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RECEIVED: November 27, 2025

ACCEPTED: January 12, 2026

PUBLISHED: January 27, 2026

CITATION

Wijanarko, W., Cahyati, W. H., & Ningrum, D. N. A. (2026). Bibliometric Mapping of Postoperative Wound Care Patient Education: Trends, Collaboration Networks, and Research Gaps (2019–2024). *Journal of Foundational Learning and Child Development*, 2(01), 27-31.
<https://doi.org/10.53905/ChildDev.v2i01.05>

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Bibliometric Mapping of Postoperative Wound Care Patient Education: Trends, Collaboration Networks, and Research Gaps (2019–2024)

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ABSTRACT

Purpose of the study: Surgery is at risk of developing surgical wound infections (ILOs) that can prolong recovery and reduce the patient's quality of life. Wound care according to standards and education to patients and families are essential to prevent complications. The role of health workers as educators and optimal family support is key in accelerating postoperative healing. This study aims to analyze global and domestic literature bibliometrically to identify trends in publications, collaborations, research themes, and knowledge gaps, especially in Indonesia.

Materials and methods: This research method uses a bibliometric approach by looking at data retrospectively. Data was collected from Scopus, PubMed, Garuda Portal, and Google Scholar (2019–2024), analyzed with VOSviewer and Biblioshiny.

Results: The results of the 796 articles showed an increase in publications and strong collaboration between institutions in the US, China, and the UK. Four main clusters emerged: education and self-management, wound care technology, clinical outcomes and complication prevention, and the role of patient introduction. In Indonesia, research is still predominantly descriptive, with minimal technological exploration and a burden of parenting.

Conclusions: Global research is moving towards technology and patient empowerment, while Indonesia lags behind in innovation and sustainability of interventions. The study recommends the development of culturally adaptive blended education models, evaluation of the cost-effectiveness of telemedicine, and measurement of long-term outcomes for patients and patient providers.

Keywords

bibliometrics, patient education, postoperative wound care, patient introduction, surgical outcomes, vosviewer.

INTRODUCTION

Surgery or surgery is one of the follow-up actions of handling emergency cases in hospitals that use invasive methods by making incisions to open and display the part of the body that will be performed (treatment) and ending with closure through the process of stitching the wound that is cut (Lutfianti et al., 2022). Wound care is a critical component in the healing process of patients undergoing medical surgical procedures. Each wound has a complicated healing process due to the presence of biocellular and biochemical activities that occur continuously (Arisdiani & Arifin, 2024). In the postoperative wound healing process, there will be a risk of developing surgical wound infection (ILO), inflammation to sepsis in the wound (Gillespie et al., 2020), if the surgical wound treatment applied is not in accordance with the standard operating procedures (SOP) (Suhada et al., 2020). Infections can prolong recovery time, increase mortality, require additional, interventional and medical affect the patient's quality of life (Naryati et al., 2025). Therefore, it is important to educate patients and families so that they can understand the right prevention and treatment steps.

Education is the provision of information with the delivery of health education as an effort to increase knowledge, insight and behavioral considerations in overcoming health problems experienced (Saherna et al., 2024). Educate in order to Patients and families have sufficient knowledge about how to care for wounds, recognize signs of infection, and understand the importance of maintaining wound hygiene is very important. Education conducted by health workers, both nurses and doctors, aims to provide information to improve health status, encourage involvement in decision-making related to continuous care, and ensure that patients can play an active role in the healing process. This approach is not only a fundamental right of the patient, but also has the potential to improve clinical outcomes and reduce the risk of complications (Arisdiani & Arifin, 2024). The better the role of health workers as educators, the lower the perception of illness in patients. A positive perception of the disease will reduce the perceived threat (Anggraeni et al., 2020).

In addition, family support is essential to ensure that patients follow all the advice and recommendations of doctors and postoperative nurses. This support can be in the form of informational, emotional, or instrumental support, all of which play a role in accelerating the patient's recovery and preventing complications (Kartilah et al., 2025). Friedman asserts that a supportive attitude of family is very useful for individuals because it shows acceptance and care between family members. The family is also the party that plays the most role in providing various forms of support, both assessment, instrumental, emotional, and informational. Thus, proper education from health workers and optimal family support will complement each other in improving the quality of life of postoperative patients (Kartilah et al., 2025).

