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BIBLIOMETRY

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## SCIENTIFIC PRODUCTION ON QUALITY AND SAFETY IN OBSTETRIC CARE: BIBLIOMETRIC STUDY


*Scientific production on quality and safety in obstetric care: bibliometric study*

*Producción científica sobre calidad y seguridad en la atención obstétrica: estudio bibliométrico*

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### ABSTRACT

**Objective:** to analyze the frequency of words correlated with the title and abstract of scientific production on quality and safety in obstetric care in the light of Zipf's law (word frequency). **Method:** This is a bibliometric study that makes it possible to understand the patterns of scientific productivity over the years. The databases LILACS, MEDLINE, Bdenf and SCOPUS (Elsivier) were searched using the following descriptors from DeCS: obstetrics, patient safety, quality of health care; the Boolean operator AND was linked to these terms. **Results:** after the bibliometric survey, 14 related articles were identified that covered the topic under study. These articles were published in 13 different journals. **Conclusion:** based on the results presented, it is evident that among the 14 articles recruited - from 2014 to 2021 - there were predominant studies whose approach is intrinsically related to the theme of quality and safety in obstetric care.

**DESCRIPTORS:** Safety; Bibliometrics; Obstetrics.

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## RESUMO

**Objetivo:** analisar a frequência de palavras correlacionando com o título e resumo da produção científica sobre a qualidade e segurança na assistência obstétrica à luz da Lei de Zipf (frequência de palavras). **Método:** trata-se de um estudo bibliométrico, que possibilita compreender os padrões de produtividade científica ao longo dos anos. realizaram-se buscas nas bases de dados LILACS, MEDLINE, Bdenf e SCOPUS (Elsivier) mediante utilização dos seguintes descritores oriundos do DeCS: obstetrícia/obstetrics, segurança do paciente/ patient safety, qualidade dos serviços/ quality of health care; associou-se a esses termos o operador booleano AND. **Resultados:** após realizado o levantamento bibliométrico foram identificados 14 artigos relacionados que contemplaram a temática em estudo. Estes artigos estão publicados em 13 periódicos distintos. **Conclusão:** com base nos resultados apresentados, evidencia-se que, dentre os 14 artigos recrutados – desde 2014 a 2021, foram predominantes os estudos cuja abordagem relaciona-se intrinsecamente à temática qualidade e segurança na assistência obstétrica.

**DESCRITORES:** Segurança; Bibliometria; Obstetrícia.

## RESUMEN

**Objetivos:** analizar la frecuencia de palabras correlacionadas con el título y resumen de la producción científica sobre calidad y seguridad en la atención obstétrica a la luz de la Ley de Zipf (frecuencia de palabras). **Método:** se trata de un estudio bibliométrico, que permite comprender los patrones de productividad científica a lo largo de los años. Se realizaron búsquedas en las bases de datos LILACS, MEDLINE, Bdenf y SCOPUS (Elsivier) utilizando los siguientes descriptores del DeCS: obstetrics, patient safety, quality of health care; a estos términos se asoció el operador booleano AND. **Resultados:** tras el estudio bibliométrico, se identificaron 14 artículos relacionados que contemplaban el tema objeto de estudio. Estos artículos fueron publicados en 13 revistas diferentes. **Conclusión:** con base en los resultados presentados, se evidencia que, entre los 14 artículos reclutados - de 2014 a 2021, predominaron estudios cuyo abordaje está intrinsecamente relacionado con el tema calidad y seguridad en la atención obstétrica.

**DESCRIPTORES:** Seguridad; Bibliometría; Obstetricia.

## INTRODUCTION

Qualified and safe health care, as evidenced in the 2000 report "To Err is Human", alerted services to the need to promote safe health care systems.<sup>1</sup> Obstetric safety and quality are important elements in the health context because of the high demand for care, the volume of services, and the high potential for harm associated with the care provided, sometimes associated with intense medicalization and intervention during labor and delivery.<sup>2</sup>

Patient safety is an essential part of health care quality and is defined as the absence of preventable harm during health care and the reduction of the risk of unnecessary harm,<sup>3</sup> therefore, quality reaches its peak when satisfactory outcomes and experiences are achieved. To this end, the World Health Organization (WHO) has adopted global agendas that emphasize patient safety as a global health priority, involving patients, health professionals, policy makers and the health sector in its adherence.<sup>4</sup> One example is the Safe Maternal and Newborn Care Campaign, launched in 2021, which aims, among other things, to improve maternal and newborn care to prevent avoidable risks and harm to all women and newborns, especially during childbirth.<sup>5</sup>

