



THE MANAGEMENT OF DELIVERY PAIN: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Introduction: Management of delivery pain was part of the most important tasks that health workers need to focus on. Non-pharmacological and pharmacological approaches have been shown to provide significant benefits in managing delivery pain and ensuring the well-being of the mother and her baby. This study analyses research trends on management of delivery pain.

Methods: The documents from 2013 to 2022 (December 31, 2022) were searched, in English, Article and Review. The implementation date of the strategy is April 11, 2023 and search terms and strategies are as follows “delivery” OR “pain management” AND “Articles and Reviews” AND “English”. Visualization and analysis of research trends from downloaded article data in CSV format using VOSviewer 1.6.18.

Results: To achieve this goal, a bibliometric analysis was conducted on 469 articles obtained from the Scopus database, which identified the most productive countries/regions, journals, authors, and potential future topics of this research field. According to this study, 2017 saw the most significant growth; the United States was the most productive country in this field; BMC Pregnancy and Childbirth was the most prestigious journal in this field; Khildea, S., contributed the most significant research in this field. The use of complementary therapies, drug administration and maternal care requires further study in the future.

Conclusion: The conclusion of this study was that pain management continues to grow in research across different countries, fields and expertise. The future needs to focus on the use of complementary therapies, drug delivery pathways and maternal care for further research.

Keywords: *pain management, delivery, bibliometric*

INTRODUCTION

In a woman's life, childbirth is seen as one of the most painful events. Severe delivery pain affects the physiological and psychological status of the mother, causing stress and a sympathetic nervous system response^(1,2). Pain was a protective mechanism of the body that arises when tissue was damaged and the individual reacts to relieve pain⁽³⁾. Delivery was an important thing that will be faced by pregnant women. Delivery was marked by a significant increase in myometrial activity so that the muscle contractions cause regular and adequate pain. Delivery pain was a physiological process that was extremely painful and the intensity of pain was felt differently by each mother.

Management of delivery pain was part of the most important task that needs to be the main focus, because the lack of pain relief during delivery was a strong reason women ask for a cesarean section. Management of delivery pain was an important aspect to ensure the well-being and comfort of the mother and baby. The development of modern analgesia, especially regional analgesia such as epidural analgesia, has revolutionized the management of delivery pain⁽⁴⁾. In addition to pharmacological approaches have also been shown to be affective without adverse side effects and can increase satisfaction during delivery by allowing mothers to have control over their feelings and strengths. Examples of non-pharmacological methods include massage, hot and cold therapy, touch therapy, relaxation techniques, and use of birth balls, continuous birth support, water therapy, yoga, counter pressure⁽⁵⁻¹²⁾.

The moral and professional commitment of health workers and birth attendants is considered the most important aspect of labor pain management⁽¹³⁾. Adequate knowledge and training of midwifery service providers, availability of drugs and equipment, and the creation of a safe

environment to support and accompany are also important factors in increasing the use of labor pain management options⁽¹⁰⁾.

It is important to continue researching and evaluating various pain management techniques to further improve the quality of care provided during labor and delivery. However, only a few in-depth studies on labor management provide guidance for future research. Therefore, to see more about pain management in labor, this article aims to review the main research themes and research developments in the field of pain management in labor. The novelty in this article is the discussion of labor pain management related to the most productive countries/regions, journals, authors, and potential future topics of this research field

METHODS

Study Selection

We retrieved all literature data regarding the delivery pain management indexed in the Scopus. The documents from 2013 to 2022 (December 31, 2022) were searched, the language type was set to English and the document type was set to Article and Review. The implementation date of the strategy is April 11, 2023 and search terms and strategies are as follows "delivery" OR "pain management" AND "Articles and Reviews" AND "English".

Data collection

A total of 469 documents were retrieved from Scopus database, and then the documents were used to make visual analysis ultimately. Searching for articles in electronic databases is a source of information based on predetermined keywords. Since Scopus is the largest and most recognized scientific database available today and offers a wide range of peer-reviewed journal articles, the quality of the articles obtained can be guaranteed. Scopus was chosen as the electronic

database for this study. To gain an understanding of research growth patterns, the most prolific authors, countries with the most publications, types of publications, and the most cited journals are extracted from the Scopus database via the results menu which are analyzed and

then downloaded as needed. Visualization and analysis of research trends from downloaded article data in CSV format using VOSviewer 1.6.18. VOSviewer will create a keyword map based on network shares.

