Mapping and Trends of Midwifery Research in Indonesia

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ABSTRACT

In Indonesia, the growth of midwifery studies reflects broader efforts to strengthen the health system and enhance professional capacity. This study provides a quantitative mapping of scientific publications related to midwifery in Indonesia using several key parameters, including author productivity, citation frequency, country contributions, document types and subject areas, institutional affiliations, author keywords, and density visualization. Data were collected from indexed scientific publications and systematically examined to identify trends and patterns in midwifery studies in Indonesia. The findings indicate variations in author productivity, with several contributors demonstrating notable influence in the field. Citation patterns reflect the level of recognition and impact of published work within the scientific community. Country distribution highlights Indonesia's contribution to global midwifery knowledge. Analysis of document types and subject categories offers insight into the scope and focus of midwifery studies, while institutional affiliation mapping identifies key centers of scholarly activity. Author keyword analysis and density visualization further illustrate thematic development and emerging areas within the field. These findings provide valuable insights for researchers, practitioners, and policymakers in guiding future directions and strengthening the development of midwifery studies in Indonesia.
Keywords: bibliometric; midwifery; maternal health; scientific publications; Indonesia

INTRODUCTION

Nowadays, obstetric problems are increasingly complex and varied. Globally, adolescent reproductive health, maternal and child health, family planning, and the prevention of sexually transmitted infections have received particular attention. The World Health Organization (WHO) emphasizes that efforts to improve maternal and child health status are directed toward reducing mortality and morbidity among mothers and children. Strengthening the quality and continuity of maternal health services is considered essential to accelerate the decline in maternal and child mortality rates [1].

Maternal and neonatal mortality remain significant challenges in midwifery practice in Indonesia. Despite ongoing efforts, these indicators continue to reflect gaps in access, quality, and equity of care. Government responses to priority health issues have been formalized into national programs, including the management of COVID-19, stunting prevention, and adolescent health initiatives. These national priorities guide the development of health services and stimulate research activities conducted by research institutions, health offices, and educational institutions across the country [2,3].

Beyond clinical concerns, midwifery issues also encompass workload, education, training, and professional competence. Previous research has shown that midwives at primary healthcare facilities often experience workloads exceeding recommended standards, indicating substantial service demands. According to the Regulation of the Minister of Home Affairs Number 12 of 2008 concerning Guidelines for Workload Analysis in the Ministry of Home Affairs and Regional Government, standard working hours are regulated on a weekly basis. Findings suggest that the workload of midwives in Community Health Centers is relatively heavy, which may influence their performance in delivering midwifery services [4].

Midwifery services in Indonesia also adapt to global service trends. During the COVID-19 pandemic, significant changes occurred in service delivery systems, including the implementation of online consultations through digital platforms and tools such as Google Forms. These innovations functioned as alternative strategies to maintain service accessibility and continuity. Reports indicate that online consultations were able to address clients' needs effectively and provide solutions to emerging problems during the pandemic period [5].

Midwifery research plays a crucial role in identifying and resolving existing problems in maternal and child health services. Research activities are conducted to explore causal relationships, generate evidence, and formulate appropriate interventions. Researchers contribute to the advancement of scientific knowledge by describing phenomena, analyzing determinants, and developing practical solutions to improve health outcomes [6]. The primary objective of midwifery research is to overcome challenges in practice and to maintain or enhance the level of public health.

To understand the development of scientific publications in midwifery, quantitative approaches to scientific literature can be utilized. Such approaches enable the identification of publication trends, research themes, citation patterns, and institutional contributions. Through systematic examination of publication data, researchers can gain insight into the dynamics of midwifery research in Indonesia, including publication year, source, citation frequency, country of origin, document type, subject area, and institutional affiliation. This comprehensive overview helps illustrate the landscape and evolution of midwifery research nationally [7].

Midwifery research is a branch of health science that focuses on pregnancy, childbirth, and the care of mothers and newborns. It encompasses a wide range of topics, including the physiological processes of pregnancy and labor, management of obstetric complications, safety of clinical procedures and medical interventions, as well as psychosocial aspects of pregnancy and postnatal care [8]. Research in midwifery employs various methodologies, including clinical research, epidemiological studies, qualitative inquiry, and translational research. The objectives are to enhance understanding of maternal and neonatal health, improve clinical practice, identify risk factors affecting maternal and infant outcomes, and develop effective interventions to improve overall health status [9].

