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Research article

From Clicks to Cradles: Mapping the Digital Landscape of Maternal Support through Bibliometric Analysis

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ABSTRACT

Online platforms have emerged as crucial parenting information sources in the digital age, revolutionizing how mothers seek help, make choices, and deal with the difficulties of raising children. This change demonstrates the increasing scholarly interest in comprehending how digital resources affect the experiences of mothers. With an emphasis on performance and co-citation analyses, this study offers a bibliometric analysis of studies on mothers' interactions with online parenting resources. After a thorough screening process, 453 studies were eventually included out of the 1,352 records that were initially found using the Web of Science database. While co-citation analysis identifies thematic clusters like maternal mental health, digital parenting literacy, and online community engagement, performance analysis identifies important contributors, such as top authors, organizations, and countries. Beyond mapping publication trends, this study provides the first post-pandemic global knowledge map of digital mothering research by integrating performance indicators with co-citation intellectual structures. It identifies five dominant thematic clusters that define the field, namely digital mothering communities, maternal mental health and research methodologies, pregnancy information-seeking, breastfeeding practices, and breastfeeding self-efficacy. The findings reveal a clear shift in scholarly focus from general online parenting support to crisis-driven maternal mental health and resilience during COVID-19, highlighting how digital platforms have become a central infrastructure of maternal care. By uncovering the intellectual foundations, research gaps, and emerging directions of digital parenting scholarship, this study offers a systematic roadmap for future interdisciplinary research, evidence-based digital health interventions, and maternal policy development aligned with SDG-3 (Good Health and Well-Being).

1. Introduction

Mothers in the digital age are increasingly depending more and more on online resources, support, and information for parenting. How mothers manage their roles, make decisions, and look for emotional and informational support has changed as a result of the availability of digital tools and the proliferation of parenting-related content on multiple platforms [1]. Mothers can connect with others going through similar struggles, validate their parenting experiences, and share knowledge through social media

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platforms, online communities, and specialized health websites [2]. By offering quick, varied, and personalized information that fits each parent's needs, this change has radically changed conventional parenting techniques [3].

Online resources are beneficial for addressing maternal mental health, child development, and decision-making during pregnancy and the early stages of motherhood, according to research. However, depending too heavily on digital sources raises issues with digital literacy, disinformation, and the psychological effects of online interaction [4]. Due to limited access to support networks and healthcare services, mothers increasingly turned to digital platforms during the COVID-19 pandemic, underscoring the significance of online communities [5]. Mothers are under pressure to meet an idealized standard of parenting that is portrayed online as a result of the increased use of digital resources [6]. A systematic bibliometric analysis is still required to evaluate the research landscape, major contributors, thematic trends, and citation patterns in this field, despite the increasing scholarly attention being paid to digital parenting [7].

For mothers looking for online resources, the growing use of digital technology in parenting has brought both opportunities and difficulties. Although digital platforms offer helpful assistance, there are hazards associated with misinformation, disparities in digital literacy, and the psychological effects of consuming romanticized depictions of motherhood [8]. It is challenging to pinpoint research gaps and areas that need more study because of the lack of organized knowledge regarding the evolution of scholarly research on mothering and online information [9]. A small number of bibliometric analyses that compile and examine the entire body of research exist, despite the fact that numerous studies have examined particular facets of mothering in digital contexts, such as online breastfeeding support, postpartum mental health, and online parenting communities. Critical insights into the development of this field, significant thematic clusters influencing scholarly discussions, and influential scholars and publications can be gained from a bibliometric analysis that looks at performance trends and co-citation networks [10].