MATERIALS AND METHODS

The method used in this study is a literature study with a bibliometric analysis approach which is to examine Postoperative Wound Care Education for Patients and Patient Introduction. Data was collected from Scopus and PubMed, and further searched on the Garuda Portal and Google Scholar to find out the contribution of domestic research, especially from SINTA-accredited journals. The search was conducted in November 2024 using a combination of keywords such as "wound care", "patient education", "outpatient", and "caregiver", and filtered for Indonesian and English articles published between 2019 and 2024. Once the data is collected, it is filtered by relevant titles and abstracts, then analyzed using the Bibliometrix R-package to see trends in publications and journal citations, as well as VOSviewer to visualize the network of cooperation between authors, institutions, and countries, as well as the relationship between keywords and citations.

RESULTS & DISCUSSION

Publication Trends

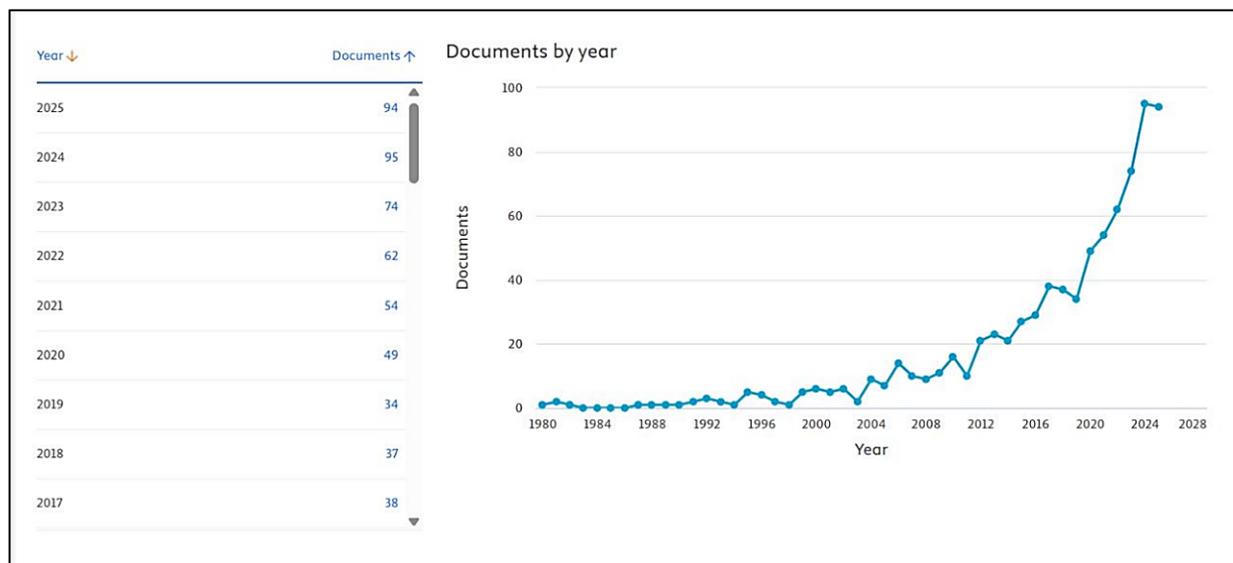


Figure 1. Trends in published publications by year

During the period 2019 to 2024, there were 368 articles on the topic of postoperative wound care, showing a significant increase in attention and research activities in this field. The number of publications has increased consistently from 34 articles in 2019 to 95 articles in 2024. The sharpest surge occurred after 2021, triggered by the development of remote wound monitoring technology, as well as the widespread use of smartphone applications as a medium for patient education in treating wounds independently at home. This innovation not only improves the efficiency of healthcare services, but also encourages the emergence of new approaches in wound management based on digital technology.