Bibliometrics derives from the words "biblio," meaning book, and "metrics," meaning measurement. It refers to the application of statistical and mathematical methods to analyze scientific publications and other bibliographic data. The primary aim is to quantitatively evaluate publications, authors, journals, institutions, and specific research topics. This approach facilitates the identification of research trends, key contributors, and the relative impact of scholarly work within a field [10,11].

By utilizing bibliometric techniques, researchers can assess the productivity and distribution of scientific publications across disciplines. Initially referred to as "statistical bibliography," the term evolved to bibliometrics as its methodological scope expanded. Over time, this approach has been used not only to map knowledge development but also to evaluate scientific communication channels, particularly academic journals. Bibliometric studies commonly examine author productivity and institutional contributions as indicators of research performance [12,14].

Authorship pattern studies examine the characteristics and dynamics of authorship in scientific publications. This includes analysis of collaboration, citation behavior, and writing trends using statistical and text-based approaches. Such analyses help clarify patterns of scholarly communication and cooperation among researchers [13].

Authorship patterns encompass information related to authors' gender, institutional affiliation, subject area, collaboration level, and productivity. Based on the number of contributors, publications may be categorized as single-authored or multi-authored works. Research collaboration represents cooperative efforts among scientists or institutions who share expertise, intellectual contributions, or resources to produce scientific outputs. Collaborative writing in scientific publications reflects collective knowledge production and interdisciplinary engagement [15-17].

Author productivity refers to an author's ability to produce scholarly work within a specific period. It can be assessed through the quantity of publications, volume of written output, and consistency of contributions. Various factors influence productivity, including motivation, time availability, writing skills, and physical and mental health. Both intrinsic motivation (such as personal fulfillment) and extrinsic motivation (such as recognition or financial incentives) may affect scholarly output. In publication-based research assessment, author productivity is commonly measured by the number of articles published within a given timeframe. Productivity reflects both the quantity and quality of performance aimed at achieving academic goals. It represents an individual's capability and willingness to generate written works, whether in the form of research findings or scholarly critique within their field of expertise [18].

The purpose of this study is to provide a comprehensive overview of the development of midwifery research in Indonesia by examining publication trends, thematic focus, authorship characteristics, collaboration patterns, and researcher productivity. This study aims to identify the dynamics and direction of scholarly contributions in the field of midwifery, thereby offering evidence-based insights to support future research development, strengthen academic collaboration, and enhance the quality of maternal and child health services in Indonesia.

METHODS

This study employed a quantitative approach to identify trends in midwifery research themes in Indonesia. A structured examination of scientific publications was conducted to explore research developments, dominant concepts, and relevant keywords within the selected scope [19]. The study was carried out in three stages: data collection, data visualization, and data analysis. In the data collection stage, the keywords "midwives," "midwifery," "maternal health," "neonatal health," and "Indonesia" were used. The search was conducted in the Scopus database covering a ten-year period from 2014 to 2023. Based on these criteria, 13 relevant articles were identified for further review.

The collected data were examined to describe annual publication trends, document types, most productive authors, institutional affiliations, and country contributions. Subsequently, the dataset was exported to VOSviewer software to facilitate visualization and mapping of relationships among keywords, authors, and institutions. In the final stage, the authors analyzed the mapped data to identify the principal topics and thematic patterns emerging in midwifery research in Indonesia. This process enabled a comprehensive understanding of research directions and scholarly contributions within the field.