Although prior studies have examined specific dimensions of digital parenting such as online breastfeeding support, maternal mental health forums, and pregnancy information-seeking behaviors, no study to date has systematically mapped the full intellectual structure, thematic evolution, and global research landscape of digital mothering scholarship. Existing reviews remain fragmented, topic-specific, and largely qualitative in nature. This study addresses this gap by providing the first large-scale bibliometric mapping of 453 Web of Science-indexed publications on mothers' engagement with online parenting resources. By combining performance analysis with co-citation network analysis, this research offers a comprehensive evidence-based synthesis of how digital mothering research has evolved, who the key knowledge producers are, what dominant research themes define the field, and where future research should be directed. This bibliometric analysis provides a systematic review of the literature on mothers' use of online parenting resources and highlights important trends, knowledge gaps, and future directions for the field. This study makes significant contributions to the body of knowledge regarding digital parenting, opening the door for further research and well-informed policymaking in this area.

2. Materials and Methods

A quantitative technique for assessing and charting the patterns and organization of scientific research is bibliometric analysis. It entails examining vast amounts of scholarly literature using a variety of metrics, including author productivity, publication trends, citation counts, and network connections [11]. Researchers can discover the intellectual landscape of a particular field, pinpoint key works, and evaluate the evolution of scientific knowledge over time by utilizing bibliometric tools and databases [7].

The field of mothers' interactions with online parenting resources is examined in this study using bibliometric analysis. In particular, two primary methods are employed to evaluate publication patterns and intellectual frameworks in this field of study: performance analysis and co-citation analysis [12]. The main resource for data collection is the Web of Science database, which ensures a thorough and trustworthy dataset for analysis [9].

Performance analysis is a bibliometric technique that assesses important indicators such as publication volume, citation impact, leading authors, institutions, and countries in order to evaluate the

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research output of a particular field. This approach identifies the most important studies influencing the conversation and offers a quantitative assessment of scholarly contributions [10]. Five essential elements are examined in this study's performance analysis: documents, sources, authors, institutions, and countries.

Co-citation analysis looks at the connections between academic papers by analyzing how often they are cited together in other works. By locating groups of related studies that contribute to particular subdomains, this approach aids in understanding the intellectual structure of a research field [9]. Co-citation analysis is used in this study to investigate the structure and connections between mothering research and online information-seeking behaviors. Additionally, bibliometric tools such as VOSviewer can be used to visualize research networks via co-citation analysis [11].

3. Results and Discussion

The methodical selection procedure for research on mothers' interactions with online parenting resources is depicted in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart. A total of 1,352 records were first found using the Web of Science (WoS) database. After 68 non-research articles were eliminated based on document type screening, 1,284 records remained. Of these, 578 were eliminated because they did not fall within the 2019–2023 publication range, leaving 774 records for evaluation. A full-text review of 706 articles was part of the eligibility phase; however, 235 records were excluded because of language and access limitations. The final bibliometric analysis comprised 453 studies, which served as the basis for the co-citation and performance analyses. The credibility of this bibliometric research is increased by the PRISMA flowchart, which guarantees transparency and methodological rigor in study selection.