Although the global maternal mortality ratio (MMR) decreased by 38% between 2000 and 2017, representing a significant reduction, maternal and perinatal health indicators remain alarming. Statistics show that approximately 810 women die every day from preventable causes related to pregnancy and childbirth, 94% of whom are women from low- and middle-

-income countries;<sup>6</sup> It is estimated that there are approximately 6,700 neonatal deaths every day and 2 million stillbirths each year, of which more than 40% die as a result of childbirth.<sup>5</sup> Notably, most of these deaths are preventable with timely access to safe, quality care.<sup>6</sup>

In an expanded concept, safe care includes quaternary prevention, which is a set of actions aimed at reducing the risks of hypermedicalization and hyperdiagnosis, and harm-free care, which aims to prevent adverse effects on women's organic, mental, and social well-being.<sup>7</sup> In Brazil, quaternary prevention plays an important role in terms of safety, since obstetric care in the country has a highly interventionist character that increases maternal morbidity and mortality, such as caesarean sections without clinical indication, episiotomies, pharmacological induction of labor or by amniotomy, imposition of supine maternal positions for delivery and separation of the mother-child binomial, among others.<sup>7-8</sup>

With the prospection of data, it is estimated that in Brazil there are about three million births per year. The care related to childbirth is the third cause of hospital admissions by the Brazilian Unified Health System (SUS) and about 60 thousand adverse events related to childbirth occur per year, which highlights the importance of tracking and evaluating health indicators to promote safe care.<sup>9</sup>

Continuous quality assessment provides the opportunity to correct errors before they occur and prevent the incident from reaching the patient. An incident is an avoidable event or circumstance that may or may not result in harm to the patient.

A non-damaging incident is a process that has the potential to cause harm, such as inadequate staffing, while a damaging incident (adverse event) is a situation that causes some type of harm to the patient, whether physical, psychological, or social.<sup>4</sup>

In view of the undeniable risks to safety in obstetric care and the need to strengthen actions that allow for more qualified and safer care, it is necessary to conduct studies that address aspects related to the quality and safety of maternal and neonatal care in order to facilitate the planning of programmatic actions to reduce harm to women and their children. It is also justified the relevance of the issue in the field because of the existing gap on the subject. Thus, this study aims to analyze the frequency of words correlated with the title and abstract of scientific production on quality and safety in obstetric care in the light of Zipf's law (frequency of words). Thus, the following guiding question was formulated: What is the frequency of words correlated with the title and abstract of the scientific production on quality and safety in obstetric care?

## METHOD

This is a bibliometric study that makes possible to understand the patterns of scientific productivity over the years.<sup>10</sup> Bibliometric research is a quantitative technique that seeks to study the data that may be relevant in research and, combined with other approaches, allows the expansion of scientific knowledge and to learn more about the dynamics and trends of the production of these studies.<sup>11</sup>

The bibliometric technique is based on three main laws, namely: Bradford's law (productivity of journals), Lotka's law (productivity of authors) and Zipf's law (frequency of words), used in the present research, which seeks to measure the frequency of words in various scientific productions, generating a frequency order of terms in a given subject.<sup>12</sup>

To instrument the study, searches were performed in the LILACS, MEDLINE, Bdenf and SCOPUS (Elsevier) databases using the following descriptors from DeCS: obstetrics, patient safety, quality of health care; the Boolean operator AND was linked to these terms. The bibliographic search was carried out in March 2022, identifying 135 scientific productions.

The following inclusion criteria were used to form the sample: articles available in full, free of charge, in English, Portuguese and Spanish, without temporal restriction and with search terms present in the title or abstract. The exclusion criteria were: thesis, dissertations, monographs, editorials, pamphlets, protocols, guidelines and reports.

According to the proposed criteria, 45 publications were recruited. After the elimination of duplicate articles and the detailed reading of all the abstracts, the studies that were not in compliance with the proposed object of study were discarded, leaving 14 articles to constitute this study's final sample.

To facilitate the organization and analysis of the data, an Excel table was created containing the bibliometric indicators: publication year, language, number of authors, journal of

publication, location of institutional affiliation, article type, descriptors and/or keywords, subject and abstract of each study.