RESULTS

Documents by year and source in midwifery research in Indonesia

The 13 articles identified in the Scopus database represent publications on midwifery research in Indonesia from 2014 to 2023. Figure 1 illustrates the annual publication trend, showing a gradual increase in the number of publications, with a peak observed in 2019. However, a decline in publication output is evident during the period 2020–2023. Based on Figure 2, several journals emerged as the primary sources of publication in midwifery research in Indonesia. These include Asia Pacific Journal of Clinical Nutrition [20], BMJ Open [21], International Journal of Gynecology and Obstetrics [22], Clinical and Experimental Pediatrics [23], and International Journal of Health Planning and Management. These journals serve as key platforms for disseminating research findings related to maternal and neonatal health in Indonesia.
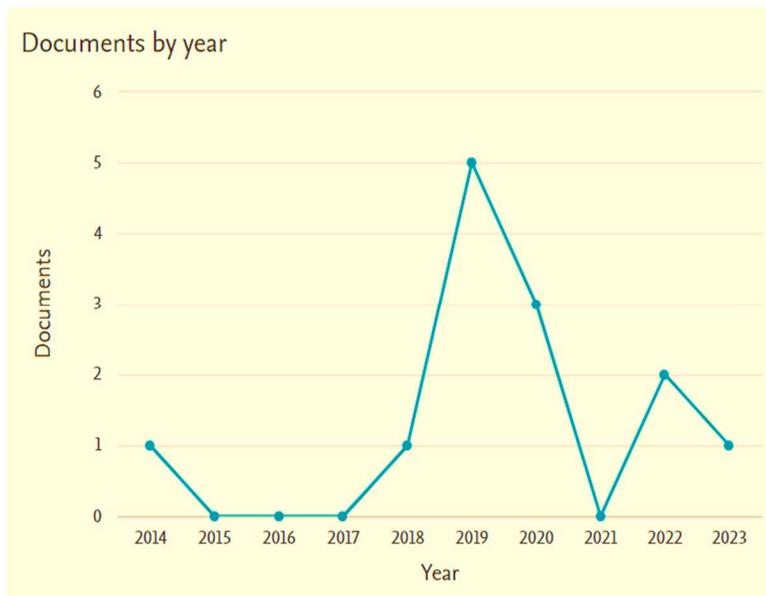

Figure 1. Documents by year in research results on midwifery documents by source
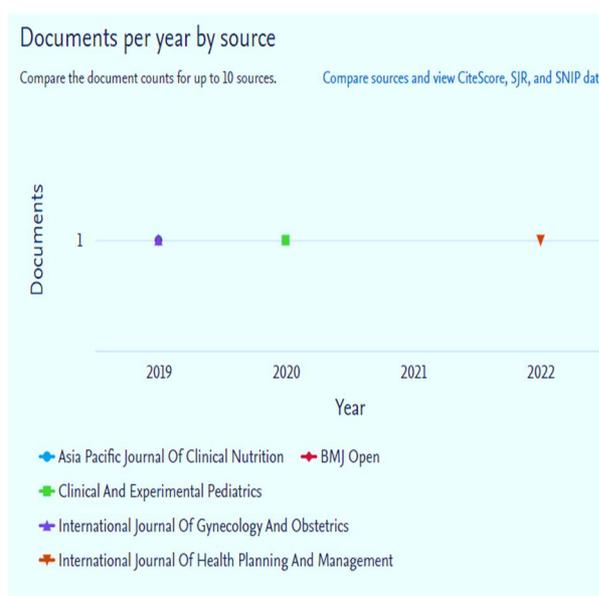

Figure 2. Documents per year by source

Author productivity in midwifery research in Indonesia

In examining a specific research topic, author productivity and citation frequency are important indicators to consider [24]. These indicators facilitate the identification of influential contributors and help researchers locate relevant references within the field. Figure 3 presents the ten authors contributing to midwifery research in Indonesia, namely Adisasmita; Ahmed; Aji; Amalia; Amelia; Amelia; Anandari; Andalas; Anis; and Bartini, each with one publication within the dataset.
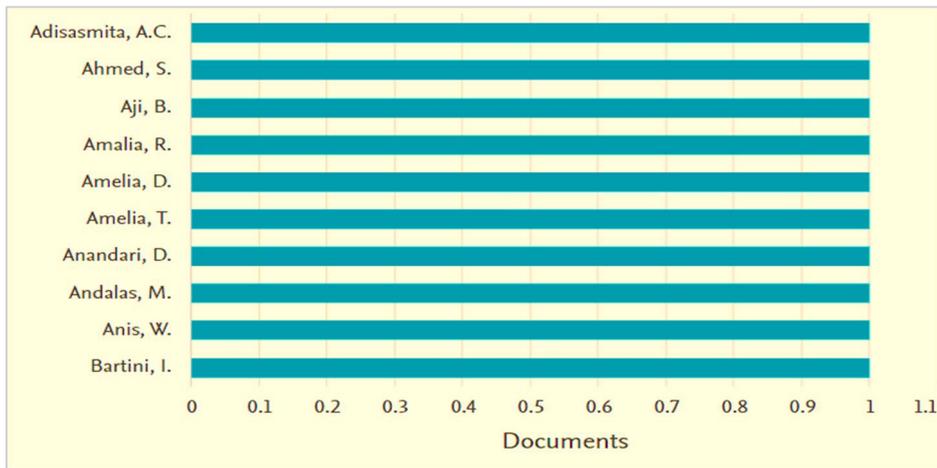
Among the identified publications, several authors stand out based on citation impact. Bartlett; Weissman; Gubin; Patton-Molitors; and Friberg, authored the impact and cost of scaling up midwifery and obstetrics in 58 low- and middle-income countries (2014), published in PLoS ONE, which has received the highest number of citations [25]. In addition, Diba; Ichsan; Muhsin; Samadi; and Vollmer published healthcare providers' perception of the referral system in maternal care facilities in Aceh, Indonesia: A cross-sectional study (2019) in BMJ Open, which is also among the most cited articles [21]. The complete citation details are presented in Table 1.