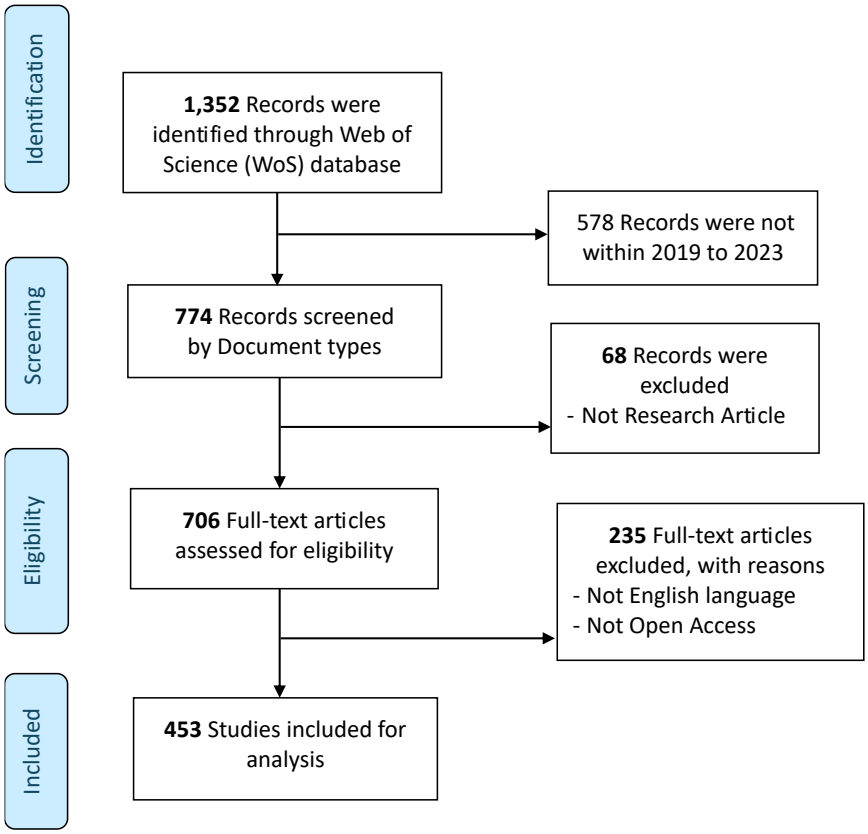

Fig. 1. PRISMA Flowchart

3.1. Performance Analysis

The "Mothering through Online Information" VOSviewer performance analysis data provides a thorough understanding of the academic environment, including the top researchers, universities, and countries engaged in this area of study. It also identifies the thematic clusters and co-citation patterns that characterize the academic discussions about mothering and Internet information.

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3.1.1. By Documents

Maternal psychological distress during the COVID-19 pandemic is the main topic of the top papers in this field, as determined by citation counts. Given its importance, the most cited paper, Cameron et al. [5], which looks at maternal mental health service use, received 250 citations. The difficulties mothers encounter when navigating healthcare systems and the psychological effects of isolation brought on by pandemics are also the subject of other high-impact papers, for example Farewell et al. [13] (118 citations) and Baumbusch et al. [14] (107 citations). This illustrates how important internet resources are for addressing maternal mental health, particularly in times of crisis such as COVID-19 when access to conventional support networks is limited. Interest in how mothers use online resources for information and support during uncertain times has increased, as evidenced by the prevalence of COVID-19-related studies in the top-ranked documents. Online communities became essential places for moms looking for comfort, guidance, and emotional support during the pandemic, as evidenced by topics such as perinatal distress and resilience [15]-[16].

3.1.2. By Sources

The top journals take an interdisciplinary approach, spanning fields such as internet research, maternal and child nutrition, and public health. Leading the field with 18 papers and 159 citations, BMC Pregnancy and Childbirth examines the relationship between online information and maternal health. Plos One and the International Journal of Environmental Research and Public Health are next in line. Research on the psychological and health effects on mothers, as well as how online platforms and digital health tools are being used for support and information sharing, can be published in these journals. With 11 papers and 230 citations, the Journal of Medical Internet Research is notable for its emphasis on digital health behaviors, particularly when seeking maternal and child health information online. This is in line with the increasing interest in the ways that online health interventions can help moms, particularly with breastfeeding techniques, managing postpartum depression, and general child-rearing guidance.

3.1.3. By Authors

The use of online platforms for health-related decision-making, maternal mental health, and digital health behaviors is the main area of focus for the top authors in the research on mothering and online information. With three papers and 85 citations, Baumann Isabel, Dratva Julia, and Jaks Rebecca are notable contributors. These academics work closely together, representing a network of studies that explore how mothers use the internet to manage maternal health issues. Their research regularly examines the psychological impacts of motherhood, with a particular emphasis on the COVID-19 pandemic and how access to online information can reduce stress and anxiety. Megan Aston, another noteworthy author, has made a substantial contribution to our knowledge of how parenting practices are impacted by digital platforms. Her studies frequently look at how mothers view digital tools as a way to get help for areas ranging from breastfeeding to mental health concerns.