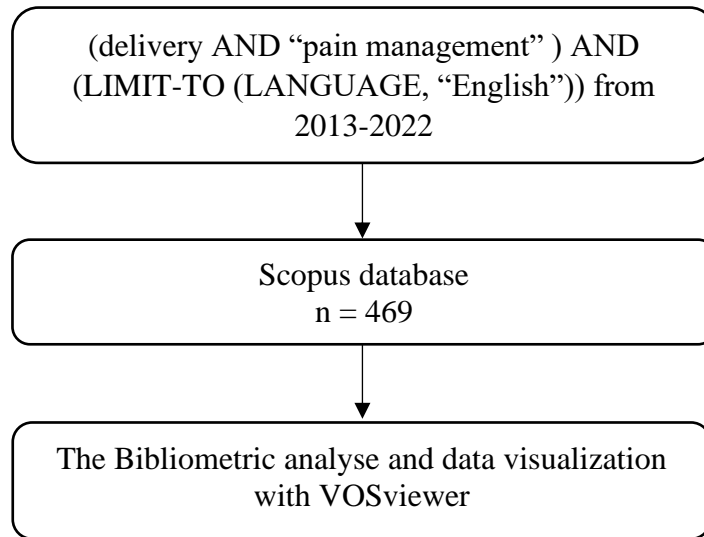


Figure 1. The data collection

RESULTS

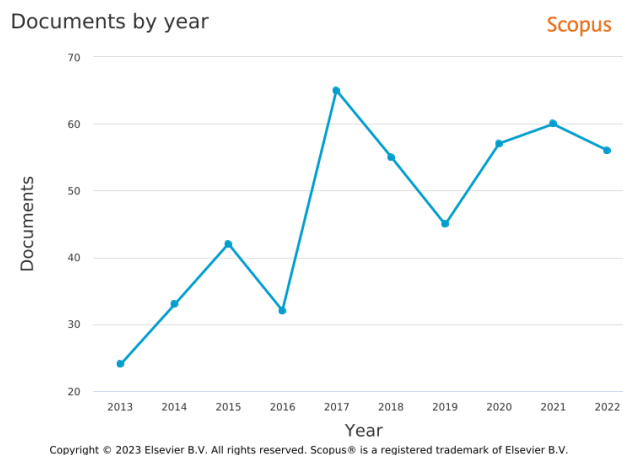


Figure 2. Growth trends in labor pain management from 2013-2022

The number of published papers obtained in the last ten years, from 2013 to 2015, has increased rapidly. However, in 2016 it decreased. Then in 2017 the published

papers experienced a very rapid increase until they reached the highest point on the chart to date. Then the graph decreases to 2019, and the graph increases again in

2020 and continues to increase again in 2021 and decreases in 2022. In the last five years, papers that are able to be published

each year touch around 50-60 from the same or different authors.