Figure 3. Author productivity in midwifery research in Indonesia

Table 1. Number of citations of midwifery research publications in Indonesia

No	Author	Title	Year	Citation	Journal
1	Bartlett L, et al.	The impact and cost of scaling up midwifery and obstetrics in 58 low=and middle-income countries	2014	16	PLoS ONE
2	Diba F, et al.	Healthcare providers' perception of the referral system in maternal care facilities in Aceh, Indonesia: A cross-sectional study	2019	12	BMJ Open
3	Lukito W, et al.	Maternal contributors to intergenerational nutrition, health, and well-being: revisiting the Tanjungsari Cohort Study for Effective Policy and Action In Indonesia	2019	8	Asia Pacific Journal of Clinical Nutrition
4	Sethi R, et al.	Assessment of Knowledge of Evidence-Based maternal and newborn care practices among midwives and nurses in six provinces in Indonesia	2019	7	International Journal of Gynecology & Obstetrics
5	Rahfiludin MZ & Dharmawan Y	Risk factors associated with low birth weight	2018	5	Kesmas
6	Anis W, et al.	Do Mothers who meet the minimum standard of antenatal visits have better knowledge? A study from Indonesia	2022	4	Journal of Education and Health Promotion
7	Pratomo H, et al.	Knowledge and Perceptions of Kangaroo Mother Care Among Health Providers: A Qualitative Study	2020	4	Clinical & Experimental Pediatrics
8	Berkat S	The Influence of maternal and child health services on neonatal death of low birth weight neonates in Aceh Province	2019	3	BMC Pregnancy and Childbirth
9	Hodgkin K, et al	Outcomes by birth setting and caregiver for low-risk women in Indonesia: A Systematic Literature Review	2019	3	Reproductive health
10	Johariyah et al.	How Maternal and Neonatal Services at the community level during the COVID-19 Pandemic In Indonesia?	2020	2	Systematic Reviews in Pharmacy

