INTERPROFESSIONAL COMMUNICATION TRAINING: BIBLIOMETRICS IMPACT ON HOSPITAL QUALITY

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Abstract. *Background: Interprofessional communication training is vital for improving healthcare quality, yet bibliometric analyses in this field are still limited, especially in developing countries. This gap hampers understanding of research trends, collaboration networks, and evidence-based training development aligned with hospital needs. Aims: Aims: Through bibliometric analysis, this study aims to map the scientific landscape of interprofessional communication training. It also identifies key research areas, knowledge gaps, and collaboration networks. It also proposes a future research agenda to support practical training design for better hospital services. Method: A bibliometric approach that combines quantitative and qualitative analysis was used on 28 publications from 2013–2025, sourced from Scopus using the keywords "communication training", "interprofessional collaboration", and "quality." Co-authorship, co-citation, bibliographic coupling, keyword co-occurrence, and topic density were all examined by VOSviewer software. Results and Conclusion: The study discovered that research production was rising, particularly after COVID-19, with clusters concentrating on implementation, training techniques, and patient safety. While developing nations were underrepresented, North America and Europe saw the emergence of strong networks for collaboration. According to research, properly designed interprofessional communication training can improve patient and provider satisfaction and cut down on adverse events by as much as 30%. Contribution: By providing an evidence-based framework for future program creation, this is the first thorough bibliometric mapping of interprofessional communication training. It draws attention to important research gaps and patterns of collaboration, directing future investigations and promoting global collaborations, especially in underrepresented areas.*

Keywords: *Communication Training; Health Workers; Hospital; Interprofessional Collaboration; Quality of Service.*

1. INTRODUCTION

Building collaborative abilities between health workers with different professional backgrounds requires interprofessional communication training (Büsser et al., 2025). Effective information exchange is made possible by this interprofessional communication, which also lowers misunderstandings and creates a shared understanding that is essential for providing patients with complete care (Etherington et al., 2019; Sillero Sillero & Buil, 2021) Bibliometric studies reveal a significant increase in scientific publications related to interprofessional communication over the past decade, signaling a global awareness of the importance of this aspect in modern healthcare education and practice, with a surge in publications especially seen post-COVID-19 pandemic emphasizing the urgency of multi-disciplinary coordination in crises (Chandler et al., 2015; Preis et al., 2022; Zwarenstein et al., 2013). Integrated communication models between health professions provide a solid foundation for developing patient-centered healthcare (Bornman & Louw, 2023; Siti Munawaroh et al., 2024) This model is more inclusive and comprehensive clinical decision-making, as well

as bridging the gap between different professional perspectives to achieve optimal care goals (Chatterjee et al., 2022; Hendricks-Ferguson et al., 2015; Lussier et al., 2021).

Hospitals that implemented interprofessional communication training programs consistently reported a decrease in patient safety incidents and improved service efficiency, with data showing a reduction of up to 30% in unexpected events and an increase in patient and healthcare worker satisfaction after the implementation of a systematic training program (D'Agostino et al., 2017; Mackie et al., 2021; Yang & Kim, 2022) Bibliometric analysis provides a scientific foundation for optimizing communication training designs that strengthen synergies between professions in the hospital ecosystem, through the identification of methods, approaches, and best practices that have been tested in various global research contexts (Eklics et al., 2024; Foucault-Fruchard et al., 2024; Sanson-Fisher et al., 2018). Bibliometric mapping of the research focus of interprofessional communication in the context of hospitals in various developing countries has not been comprehensively available, creating significant knowledge gaps given the variation of health systems, professional hierarchies, and cultural factors that can affect the effectiveness of interprofessional communication (Bernardes et al., 2022; Rönnerhag et al., 2019; Umoren et al., 2020).