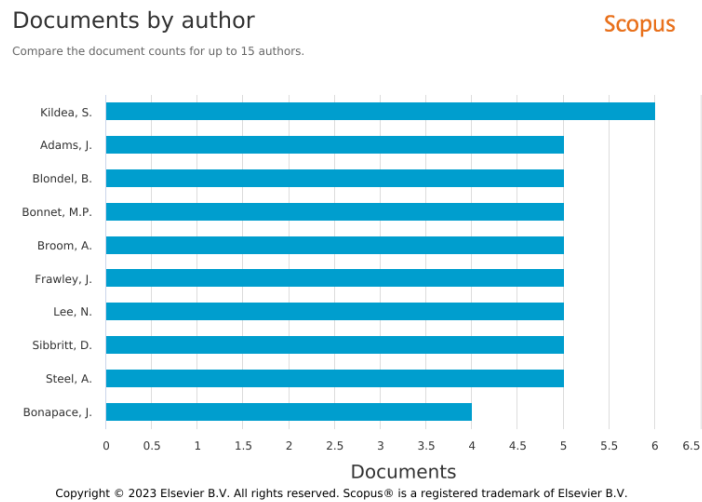


Figure 3. Top ten authors on pain management in labor from 2013-2022

The data generated from the image shows that the author Kildea, S. has published 6 of his works in the last ten years. As for other authors such as Adams, J., Blondel, B., Bonnet, M.P., and 5 others published each of their 5 scientific papers within the last ten years. And finally, author Bonapace, J., has published 4 scientific works in the last ten years.

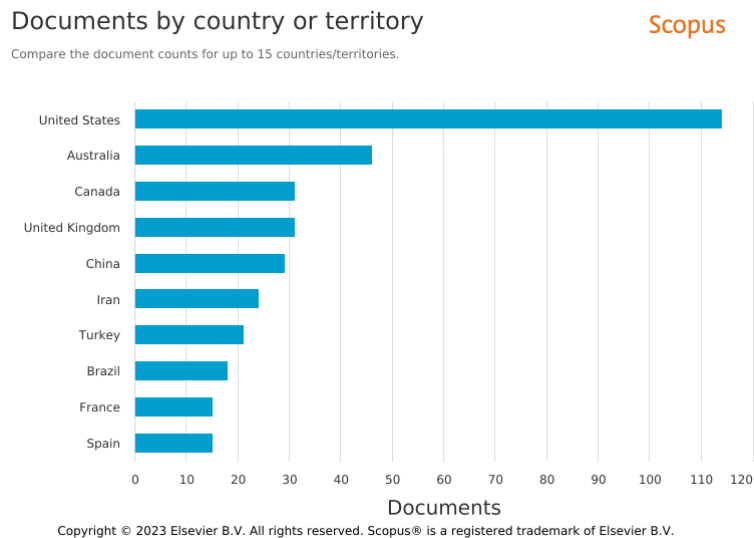


Figure 4. Top ten countries regarding pain management in childbirth from 2013-2022

The data obtained from the figure is about which countries have produced the most publications of scientific papers over the last ten years. The United States of America was a country that has produced approximately 115 publications of scientific papers since the last ten years. Then followed by Australia as the second

largest contributor to scientific paper publications after the United States with a total of 45 in the last ten years. Then followed by other countries such as Canada, England, China, Iran, Turkey, Brazil, France, and Spain, each of which has produced around 30-15 scientific publications in the last ten years.

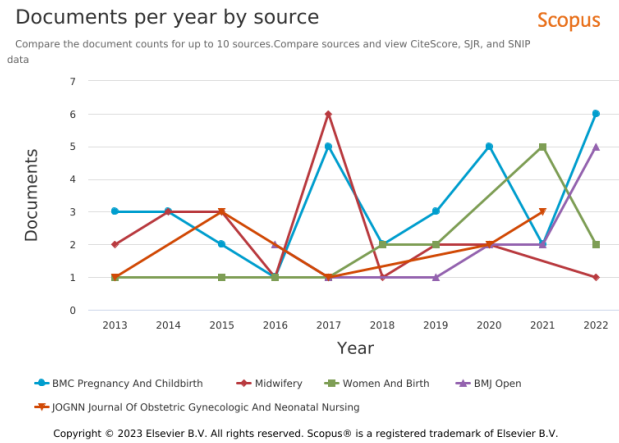


Figure 5. The top five journals on pain management in labor from 2013-2022

The top five journals that publish articles on pain management in labor are BMC Pregnancy and Childbirth, Midwifery, Women and Birth, BMJ Open and JOGNN Journal of Obstetric Gynecologic and Neonatal Nursing. Each journal publishes a number of articles that vary each year.