Documents by most productive countries and document type

Figure 4 shows the distribution of publications by country. Indonesia ranks as the most productive country in midwifery research within this dataset, followed by Australia, the United States, Germany, and Taiwan. This distribution highlights Indonesia's central role in contributing to scholarly work on midwifery within its national context and suggests that researchers seeking references on this topic should prioritize Indonesian publications. Based on Figure 5, the analysis indicates that the majority of publications are original research articles, with only a small proportion classified as review articles. This finding suggests that empirical research dominates midwifery scholarship in Indonesia.
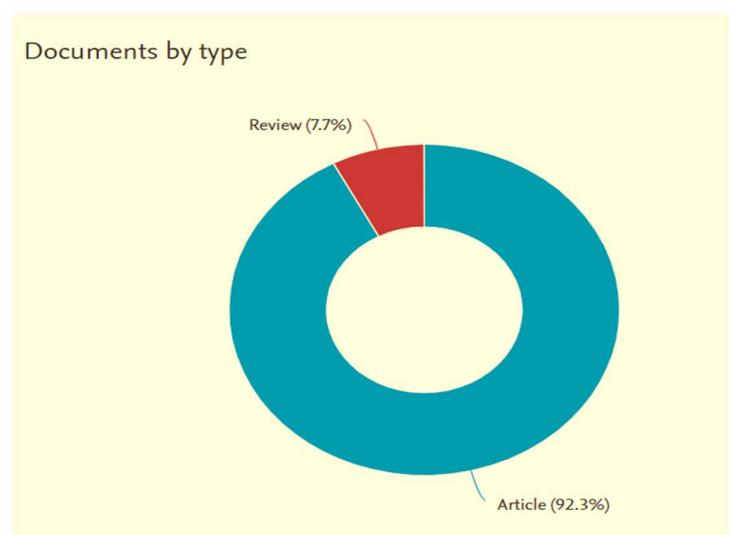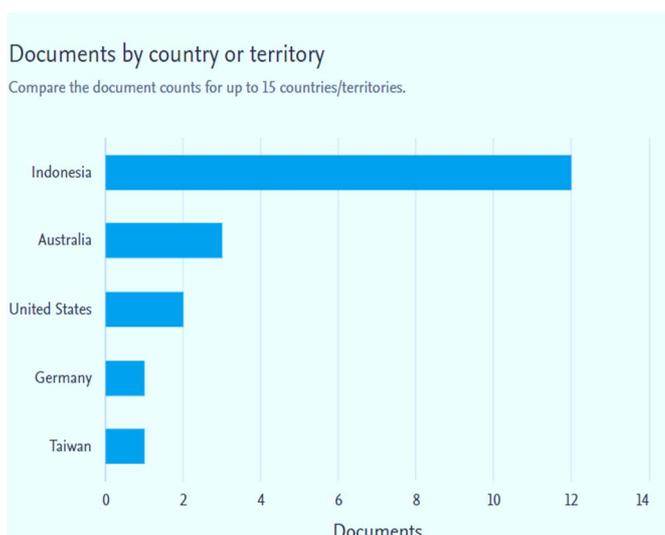

Figure 4. Documents by most productive countries in midwifery research   Figure 5. Number of publications on midwifery research based on document type

Publications by subject area

Publication analysis based on Scopus subject categories shows that most midwifery research falls under health-related disciplines. The dominant subject area is medicine [26,27], followed by nursing [23,28] and pharmacology [29], indicating a strong connection between midwifery research and clinical health sciences. Social sciences also represent a notable portion of publications [30], followed by agricultural sciences, biochemistry, and multidisciplinary studies (Figure 6).

Publications by institutional affiliation

Figure 7 presents the ten most productive institutional affiliations in midwifery research in Indonesia. The leading institution is the Johns Hopkins Bloomberg School of Public Health, followed by the University of Indonesia, Diponegoro University, and Jhpiego Corporation. Other contributing institutions include Budi Kemuliaan Health Institute, Futures Institute, Maternal and Child Health Integrated Program, School of Health Sciences, Center for Evaluation and Development (C4ED), and Health Polytechnic of Aceh.
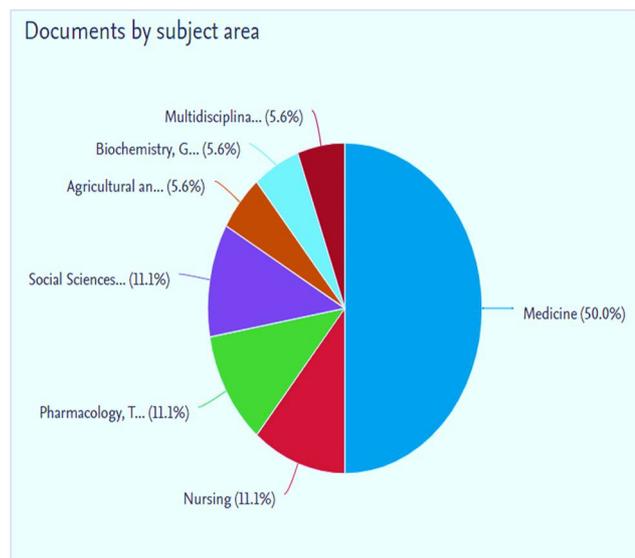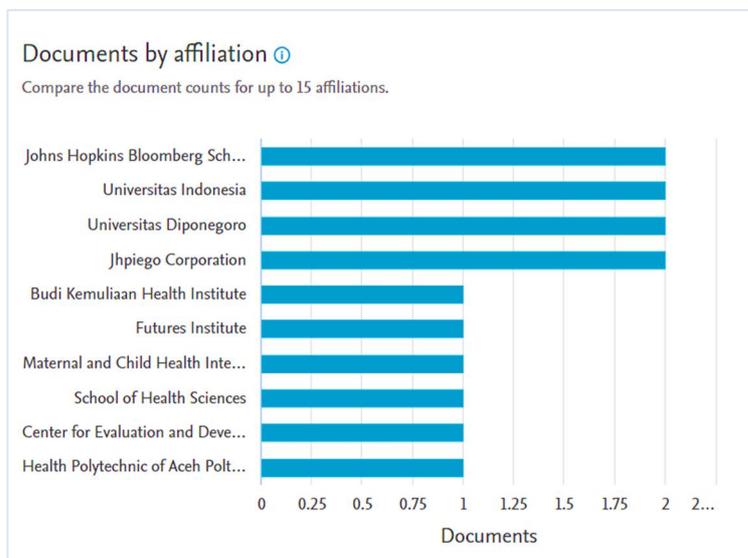