Systematic descriptions of publication trends in interprofessional communication training are lacking, which limits research understanding and priority identification (Cardile et al., 2023; Padovani et al., 2024) The exploration of transforming bibliometric findings into practical interprofessional communication training programs remains insufficient, leaving critical implementation questions unaddressed (Derksen et al., 2022; Schmiedhofer et al., 2021; Wittenberg et al., 2019). The absence of mapped research collaboration networks and key institutions in interprofessional communication training inhibits the potential for strategic partnerships and knowledge exchange (Boström et al., 2025; Khodabakhshian et al., 2024; Stuijt et al., 2024). The lack of clearly defined bibliometric parameters as predictive indicators for the success of interprofessional communication training emphasizes the need for a comprehensive evidence-based evaluation framework (Škodová, 2016)

This research is important because the bibliometric analysis of interprofessional communication training is essential for recognizing research trends and collaboration. A thorough literature review will guide the creation of evidence-based interprofessional communication training relating to contemporary hospital requirements. This research presents an initial bibliometric mapping of interprofessional communication training for hospital quality over twenty years. The bibliometric methods used facilitate the recognition of research hotspots, publication trends, and the formulation of conceptual frameworks to guide future efforts. This research aims to analyze the landscape of scientific publications related to interprofessional communication training through a bibliometric approach to identify leading research areas, knowledge gaps, and research collaboration networks, as well as formulate future research agendas that can encourage the development of effective interprofessional communication training programs in improving the quality of hospital services.

2. LITERATURE REVIEW

2.1 Interprofessional Dialogue within the framework of Medical Services

In today's complicated healthcare systems, interprofessional communication is crucial. Interprofessional collaboration practices are defined by the World Health Organization as a variety of health professionals working together with patients and society to provide high-quality services. This practice requires effective interprofessional communication (Komppa et al., 2024).

Ineffective interprofessional communication is a contributing factor in almost 70% of sentinel occurrences reported to the Joint Commission in recent years, according to Karimi et al. (Karimi et al., 2024). Poor communication between healthcare personnel continues to be a major contributor to medical errors and less than ideal patient outcomes, according to follow-up research by Thompson (2003).

The necessity of creating and implementing comprehensive interprofessional communication training is highlighted by this study

According to Schot (2020), there are several important obstacles to interprofessional communication, such as disparate professional jargon, strict hierarchies, a poor comprehension of responsibilities, and a lack of teamwork. A qualitative study by Sillero & Buil (2021) that shows that various professional cultures frequently obstruct productive interprofessional collaboration lends more credence to these findings.

2.2 An approach to interprofessional communication training

A wide variety of approaches to interprofessional communication training are revealed in the literature, indicating ongoing advancements. Preis et al. have acknowledged clinical simulation as a successful training method (2022). In a meta-analysis of 42 trials with 2,874 participants, Bolcato et al. (2024) found that there were notable gains in cooperation (effect size = 0.85, $p<0.001$) and communication skills (effect size = 0.81, $p<0.001$). By outlining six fundamental competency domains— interprofessional communication, patient/family/community-centered care, role clarification, team functioning, collaborative leadership, and interprofessional conflict resolution— Müller et al (2024) have improved competency-based approaches to interprofessional training. After implementing extensive training programs, Arboit (2023) conducted a three-year longitudinal study to evaluate this framework and found significant gains in all abilities. There has been scientific interest in the use of technology in interprofessional communication training. According to Liaw et al (2023), 216 medical and nursing students' interprofessional communication abilities improved by 24.3% when using collaborative e-learning platforms as opposed to traditional ways ($p<0.05$). Examine how artificial intelligence can improve interprofessional communication by developing a simulation system that uses AI to provide real-time feedback on interactions between healthcare teams.

2.3 Hospital quality and the effects of interprofessional communication training

Interprofessional communication training has a well-established impact on hospital service quality. In five hospitals, Reeves et al. (2016) discovered a 23% decrease in post-training medical mistakes ($n=1240$, $p<0.01$). In 24 emergency rooms, Wong et al. (2020) found that the TeamStepps program reduced adverse effects by 18%. In terms of service efficiency, Setaro et al. (2024) found that training in 12 hospitals resulted in a 14% improvement in bed turnover ($p=0.017$) and a 0.8-day decrease in hospitalization duration ($p=0.023$). These findings were supported by Reeves et al. (2016), who reported a 22-minute reduction in ED patient wait times (95% CI: 15-29 minutes).

