linked to broader health considerations. The evidence suggests that biological, psychological, social, and cultural challenges to breastfeeding are being addressed, both in individual experiences and in broader societal contexts. Particularly in migrant-receiving countries such as the United States, there has been a notable focus on breastfeeding initiation and continuation and on the health benefits of breastfeeding for both mother and infant. Such studies reflect a holistic approach to understanding the lactation journeys of migrant women (Khan & DeYoung, 2019; Yeo et al., 2023). Moreover, these key terms encompass both individual and environmental factors influencing lactation among migrant women, and they represent critical areas of concern for the development of effective public health and maternal health policies (Dhestina et al., 2025; Khokhar & Bolton, 2024; Lynn & Chuemchit, 2024; Olajide et al., 2024).

The Thematic Maps of the Most Frequently Used Keywords

The thematic map analysis conducted in this study revealed several core themes formed by the most frequently used keywords in the literature. One of the most prominent motor themes was the women–duration–health cluster, which highlights the relationship between migration, women's health outcomes, and breastfeeding duration. Additional clusters involving child and infant-related terms focused on growth, development, and metabolic processes, while themes such as antibody–cell–lymphotropic virus–Type 1 pointed to immune responses. These findings suggest that lactation among migrant women encompasses both biological and socio-cultural dimensions, and they underscore the interconnectedness of key research domains such as nutrition-related research themes, immune functioning, health risks, and maternal health. Consistent with these results, reports by the WHO (2023a, 2023b) and the IOM UN Migration (2024a, 2024b, 2024c) emphasize the importance of these themes in discussions of migrant health, addressing similar thematic areas in

discussions of migrant and maternal health. However, the bibliometric evidence also reveals a structural imbalance within the literature. The concentration of research in high-income, migrant-receiving countries has resulted in an evidence base shaped largely by destination-country priorities, while the experiences of women in migrant-sending regions remain comparatively understudied. Low multi-country collaboration (MCP) rates further constrain the development of culturally informed and internationally coordinated breastfeeding strategies. Consequently, these structural imbalances contribute to persistent knowledge gaps, which in turn limit the availability of evidence to inform equitable breastfeeding support across diverse migrant populations. The thematic maps not only highlight frequently co-occurring keywords but also thematic areas which determinants receive the most attention and which remain neglected. For instance, the "women–duration–health" motor theme reflects a predominant focus on biomedical outcomes and breastfeeding duration metrics; by contrast, the "migration–mortality–malnutrition" and "acculturation–determinants–care" clusters draw attention to socio-cultural determinants. Meanwhile, system-level constructs—such as health policy frameworks, funding models, and service delivery structures tailored to migrant populations—are notably limited within both motor and basic themes. Notably, "breast milk/human milk" appeared within the basic theme quadrant, indicating high relevance to the field but comparatively limited thematic development. Considering that breast milk represents the biological foundation of lactation research, this positioning suggests that the literature on migrant women has tended to prioritize broader outcome-oriented constructs—such as duration, risk, and health indicators—rather than developing conceptually rich or intervention-oriented discussions centered specifically on human milk itself. This pattern may reflect the dominance of public health and epidemiological perspectives within migration research, where breastfeeding is frequently measured as a behavioral outcome rather than explored through the biological, cultural, or practice-based dimensions of human milk. Consequently, the relative underdevelopment of this core concept highlights an important gap for future research integrating clinical, cultural, and implementation-focused perspectives. This pattern suggests that the existing literature predominantly measures outcomes rather than evaluating program design or policy levers, indicating a substantial gap for future empirical and implementation-focused research. Furthermore, the prominence of the "duration" theme reflects evidence that breastfeeding length often decreases with longer residence in host countries, a trend frequently interpreted through acculturation theory (Berry, 1997; Sam & Berry, 2006), which links reduced breastfeeding duration to declining social support and the adoption of host-country norms over time. The predominance of the "health" theme highlights the influence of structural determinants—such as legal entitlements, socioeconomic conditions, language accessibility, and continuity of care—on migrant health outcomes, consistent with the WHO Social Determinants of Health and Health Equity frameworks (Solar & Irwin, 2010; WHO, 2023a, 2023b). The visibility of the "migration" theme reflects broader global displacement dynamics, particularly following major refugee movements after 2014, which brought renewed policy attention to maternal and child health among displaced populations (IOM, 2020; UNHCR, 2018; UNICEF, 2018). Taken together, these thematic clusters illustrate that breastfeeding behaviors among migrant women are shaped not only by individual attitudes but by the interplay of cultural adaptation processes, structural inequities, and global migration dynamics—forming a multilayered context rather than a set of isolated behavioral factors.