Figure 6. Number of publications by subject

Figure 7. Number of scientific publications on midwifery research by affiliation

Author keywords analysis

Keyword analysis identified 37 items grouped into seven clusters. Cluster 1 includes themes such as birth, delivery, development, homebirth, midwives, obstetric care, parturition, and skilled birth attendants. Cluster 2 focuses on communication competence, interpersonal communication, maternal health, midwife, mother, and neonatal. Cluster 3 highlights community, COVID-19, maternal, neonatal care, and nurses. Cluster 4 encompasses donor support, Indonesia, maternal and child health, stakeholder involvement, and sustainability. Cluster 5 includes health providers, hospitals, kangaroo mother care, knowledge, and perception. Cluster 6 consists of health policy, maternity care, midwifery, postpartum, and pregnancy. Cluster 7 contains Aceh, neonatal health, and referral system.
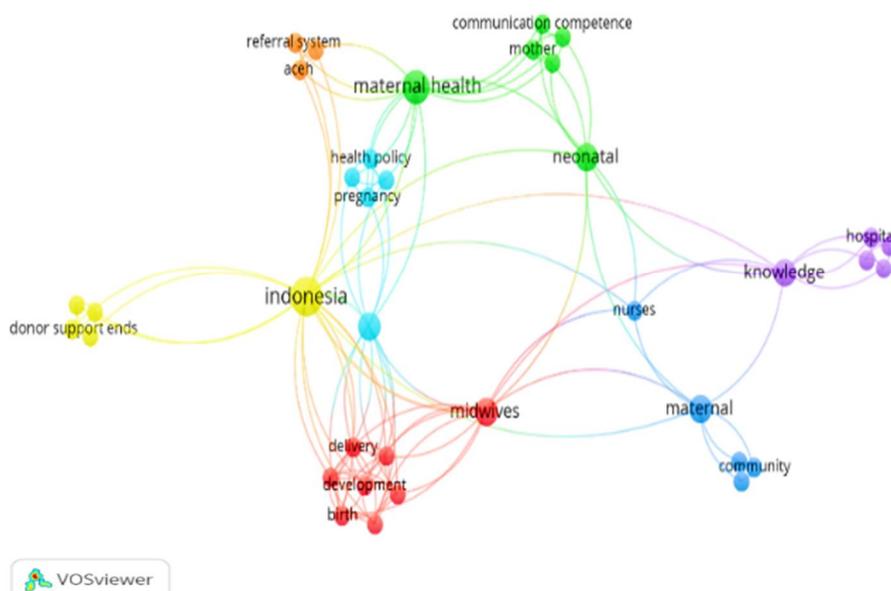

Figure 8. Network visualization of midwifery research in Indonesia
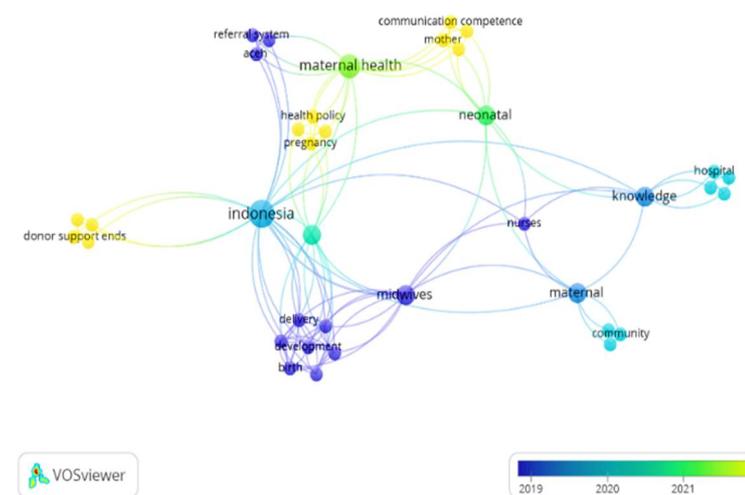