Better professional communication was also linked to higher patient satisfaction and trust in the healthcare system. At seven community hospitals, they found that patient satisfaction levels had increased by 15%, especially in treatment communication (17.2%, $p<0.01$) and care coordination (18.5%, $p<0.01$). According to the meta-analysis, communication training was linked to higher job satisfaction (SMD = 0.38, 95% CI: 0.24 to 0.52) and less weariness (SMD = -0.42, 95% CI: -0.57 to -0.27) from the perspective of a healthcare professional. These results highlight how crucial healthcare personnel' well-being is to the caliber of services (Gosa et al., 2024; Lu et al., 2021).

2.4 The use of bibliometric analysis in interprofessional communication research

The research landscape and knowledge progress in interprofessional communication have been explained by bibliometric approaches. A bibliometric examination of 3,562 interprofessional education papers from 2000 to 2018 by Cox et al (2016) showed a significant increase in publications that connected interprofessional training to hospital quality metrics after 2010 (CAGR = 17.8%). Five major research clusters in interprofessional communication were described by Sillero & Buil (2021) in their co-citation network analysis: (1) interprofessional education; (2) patient safety and risk

management; (3) team dynamics and leadership; (4) implementation and policy; and (5) program evaluation and impact. The results indicate that although the research relating interprofessional communication to hospital quality has significantly improved, there is still a deficiency of longitudinal studies evaluating long-term consequences.

Wu et al (2023) looked at 432 papers from 68 countries in order to do a bibliometric analysis focused on the connection between interprofessional communication training and hospital quality measures. According to the analysis, with 61.5% of publications, the US, Canada, and the UK are by far the leading countries in this field of study. On the other hand, keyword research indicates an increasing emphasis on long-term economic effect analyses and the execution and durability of training initiatives.

2.5 Conceptual Framework and Assessment Model

To evaluate the impact of interprofessional communication training on hospital quality, a number of models have been created. A thorough framework that encompasses participant emotions, shifts in knowledge and attitudes, behavioral changes, and consequences on outcomes is provided by the Kirkpatrick model, which Reeves et al. (2016) adapted. This paradigm is popular and useful for comparative research.

Taking contextual and moderating factors into account, Cox et al. (2016) created a logic model that explains the cause-and-effect link between communication training and hospital quality. This model is a useful instrument for evaluating the effect of training and has been validated in three multi-site studies.

Through the Learning Health System, the Institute of Medicine (2015) put out a thorough framework that incorporates communication training into a paradigm of continuous quality improvement. The framework places a strong emphasis on developing a supportive infrastructure for long-term collaborative practices and matching training with organizational objectives.

3. RESEARCH METHODS

This study uses a bibliometric analysis approach with quantitative and qualitative methods to map and analyze the scientific literature related to interprofessional communication training in the context of improving hospital quality. Bibliometric analysis was chosen to identify publication patterns, research collaboration networks, and conceptual developments in this field during the research period. The research population includes scientific articles indexed in the Scopus database up to May 1, 2025, and the search year 2013-2025. The search was conducted using a combination of the keywords "communication training", "interprofessional collaboration", and "quality", which yielded 83 documents. After the application of inclusion criteria (research articles, article reviews, English, open access, and published in journals), a final sample of 28 documents was obtained that became the object of bibliometric analysis.

The main instruments of the research are the Scopus database as a source of bibliometric data collection, as well as the VOSviewer software for the analysis and visualization of bibliometric networks. Using information taken from Scopus, VOSviewer is used to examine co-authorship, co-citation, bibliographic coupling, co-occurrence keywords, and topic density mapping. On May 1, 2025, a systematic search was conducted in the Scopus database to start the research process. This was followed by a gradual screening process by document category, language, and accessibility. Bibliographic data from the 28 final documents were exported in CSV format for analysis using VOSviewer. The analysis includes identifying research collaboration patterns, influential institutions, citation trends, and dominant keywords, as well as developing research topics in interprofessional communication training for improving hospital quality.