The Thematic Evolution of the Most Frequently Used Keywords

An analysis of the thematic evolution of research topics on lactation among migrant women reveals distinct shifts in focus across different time periods. Between 1980 and 2005, the most frequently used concepts were duration, health, mortality, immigrants, and blood lead. The reference to "blood lead" reflects the early focus on environmental exposures, as several studies during this period examined lead levels in migrant mothers and the potential transfer of lead through breast milk, framing breastfeeding within broader biomedical and public health concerns. For example, Linares et al. (2024) found detectable lead concentrations in human milk samples in Peru and demonstrated associations between maternal milk lead and infant blood lead levels, highlighting the relevance of this pathway in lactation studies. These findings indicate that discussions around migration and breastfeeding duration, along with environmental health risks, were particularly prominent within the literature during that period. During the period from 2006 to 2015, terms such as "women, low-income, community, income, population, and postpartum depression" became more prominent, reflecting a transition toward more socially orientated themes. In the most recent period (2016–2024), the dominant concepts included health, duration, risk factors, nutrition, and community, suggesting a growing focus on public health perspectives. These findings indicate a progressive shift in the literature: whereas earlier studies primarily centered on biological processes, such as breastfeeding duration and physiological variables, more recent research has increasingly addressed broader sociocultural and political contexts, including the psychosocial challenges faced by women and their access to healthcare services. This thematic evolution reflects a movement towards a more holistic understanding of lactation in the context of migration. Moreover, the trends identified in this study are consistent with a series of periodic reports published by the WHO (2023a, 2023b) and IOM (2024a, 2024b, 2024c; McAuliffe & Oucho, 2024), which have highlighted similar developments in the field of refugee and migrant health. When this thematic evolution is considered as a whole, it becomes apparent that the literature increasingly situates breastfeeding among migrant women within discussions of multilayered structural, social, and

policy-related contexts, rather than focusing solely on individual-level factors. Consequently, this thematic evolution highlights priorities for future empirical and implementation-focused research examining clinical, social, and policy-level dimensions.

Linking Bibliometric Findings to Health Inequities and Research Priorities

The findings of this bibliometric mapping highlight several mechanisms through which existing research patterns may contribute to persistent health inequities among migrant women. The concentration of scientific output in high-income destination countries, coupled with the underrepresentation of migrant-sending regions, suggests that global breastfeeding policies may be informed by a narrow evidence base that does not reflect diverse cultural, socioeconomic, or migration contexts. Similarly, the limited MCP rates indicate weak transnational research networks, which restrict the exchange of culturally grounded knowledge and hinder the development of coordinated international breastfeeding support strategies. The thematic gaps identified—particularly those related to cultural barriers, stigma, psychosocial stressors, and health system accessibility—correspond to well-documented challenges in migrant maternal health but remain insufficiently addressed in the global literature. By revealing these structural disparities, the present study highlights key research gaps and systemic patterns relevant to researchers, funders, and policy-oriented stakeholders, underscoring the need for inclusive research funding mechanisms, enhanced cross-country collaboration, and the development of culturally responsive breastfeeding intervention. The bibliometric patterns revealed in this study point to priority actions for researchers, funders, and health systems. We suggest the following, evidence-informed steps:

1. Fund and design context-inclusive research: Prioritize funding calls that require inclusion of migrant-sending contexts or transnational study designs to ensure findings are globally generalizable.
2. Foster equitable research partnerships: Encourage capacity building and co-leadership with institutions in underrepresented regions through collaborative grants and data-sharing agreements.
3. Evaluate service delivery models: Shift some research emphasis from descriptive studies toward pragmatic trials and implementation research that test culturally adapted breastfeeding support programs (e.g., community peer counsellor models, language-concordant lactation services).
4. Integrate equity metrics into study design: Require that future empirical studies report stratified outcomes by migration status, length of residence, language proficiency, and socioeconomic position to detect inequities.
5. Promote policy translation mechanisms: Create policy briefs and stakeholder dialogues linked to major bibliometric findings (e.g., regional gaps, low collaboration) to catalyze responsive policy action at national and international levels.

These steps translate bibliometric observations into concrete priorities, moving the field from cataloguing to implementation.