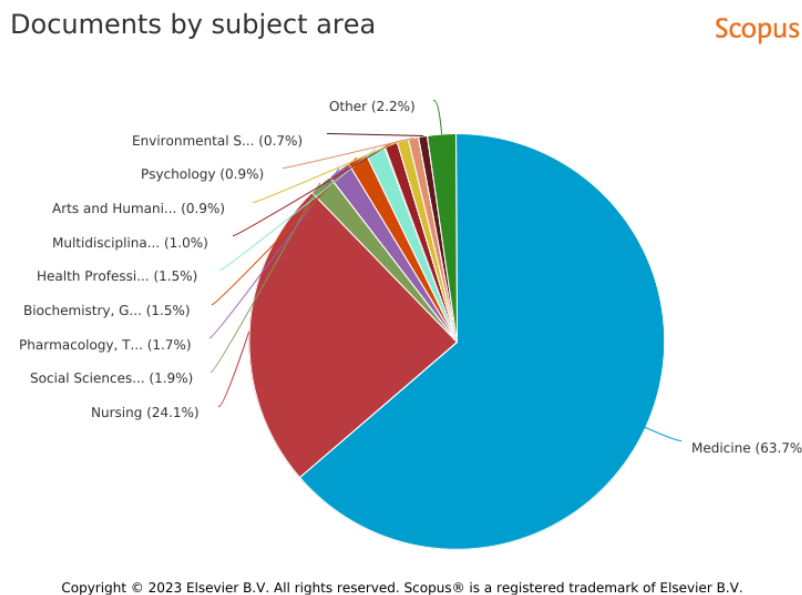


Figure 6. Fields of knowledge related to pain management in childbirth from 2013-2022

Fields of knowledge related to management of delivery pain since the last ten years, namely, 1. Medicine; is the most discussed field of science with a percentage of 63.7%. Then followed by science 2. Nursing with a percentage of 24.1%. Then followed by other fields of science such as social sciences, pharmacology, biochemistry, health workers, multidisciplinary approaches, humanities, physiology, environment, and others.

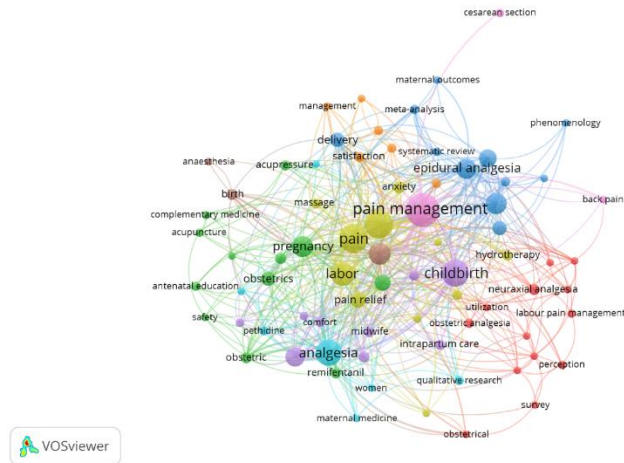


Figure 7. Network Visualization of Co-occurrence on pain management in labor from 2013-2022

Visualization of data found related to pain management in labor, namely pain management in delivery itself, then pregnancy, childbirth, massage (massage), hypnotherapy, women, and many others.

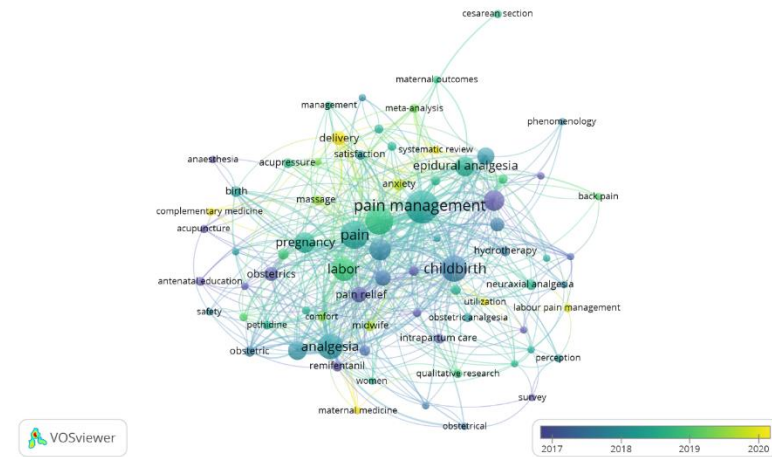


Figure 8. Overlay Visualization of Co-occurrence of pain management in labor from 2013-2022

The use of complementary therapies, drug delivery and maternal care are trends and opportunities for future research.