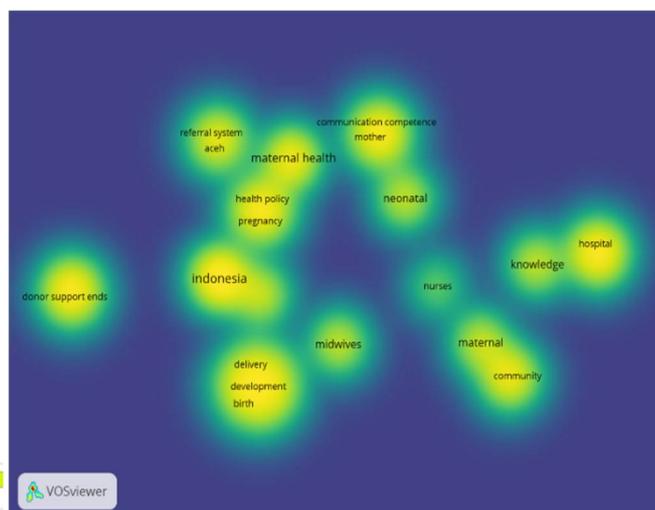Figure 9. Overlay visualization of midwifery research mapping

Figure 10. Density visualization of midwifery research mapping

Overlay visualization (Figure 9) indicates temporal patterns in research themes. Darker colors represent earlier research topics, such as maternal midwives, obstetric care, birth, and maternal health. Lighter colors indicate more recent themes, including communication competence, maternal and child health, health policy, and maternity care.

Density visualization (Figure 10) shows that the most frequently studied topics are maternal health, Indonesia, birth, community, and hospital, represented by brighter colors. Less explored areas include nurses, homebirth, obstetric care, knowledge, neonatal care, and postpartum topics, suggesting opportunities for future research development.

DISCUSSION

The findings on midwifery studies in Indonesia encompass multiple dimensions, including publication trends, information sources, author productivity, citation impact, country contributions, document types, subject areas, institutional affiliations, and keyword mapping. The following discussion elaborates on these results.

Midwifery research trends by year

The annual trend demonstrates a steady increase in publications from 2014 to 2019, reaching a peak in 2019, followed by a decline during 2020–2023. This decrease may be associated with global disruptions, shifts in research priorities, or the impact of the COVID-19 pandemic on academic productivity. Historically, midwifery scholarship has evolved alongside broader healthcare transformations. In the 1990s, emphasis was placed on evidence-based practice, pain management during childbirth, and integration of midwifery within healthcare systems. The 2000s saw expansion toward global health initiatives, cultural competence, and the integration of technological advancements into midwifery care [31]. In the 2010s, attention shifted to quality of care, policy advocacy, and perinatal mental health. Entering the 2020s, innovation and resilience became central themes, particularly the use of telehealth and digital tools during the pandemic, as well as sustainability in maternal healthcare practices [32,33]. These developments illustrate the dynamic and adaptive nature of midwifery as a profession responding to global health challenges.

Publication sources

The most prominent publication sources include Asia Pacific Journal of Clinical Nutrition, BMJ Open, and International Journal of Gynecology and Obstetrics. These journals represent reputable outlets that contribute significantly to maternal and neonatal health scholarship in Indonesia. Internationally recognized journals specializing in midwifery also include the British Journal of Midwifery, Midwifery, and the Journal of Midwifery & Women's Health [34]. The diversity of publication venues reflects the interdisciplinary scope of midwifery studies and provides researchers with multiple platforms for dissemination.