3.1.4. By Institutions

Prominent academic institutions such as the University of Sydney, the University of British Columbia, and the University College London (UCL) have all made significant contributions; UCL leads the field in both document production (11 documents) and citations (89). These organizations are essential to the study of how mothers obtain, apply, and benefit from internet information. Other top universities in this area that have made substantial contributions to our knowledge of maternal health and the function of internet resources are the University of Sydney and Monash University, with nine and eight documents, respectively. With eight publications and 172 citations, the University of British Columbia also stands out for making a significant scholarly contribution to the field. Significant contributions are also made by the University of Michigan and the University of Queensland, especially in the area of digital mental health interventions.

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3.1.5. By Countries

Countries such as the USA, England, and Australia dominate the global impact of research on mothering and online information, contributing significantly to the total number of citations and research output. With 104 papers and 1,032 citations, the USA is in first place, followed by England with 78 papers and 771 citations. The USA's dominance is a reflection of its extensive research agenda in digital health literacy, online communication, and maternal health. Australia's substantial contribution (49 papers and 416 citations) highlights the nation's active participation in studies examining the ways in which digital tools assist mothers, especially with regard to mental health and navigating healthcare during the pandemic. Other noteworthy contributors include China, which is quickly becoming a major player in this field of study, and Canada, which places an emphasis on seeking information about digital health.

3.2 Co-Citation Analysis

A multidisciplinary focus on the psychological and sociocultural aspects of motherhood is revealed by the co-citation analysis of the top ten most-cited articles on mothering found online. With 53 citations and a total link strength of 65, the leading article, "Using Thematic Analysis in Psychology" by Braun and Clarke [17], highlights the importance of thematic analysis in qualitative research and acts as a foundational methodology for studies examining mothers' experiences and narratives, especially in online contexts. Its extensive use and impact in examining issues surrounding online mothering are indicated by its high citation count.

Table 2. Co-citations (Top 10 Articles)

Rank	Authors	Title	Citations	Total Link Strength
1	Braun & Clarke [17]	Using thematic analysis in psychology.	53	65
2	Victora et al. [18]	Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect.	21	53
3	Bartholomew et al. [19]	New parents' Facebook use at the transition to parenthood.	16	53
4	Lagan et al. [20]	Internet use in pregnancy informs women's decision making: a web-based survey.	15	50
5	Rollins et al. [21]	Why invest, and what it will take to improve breastfeeding practices?	15	37
6	Madge & O'connor [22]	Parenting gone wired: empowerment of new mothers on the Internet?	14	71
7	Harris et al. [23]	Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support.	14	18
8	Lupton [24]	The use and value of digital media for information about pregnancy and early motherhood: a focus group study.	13	49
9	Cox et al. [25]	Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale.	13	11
10	Plantin & Daneback [26]	Parenthood, information and support on the Internet. A literature review of research on parents and professionals online.	11	40

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According to this analysis, Victora et al. [18] and Rollins et al. [21] also score highly, demonstrating the continued significance of breastfeeding as a crucial subject in online mothering discussions. These articles emphasize how mothers use internet resources to find information, support, and validation for breastfeeding practices. They focus on the epidemiological, mechanistic, and long-term effects of breastfeeding. Their inclusion in the co-citation network indicates that, in the digital age, mothering issues pertaining to nutrition and health are regularly investigated by researchers. The inclusion of Madge and O'connor [22] and Bartholomew et al. [19] highlights the importance of online communities and digital media in the transition to parenthood. By examining how new parents use Facebook, Bartholomew et al. [19] provide insight into how social media platforms can be used for information sharing and support.

The empowerment of mothers through internet use is also examined by Madge and O'connor [22], who discuss how online spaces provide new opportunities for identity formation and social interaction. Furthermore, studies such as Lupton [24] and Lagan et al. [20] examine how digital media affects mothers' decision making, especially during pregnancy and the first few months of motherhood. With REDCap's significance in research data management, this emphasis on the impact of digital media is consistent with broader trends in health informatics, as demonstrated by Harris et al. [23]. An interrelated scholarly interest in the relationship among maternal health, digital media's role in contemporary parenting, and online information is reflected in this co-citation analysis.