Strengths and Original Contribution

Although previous systematic reviews have provided thematic summaries of migrant women's breastfeeding experiences, they have been limited in scope, often focusing on single regions or specific dimensions of lactation. In contrast, the bibliometric mapping conducted in this study offers several original and actionable insights. First, the analysis reveals a pronounced geographical imbalance in the evidence base, with research being largely concentrated in high-income, migrant-receiving countries, while migrant-sending regions such as Latin America, the Middle East, Africa, and Southeast Asia remain significantly underrepresented. This finding highlights global inequities that systematic reviews have not quantified. Second, by examining single-country and multi-country publications, the study uncovers fragmented and asymmetric collaboration networks, demonstrating that countries with the highest research productivity do not collaborate extensively with one another. Third, the thematic evolution and clustering analyses identify emerging and insufficiently developed topics—such as inequities, cultural barriers, psychosocial stressors, and health system accessibility—that remain overlooked in existing narrative and systematic reviews. These insights show how bibliometric mapping goes beyond describing themes: it identifies structural gaps, research silos, and future priority areas that can guide policymakers, funding bodies, and researchers in building more equitable and culturally responsive breastfeeding support systems for migrant women.

Limitations

This study was limited to original research articles published in English, with full-text availability, and indexed within a defined time frame exclusively in the Web of Science (WoS) database. Relying solely on WoS resulted in the exclusion of numerous journals—particularly in the fields of nursing, midwifery, maternal health, and public health—that are indexed in other major databases such as SCOPUS, PubMed, and CINAHL. Consequently, the study cannot provide a fully comprehensive global representation of the relevant literature, and the findings related to global coverage should therefore be interpreted with caution. Nonetheless, the study offers valuable insights into the overall trends in the field. Another important limitation is the inherently descriptive nature of bibliometric analyses, which restricts their capacity to fully elucidate the underlying drivers of the observed patterns.

Additionally, as thematic analyses were conducted using Keyword Plus rather than Author Keywords, the findings primarily reflect the intellectual structure inferred from cited references and may underrepresent author-intended thematic nuances. To mitigate this limitation, we extended our analysis beyond basic mapping by identifying thematic clusters, highlighting underrepresented areas (e.g., inequities, cultural factors, and education), and exploring how these insights may inform future research, clinical practice, and policy development. This approach enhances the scientific contribution of the study by linking bibliometric trends to practical implications. We acknowledge that bibliometric mapping is inherently oriented toward description and pattern detection. To deepen causal and contextual understanding, we recommend complementary methodological approaches in future work: (1) mixed-methods syntheses that integrate bibliometrics with qualitative evidence syntheses to explain why themes emerge and how they operate in context; (2) comparative case studies and implementation research in underrepresented regions to evaluate service models; and (3) network analyses that include funding and policy actors to trace pathways from research to practice. Incorporating these approaches will strengthen the field's ability to generate implementable solutions.

Conclusion and Recommendations

While bibliometric analyses cannot provide direct clinical or policy recommendations, the patterns identified in this mapping exercise help to delineate priority areas for future research and implementation-focused inquiry. This bibliometric analysis maps the evolution and global distribution of research on breastfeeding among migrant women between 1980 and 2024, revealing a substantial growth in scientific output alongside pronounced geographic and thematic imbalances. The literature has been predominantly produced in high-income, migrant-receiving countries and is largely oriented toward descriptive outcomes such as breastfeeding duration, health-related indicators, cultural influences, and migration-related challenges. The findings further indicate that themes related to acculturation, healthcare access, and sociocultural context are frequently represented within the literature; however, intervention- and practice-oriented research remains comparatively underdeveloped. Notable gaps persist with respect to region-specific experiences, diverse migrant and ethnic groups, and culturally tailored approaches, underscoring broader structural inequities in the global maternal and child health research landscape. Rather than providing direct guidance for clinical practice or policy development, this study contributes by identifying structural patterns, research imbalances, and underexplored thematic areas within the existing evidence base. These insights help to clarify priorities for future empirical, qualitative, longitudinal, and implementation-focused research aimed at advancing culturally responsive breastfeeding support for migrant populations.

Author's Note

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Ethical Considerations

Since this study is a bibliometric analysis, it does not require ethics committee approval.

Author Contributions

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Data Availability Statement

Data availability is available upon request by the principal investigator.

Use of Generating AI

In the course of this study, the ChatGPT program was used for tasks such as correcting writing errors, language editing, and improving text expressions. Additionally, this artificial intelligence tool assisted in literature searching and retrieving certain sources. However, the research questions, analyses, and the content of the paper were entirely developed and reviewed by the author(s).

Supplemental Material

Supplementary Material may be found in the "Supplemental material" tab in the online version of this article.

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