DISCUSSION

Delivery is the process of expelling the products of conception (fetus and urine) that are full term or can live outside the womb. Childbirth is a natural process (14,15). Normal delivery lasts less than 24 hours. Normal delivery occurs at 37-42 weeks gestation with posterior cephalic presentation. Normal delivery also describes the condition of the mother who

is at low risk from the beginning of labor to the delivery process and after giving birth the mother and baby are in good health (14).

Mechanism of delivery is a spontaneous process without the need for intervention. The stages of delivery start from regular and adequate contractions to complete dilation, the baby is born, the

placenta is born and 2 hours after the placenta is born. Childbirth can occur both naturally and by cesarean section. Vaginal delivery is known as the best but due to the development of caesarean section, the prevalence of vaginal delivery has decreased in recent years^(16,17).

In 2017 the published papers about management of delivery pain experienced a very rapid increase until they reached the highest point on the chart to date in the last ten years. Then the graph decreases to 2019, and the graph increases again in 2020 and continues to increase again in 2021 and decreases in 2022. In the last five years, papers that are able to be published each year touch around 50-60 from the same or different authors. This showed the research interest in the management of delivery pain was still very high and varied. Other researchers were still challenged to conduct research on the theme of delivery pain management by applying different pain management methods. Innovation in handling delivery pain was still needed in further research.

The author who has published the most articles on management of delivery pain was Kildea, S. She published articles about sterile water injections for relief of delivery pain. Effective pain relief a fundamental aspect of safe midwifery care during delivery. The choice of pharmacological analgesic should support the woman's choices and plans to manage delivery pain and be free of side effects that could negatively contribute to the experience and outcome of delivery⁽¹⁸⁻²⁰⁾.

The United States of America was a country that has produced approximately 115 publications of scientific papers since the last ten years. The top five journals that publish articles on pain management in labor are BMC Pregnancy and Childbirth, Midwifery, Women and Birth, BMJ Open and JOGNN (Journal of Obstetric Gynecologic and Neonatal Nursing). Each journal published a number of articles that vary each year. Each of these journals comes from the United Kingdom (BMC

Pregnancy and Childbirth, BMJ Open, JOGNN), United States (Midwifery), and Netherland (Women and Birth).

Fields of knowledge related to management of delivery pain since the last ten years, namely medicine, nursing, social sciences, pharmacology, biochemistry, health workers, multidisciplinary approaches, humanities, physiology, environment, and others. Visualization of data found related to pain management in labor, namely pain management in delivery itself, then pregnancy, childbirth, massage (massage), hypnotherapy, women, and many others. Water immersion, continuous delivery support, and upright positioning in the first stage of delivery were associated with decreased use of pharmacologic analgesia^(6,21).

The use of complementary therapies, drug delivery and maternal care are trends and opportunities for future research. Complementary therapy that can be used to reduce delivery pain include music therapy, gym ball techniques, birth balls, dhikr, acupuncture, hypnosis, aromatherapy, and inhalation using lavender essential oil. Besides that, management of delivery pain can also be done by giving touch such as back massage, relaxation techniques, combination massage, counterpressure massage. Transcutaneous Nerve Electrostimulation (TENS) is one of the additional non-pharmacological treatment that is generally recommended by doctors and is often used by the public. TENS uses a low voltage electric current to relieve pain^(11,22-25).

CONCLUSION

This study analyzes research trends on management of delivery pain. To achieve this goal, a bibliometric analysis was performed on 469 articles obtained from the Scopus database, identifying the most prolific countries/regions, journals, authors, and potential future topics for this research area. According to this study,

2017 experienced the most significant growth; The United States is the most productive country in this field; BMC Pregnancy and Childbirth is the most prestigious journal in this field; Khildea, S., made the most significant research contributions in this field. The use of complementary therapies, drug delivery and maternal care requires further study in the future.

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