3.2.1 Co-Citation Analysis by Clusters

Five separate clusters are revealed by the co-citation analysis of the most-cited articles on online mothering; each provides a different perspective on how mothers seek, share, and use information online. The various but related fields of study that characterize contemporary mothering research in the digital age are highlighted by this co-citation analysis.

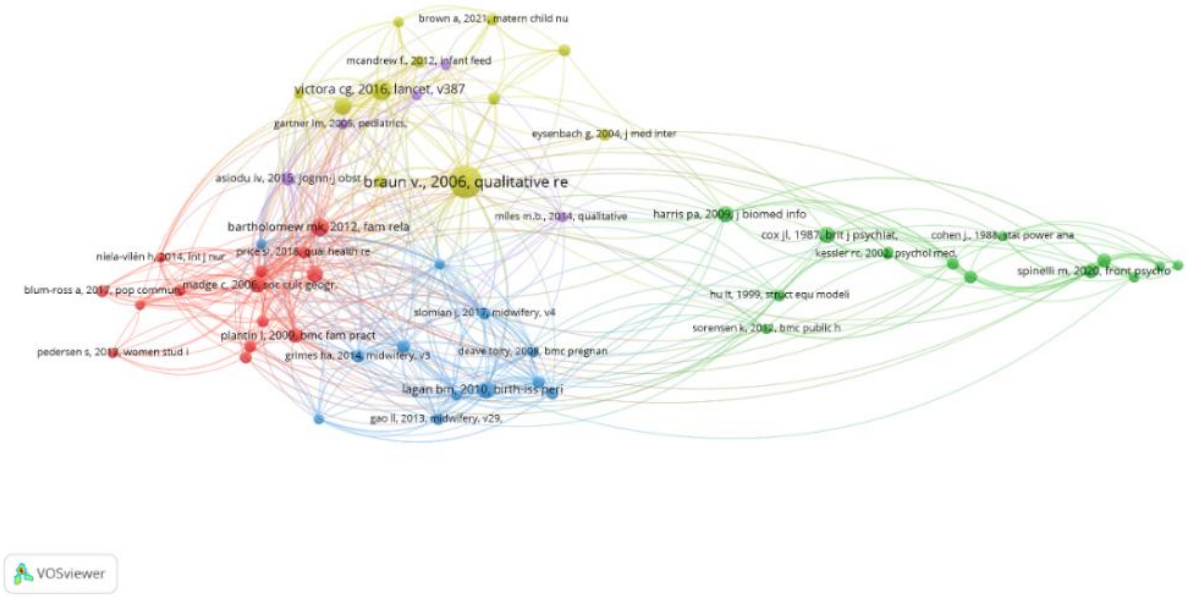

Fig.2. Co-Citation Analysis (VOSviewer Visualization)

Cluster 1 (Red), "Digital Mothering and Online Communities," is concerned with how online communities and digital platforms help to shape and support contemporary parenting. It contains fourteen articles that examine the ways in which mothers use the Internet to find support, information, and empowerment. Important studies that look into how new parents use social media, especially Facebook, as a resource during the transition to parenthood include Bartholomew et al. [19] and Madge and O'connor [22]. These pieces show how social media turns into a vital resource for establishing relationships and overcoming the difficulties of being a young mother. Plantin and Daneback [26] and Lupton [24] also add to this cluster by examining the usefulness of digital media for mothers and how internet information affects their experiences during pregnancy and the early years of parenthood.

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According to Blum-Ross and Livingstone [27], the cluster also comprises studies on parents' attitudes, actions, and identity development in online forums. All things considered, this cluster emphasizes how digital spaces impact motherhood, stressing how online communities offer mothers information, emotional support, guidance, and a sense of camaraderie.