Author productivity

Author mapping indicates variation in productivity, with several contributors appearing within the top ten authors. Keyword clustering further reveals dominant themes such as maternal health, obstetric care, and birth. Enhancing scholarly productivity in midwifery requires structured strategies, including effective time management, clear goal setting, continuous skill development, collaborative engagement, utilization of digital tools, and maintaining a focused research environment. Collaborative writing, in particular, encourages knowledge exchange and strengthens research output [34,35].

Citation impact

The most cited publications highlight influential contributions to midwifery knowledge. Highly cited works commonly address continuity of midwife care models, global midwifery workforce distribution, and maternal referral systems. Reports such as State of the World's Midwifery 2021 by the World Health Organization emphasize disparities in midwifery workforce density between high-income and low-income countries [37]. In Southeast Asia, governance, workforce planning, and education have been identified as priority areas to strengthen midwifery systems [21,25]. Citation patterns therefore reflect the relevance of workforce development, care models, and system-level reforms in advancing maternal and neonatal health outcomes [36].

Country productivity

Indonesia leads in publication output within this dataset, followed by Australia, the United States, Germany, and Taiwan. Globally, high-income countries tend to dominate midwifery scholarship due to stronger research infrastructure and funding systems [25,26,38]. However, there is growing evidence of increased scholarly contributions from Southeast Asia and other low- and middle-income regions, driven by strategic workforce planning and policy reforms [25]. Although some regions, including Arab countries, contribute a smaller proportion of global outputs, research productivity has gradually increased over the past two decades [21,31]. These shifts demonstrate expanding global engagement in midwifery scholarship.

Document types and research subjects

Most publications are original research articles, indicating a strong emphasis on empirical investigation. Subject classification shows that midwifery studies are predominantly situated within medicine, nursing, and related health sciences [39,40]. Thematic coverage includes antenatal care, intrapartum care, postnatal support, public health interventions, workforce development, maternal and infant health outcomes, and ethical considerations. This interdisciplinary scope underscores midwifery's integration of clinical, public health, educational, and ethical perspectives [41].

Research affiliations

Leading affiliations include the Johns Hopkins Bloomberg School of Public Health and the University of Indonesia. Institutional support plays a crucial role in fostering scholarly productivity through funding, mentorship, and research infrastructure. International organizations also contribute significantly to midwifery scholarship. The International Confederation of Midwives promotes ethical and evidence-based midwifery practice globally. The Royal College of Midwives provides research support and professional development resources, while the American College of Nurse-Midwives prioritizes research on quality, equity, and interprofessional collaboration [34,42]. These institutions strengthen the academic and professional ecosystem of midwifery.

Author keywords

Keyword mapping reveals sustained emphasis on themes such as birth, maternal health, and obstetric care. In contrast, areas such as health policy and maternity care appear more recent and comparatively less explored. Analyzing keyword clusters helps identify research concentrations and potential gaps, guiding future scholarly priorities [43].

Density visualization

Density visualization highlights dominant research themes, including maternal health, Indonesia, birth, community, and hospital settings. Less concentrated areas, such as neonatal care, homebirth, postpartum care, and knowledge-based interventions, represent opportunities for further exploration [44,45]. Variations in author and institutional productivity may be explained by structural factors. Academic promotion requirements,

postgraduate program availability, research mandates, funding accessibility, and professional association engagement all influence scholarly output. Strengthening equitable funding distribution, institutional capacity, and collaboration networks is essential to creating a sustainable and balanced midwifery research ecosystem in Indonesia.

Limitations

This study is limited to publications indexed in the Scopus database and may not fully represent nationally or regionally published midwifery studies in Indonesia. Future investigations incorporating local and non-indexed databases would provide a more comprehensive understanding of the national research landscape.

CONCLUSION

Midwifery studies in Indonesia demonstrate a progressive development in publication output, thematic focus, institutional involvement, and scholarly contribution. The overall mapping of author productivity, citation patterns, country participation, document types, subject areas, affiliations, and keyword distribution provides a comprehensive overview of the research landscape.

These findings offer valuable insights into research trends, collaboration patterns, and dominant topics within Indonesian midwifery scholarship. They may serve as a strategic reference for strengthening future studies, fostering collaboration, and enhancing Indonesia's contribution to global midwifery literature. Further investigations exploring contextual and systemic factors influencing research productivity are recommended to support evidence-based planning in midwifery education, research, and policy development.

Ethical consideration, competing interest and source of funding

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