Next, the text corpus of the abstracts of the studies was treated as recommended by the IRAMUTEQ software to perform a word frequency analysis, according to Zipf's law. Then, the objective subcorpus, the methodology subcorpus, the results subcorpus and the conclusion subcorpus were created according to the analysis proposal chosen for this study. This analysis tool develops different types of textual data analysis, among them: basic lexicography (word frequency calculation), descending hierarchical classification - DHC and similarity analysis (multivariate analysis) and word cloud (promotes the arrangement of vocabulary in a simple and easy to visualize way).<sup>13</sup>

It is worth clarifying that this study complies with the ethical and legal requirements established by Law No. 12,853 of August 14, 2013, which deals with the collective management of copyright.<sup>14</sup>

## RESULTS

After the bibliometric survey, 14 related articles were identified that considered the topic under study. These articles were published in 13 different journals.

As shown in Table 1, the corpus is described according to text segmentation, word occurrence, word number and hapax number from the analysis of the objective, methodology, results and conclusion.

**Table 1-** Description of the corpus, Recife, Brazil. 2022  
\*Hapaxes: Words that occur only once in the text.

Analysis	Text Tracking	Word Occurrences	Number of words	Number of Hapaxes*
Goal	10	366	204	155
Methodology	24	852	422	312
Results	25	894	440	320
Conclusion	14	544	284	205
Total	73	2656	1350	992

**Source:** The authors, 2022.

Figure 1 shows the word cloud of the objective subcorpus. It shows a connection between the most frequently cited inductive terms 'obstetrics', 'care' and 'quality', 'assistance' and 'safety'. It is noteworthy that the highlighted words favor the achievement of the study objective and are presented as essential terms of the study.

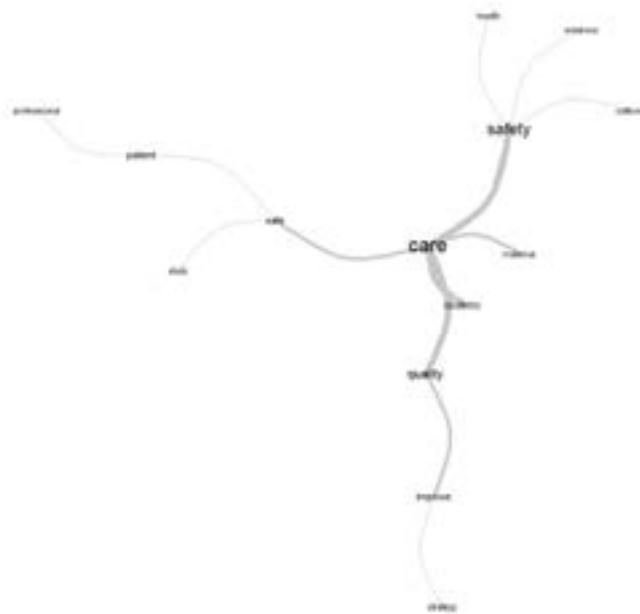
**Figure 1 -** Target word cloud. Recife, PE, Brazil, 2022



**Source:** The authors, 2022.

As for the ranking of the extracted terms present in Figure 2, the word tree is presented in the interface at the end of the similarity analysis or tag cloud with the identification of occurrences among the words and indications of connection among the terms "safety"; "obstetric"; "care", "quality", "maternal", "strategy", helping in the identification of the structure of the representational field of factors related to quality and safety in obstetric care.

**Figure 2 -** Completing the similarity graph. Recife, PE, Brazil, 2022



**Source:** The authors, 2022.

In Figure 3, it is possible to see that in the first sphere, the word "safety" stands out with a frequency of 237, followed by the "care", "percent", "health" and "obstetric" words, which appear 103, 73, 67 and 55 times, respectively. It is noticeable how important these terms are within their scope. The term in the first sphere is the word that expresses the title and purpose of this study. Whereas 'care', 'percentage' and 'health' are terms that correlate with the title, objective, result and conclusion.

**Figure 3 -** Word Cloud General Corpus. Recife, PE, Brazil, 2022



**Source:** The authors, 2022.

**DISCUSSION**

The verification of textual data, or lexical analysis - analysis of the collection of words belonging to a given language - makes it possible to analyze material in computer language using the IRAMUTEQ tool. The general text corpus consisted of four texts, divided into 73 text segments (TS), occurrences 2,656, and number of words 1,350 and number of hapaxes 992 - of words.

The analysis by means of "word cloud" or "tag cloud" shows the degree of relevance of the words in the text corpus by structuring them in the form of clouds of different sizes, where the largest words have greater importance within the theme. The tag clouds show the correlation between all text segments through the frequency of the words "obstetrics", "care" and "quality", "help" and "safety".