The 14 articles in Cluster 2 (Green), "Health, Mental Well-being, and Research Methodologies," are devoted to maternal health research methodologies, mental health, and well-being. Research methodologies for maternal health studies have been developed in large part. For example, a paper by Harris et al. [23] discusses REDCap, and that of Cox et al. [25] concentrates on the Edinburgh Postnatal Depression Scale. These articles provide a starting point for discussing issues such as anxiety, depression, and maternal mental health. Studies like Brooks et al. [28] and Spinelli et al. [29], which look at how outside stressors, like the COVID-19 pandemic, impact families and mothers' mental health, are also included in the cluster. Cluver et al. [30] broaden this emphasis to cover crisis parenting techniques, emphasizing how mothers deal with stress and health hazards. This cluster addresses the difficulties faced by mothers in the digital age and highlights the significance of comprehending and promoting maternal health through sound research methodologies.

Twelve articles in Cluster 3 (Blue), "Information-Seeking and Decision-Making in Pregnancy," highlight how digital media can inform and impact mothers' decision-making processes both during and after pregnancy. Studies like Lagan et al. [20] examine how pregnant women use the Internet to research topics and reveal that online resources have a significant influence on their parenting and health decisions. Carolan [31], along with Sayakhot and Carolan-Olah [32], investigate how mothers, particularly those who are first-time mothers, use digital media to meet their informational needs, address uncertainties, and make well-informed decisions regarding their own and their children's health. This focus is further extended to the postpartum phase by Slomian et al. [33], who examine how mothers continue to seek information online to cope with the difficulties of early motherhood. The articles in this cluster show how important the Internet is to mothers, helping them make decisions and giving them access to a multitude of information that shapes their attitudes and actions.

There are eleven articles in "Breastfeeding Practices and Qualitative Research," Cluster 4 (Yellow). In order to comprehend maternal experiences, this cluster investigates breastfeeding practices and the application of qualitative methodologies. This cluster is based on the thematic analysis work of Braun and Clarke [21], which offers a methodological framework for researchers to analyze the intricate stories and experiences related to breastfeeding. Important studies like Victora et al. [18] and Rollins et al. [21] highlight the value of breastfeeding for mothers and babies, looking at its long-term impacts and the need for better breastfeeding practices around the world. The support and information mothers receive online are among the personal and societal factors that influence breastfeeding, according to research by Fox et al. [34] and Tong et al. [35]. This cluster highlights the complex interrelationships among breastfeeding, social support, and the function of qualitative research in documenting the varied experiences of mothers.

With five articles, Cluster 5 (Purple), "Breastfeeding Self-Efficacy and Social Support," is the smallest cluster. In particular, it emphasizes self-efficacy, breastfeeding, and the function of social support networks. In their investigation of breastfeeding self-efficacy, Dennis [36] and Brockway et al. [37] pinpoint elements that boost mothers' self-assurance and breastfeeding success. First-time African American mothers' use of social media to support their breastfeeding journey is examined by Asiodu et al. [38], who emphasize that digital platforms provide a forum for advice, encouragement, and shared experiences. This cluster highlights how online communities can help new mothers and how self-efficacy is a major factor in successful breastfeeding. All of the articles point to the importance of social support networks, whether they be online or offline, in fostering successful breastfeeding outcomes.

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Table 3. Co-Citation Cluster on Mothering through Online Information

Cluster & Colour	Cluster Labels	No. of Articles	Representative Publications
Cluster 1 (Red)	Digital Mothering and Online Communities	14	Bartholomew et al. [19]; Madge & O'connor [22]; Lupton [24]; Plantin & Daneback [26]; Blum-Ross & Livingstone [27]; Porter & Ispa [39]
Cluster 2 (Green)	Health, Mental Well-being and Research Methodologies	14	Harris et al. [23]; Cox et al. [25]; Brooks et al. [28]; Spinelli et al. [29]; Cluver et al. [30]; Cohen [40]
Cluster 3 (Blue)	Information-Seeking and Decision-Making in Pregnancy	12	Lagan et al. [20]; Carolan [31]; Slomian et al. [33]; Sayakhot & Carolan-Olah [32]; Kraschnewski et al. [41]
Cluster 4 (Yellow)	Breastfeeding Practices and Qualitative Research	11	Braun & Clarke [17]; Rollins et al. [21]; Victora et al. [18]; Fox et al. [34]; Tong et al. [35]; Vazquez-vazquez et al. [42]; Brown & Shenker [43]
Cluster 5 (Purple)	Breastfeeding Self-Efficacy and Social Support	5	Asiodu et al. [38]; Miles et al. [44]; Dennis [36]; Brockway et al. [37]; Gartner et al. [45]