This trend is reinforced by the "Documents by year" visualization data which shows an increasing pattern in the number of publications from year to year. Based on the table, the number of documents increased from 38 articles in 2017 to 94 articles in 2025. A line graph covering the time span from 1980 to 2025 shows that before 2010, the number of publications was relatively low and tended to be stagnant. However, after 2010, there was a significant acceleration in the number of published documents, reflecting a paradigm shift in health research, particularly with regard to the digitization of services and technology-based interventions.

This increase not only reflects the growing academic interest in the topic of postoperative wound care, but also shows that the issue is becoming increasingly relevant in the context of global health system transformation. The use of technologies such as mobile applications, wound sensors, and digital communication platforms has opened up new opportunities in real-time monitoring of patients' conditions, reduced hospital visits, and increased patient involvement in the healing process. Therefore, the post-2021 surge in publications can be understood as a response to the need for innovative solutions that are adaptive to the challenges of the digital era and the pandemic, as well as a reflection of the advances in science and technology in the fields of nursing and medicine.

Overall, the publication trends shown in the graphs and tables indicate that the topic of postoperative wound care, particularly those based on digital technology, has been a major focus in health research over the past decade. The surge in the number of articles in recent years suggests that the field is not only growing quantitatively, but also undergoing a qualitative deepening, with a growing number of studies exploring the effectiveness, efficiency, and impact of digital approaches on wound healing outcomes and patients' quality of life.

postoperative wound care. Clusters *Technology in Wound Care* (Green) indicates a close association with the cluster *Self-Management* (Red), indicating that digital technology such as dressing reminder applications and uploading wound photos plays a role in increasing *self-efficacy* and patient adherence to treatment. Study by Blytt et al., (2024) emphasized that telemedicine can strengthen the involvement of patients and health workers in the wound care process on an ongoing basis, especially in the context of limited follow-up visits at polyclinics.

Analysis of the Domestic Literature

Of the total 38 articles from Indonesia, about 60% were descriptive correlation studies that examined the relationship between patient knowledge and wound care skills. Only 5 articles (13%) discussed the role and psychological burden experienced by patient introductions. Meanwhile, only 3 articles (8%) reported on educational intervention trials using media such as videos or booklets. Strikingly, there has been no domestic publication exploring the implementation of telemedicine or mobile applications in the context of postoperative wound care, suggesting that there is a great opportunity for research development in this area.

Implications for Public Health Policy and Practice

Development of Standard Protocols:

Hospitals need to develop standardized and inclusive wound care education protocols, including the involvement of the patient introduction in recognizing signs of danger. This approach is in line with the principle of shared decision-making in the patient care model.

Health Worker Training: Surgical polyclinic nurses need to be equipped with counseling and education training that involves families as well as the use of simple digital media such as educational videos or instant messaging.

Future Research Agenda: 1) Implementation research to test the effectiveness of simple telemedicine in Indonesian surgical polyclinics; 2) Mixed-method study to explore the burden and needs of patient introduction in depth; 3) Cost-effectiveness analysis of various educational models for wound care (Moore et al., 2021).

CONCLUSION

This bibliometric study succeeded in identifying and mapping the dynamics of research related to postoperative wound care education, both for patients and patient introductions. Four main themes emerged as the foundation of the study, with digital technology occupying a central position as a driver of the latest innovations. It was revealed that there is a striking gap between the development of global research and the state of research in Indonesia, especially in the aspect of technology-based interventions and attention to the health outcomes of patient referrals. These findings confirm the need for a more targeted and contextual direction of research. By leveraging the thematic map from this analysis, stakeholders have the opportunity to collaborate on designing more effective, efficient, and family-oriented educational strategies to support improved postoperative public health outcomes.

ACKNOWLEDGMENTS

The authors sincerely thank all parties who played a role in the completion of this research. We deeply appreciate the valuable input, technical support, and insightful discussions that contributed to the refinement of this manuscript. Our heartfelt gratitude also goes to those who offered guidance and motivation throughout the study. Although not listed as co-authors, their involvement was essential in enhancing the overall quality and clarity of this work.

CONFLICT OF INTEREST

The authors affirm that there are no conflicts of interest related to the publication of this paper. No financial ties or institutional affiliations exist that could have influenced the findings or interpretations presented in this study.

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