Motherhood is a process rooted in every society, regardless of race, ethnicity, time, and geography. The event of pregnancy is a special condition that requires multiple perspectives. Although it is a physiological process inherent to the human body, there are risks and negative outcomes that can turn a normal pregnancy into a critical health event, as not all complications can be predicted and/or mitigated. However, many risk factors can be identified, planned for, and managed to prevent progression to a negative outcome.

Given the complexity of obstetric care, it is a global challenge for the various actors involved in this context to think about care as a model of a quality and safety system. The campaign "Safe Motherhood and Newborn Care", a theme proposed by the WHO for 2021, reveals that every day about 810 women die from preventable causes related to pregnancy and childbirth.<sup>15</sup> In this scenario, the obstetrics service represents an opportunity to screen, educate, and predict potential care needs before a serious event occurs.

The Epidemiological Bulletin 2020 published by the Ministry of Health (MS) indicates that 67% of maternal deaths between 1996 and 2018 were due to direct obstetric causes. Among the direct causes, hypertension, hemorrhage, puerperal infection and abortion stand out. It is noteworthy that these deaths are triggered by complications that occur during pregnancy, childbirth or the puerperium as a result of excessive interventions, omissions or inadequate treatment,<sup>16</sup> reflecting obstetric services with weak support and unsafe care provided.

The illustrative tree of the similarity analysis allowed the identification of the occurrences between the words and the indications of connection between these words, anchoring the structural determination of the content of the text corpus. We visualized the centrality of the term "safety" by branching it into four aspects: strategy, care, obstetrics, and culture. These express significant ramifications, such as "care" in the ramification of the term "care", "quality" and "improvement" in the ramification of the term "obstetrics", and finally "communication" in the ramification of culture.

Quality and safety in obstetric services are important emerging elements that need to be addressed in the current health sector. In this scenario, an important factor for these relative elements to be effective in maternal care is timely care, since delayed access to obstetric care is associated with maternal health complications.

To this end, the use of strategic resources such as clinical guidelines and evidence-based guidelines are considered essential practices to improve maternal care. In this context, it is relevant that professionals have greater clarity about the need for updated, reliable information based on the best scientific evidence to support clinical decision making and the criticality of analyzing how they are made in health care settings.<sup>17</sup> Therefore, safe care and safe decisions require a dynamic multiprofessional team that strengthens communication among its members in order to achieve a solid synergy between processes, knowledge and technology chosen to be offered with the lowest possible risk.

When strategies for achieving quality of care are discussed among professionals in the different scenarios that encompass the maternal service, it optimizes the chances of transformations in the interven-

tion process, generating "facilitating factors" for the strengthening of the service.<sup>18</sup> Another important point regarding communication is the consolidation of this action between the patient/family and the professional in co-participation in the planning of care to improve safety, such as the recognition of signs of clinical abnormalities and, consequently, immediate intervention to avoid aggravation.<sup>19</sup>

Maternal care has a care dynamic with well-defined starting and ending points, which makes it possible to organize involvement and necessary interventions, as well as metrics to identify and evaluate decisions made.

Strengthening the culture of patient safety in maternal health emerges as a framework for improving the quality of care offered, to ensure a consistent framework for evaluation and optimization from a holistic perspective, taking into account the experience of patients and caregivers. However, the reality of services, in addition to human behavior and social determinants, limits progress in solidifying the safety culture.

In Brazil, the inherent components for ensuring patient safety include knowledge, compliance with current standards and regulations. The challenge, therefore, is how management can work together to provide respectful care centered on the woman and the newborn, monitor risks and adverse events, and ensure the sustainability of safe maternity wards.

## CONCLUSION

Based on the results presented, it is evident that among the 14 articles recruited - from 2014 to 2021 - studies whose approach is intrinsically related to the theme of quality and safety in obstetric care were predominant.

Anchoring the study in Zipf's theory provided an innovative approach to the field of women's health, ratifying the analysis of written language structures of texts. Thus, it is assumed that the abstracts generally revealed crucial aspects for a comprehensive understanding of the topic.

However, it is worth noting that there was a considerable number of scientific productions - 45 studies, in well-qualified journals, only 14 were concordant with the assumptions preconized for this study, for the presentation of information necessary for an abstract, thus characterizing a possible limitation of the study.

Given this relevant topic, the scarcity of studies can be inferred. Therefore, new research is suggested that addresses the quality and safety goals of the current care process, so that we can understand the existing barriers that prevent the achievement of maternal-infant safe health care.

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