The findings of this bibliometric analysis offer important new insights into the structural transformation of maternal support systems in the digital age. The dominance of mental health-focused and crisis-driven research following COVID-19 indicates that digital platforms are no longer merely supplementary sources of parenting information, but have become essential infrastructures of maternal care [46]. Online parenting communities now function as informal healthcare ecosystems where emotional support, medical information, and experiential knowledge intersect [47]. However, the increasing reliance on algorithm-driven platforms also raises critical concerns regarding misinformation, digital inequalities, and the commercialization of motherhood through influencer cultures and platform economies. The intellectual concentration around breastfeeding and maternal mental health further suggests that early motherhood remains the most vulnerable period where digital interventions can generate the greatest impact. These patterns highlight the urgent need for integrated digital maternal health policies, platform accountability frameworks, and evidence-based parenting technologies that prioritize maternal well-being over commercial engagement metrics.

The study emphasizes the need for user-centered design in digital parenting resources from a practical standpoint. It promotes better digital literacy initiatives that give mothers the tools they need to assess online content critically and steer clear of false information. These findings can be used by legislators and healthcare professionals to create focused digital interventions that will guarantee mothers have access to trustworthy, research-based parenting advice that is tailored to their various needs [48]. The analysis's policy recommendations emphasize the need for stricter laws and ethical considerations when it comes to internet parenting content. Ensuring the legitimacy of online resources is crucial to protecting maternal well-being as digital platforms continue to expand. To gain a better understanding of mothers' actual experiences with online parenting resources, future studies should examine cultural differences in digital parenting practices and incorporate qualitative approaches. This study establishes a framework for developing digital maternal support research, practice, and policy.

4 Conclusion

The research landscape pertaining to mothers' interactions with online parenting resources is thoroughly examined by this bibliometric analysis. The study has discovered important trends, significant authors, well-known institutions, and thematic clusters that influence academic discourse in this field by using performance and co-citation analyses. The results highlight the growing dependence on online resources for parenting assistance, especially when it comes to maternal mental health, information-seeking behaviors, and social interaction.

These results have important ramifications for policy, practice, and research. To create comprehensive frameworks that incorporate social support systems, psychological health, and digital

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literacy into online parenting resources, theoretical developments are required. The study's practical implications include the need for well-thought-out, empirically supported digital interventions that address a range of parenting requirements. From a policy perspective, stricter rules ought to be put in place to guarantee the veracity and correctness of online parenting resources, shielding mothers from false information and online abuse.

In order to better understand the lived experiences of mothers using digital platforms, future research should build on these findings by integrating qualitative viewpoints. Comparative research conducted in various cultural contexts can also offer a more global perspective on the trends in digital parenting. Our knowledge of how digital parenting resources evolve and affect maternal experiences can be further enhanced by combining bibliometric results with empirical approaches.

Author Contributions

R. W. M. Mee: Conceptualization, formal analysis, funding acquisition, investigation, methodology, and project administration. H. M. Ismail: Resources, software, supervision, and writing - review & editing. B. M. Balraj: Data curation, investigation, resources, software, validation, visualization, and writing - review & editing. L. S. Pek: Investigation, visualization, and writing - original draft. A. Derahvasht: Investigation, project administration, and writing - review & editing. Y. Mingmei: Data extraction and proofreading.

Declaration of Competing Interest

We declare that we have no conflict of interest.

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