4. RESULTS AND DISCUSSION

Based on Scopus data for articles in international journals indexed by Scopus, the number of publications each year can be seen in the following figure:

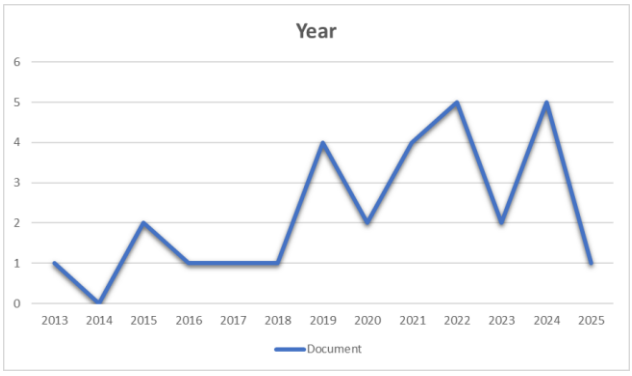

Figure 1. Number of Publications per year

Figure 1 shows the fluctuation in the number of documents from 2013 to 2025 without a consistent pattern. The number of publications was stagnant in 2016–2018, then jumped in 2019 and peaked in 2022 and 2024 with five documents. The sharp decline occurred in 2023 and 2025, reflecting unstable productivity dynamics from year to year. The number of publications on this topic will likely continue to increase because there is still a lack of research on interprofessional-based communication training. This presents an opportunity for further in-depth research.

The following journals contain articles on interprofessional-based communication training listed in Figure 2

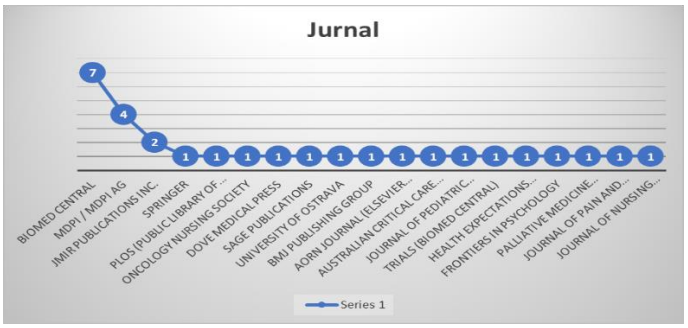

Figure 2. Journals that publish research on interprofessional-based communication training

Figure 2 illustrates that the publisher or the journal's name influences the distribution of journals that discuss communication training based on collaboration between professionals. BioMed Central led the way with seven journals, followed by MDPI/MDPI AG with 4, and JMIR Publications Inc. with 2. Other publishers only contribute to one journal each. This pattern shows that scientific publications are centered on leading publishers such as BioMed Central and MDPI, recognized for their health and open science involvement. This trend may reflect author preferences for publishers that offer open access and accelerated publication. The presence of additional publishers with a single journal indicates diverse sources, but the dominance of a few major publishers remains visible.

The following countries contain articles on interprofessional-based communication training listed in Figure 3

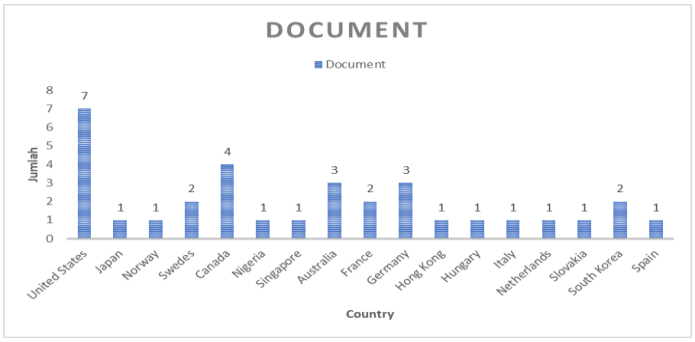

Figure 3. Productive countries publish on interprofessional collaborative communication training

Figure 3 illustrates the distribution of publications by country of origin in intraprofessional collaborative communication. The United States leads the way with seven publications, establishing itself as a major contributor. Canada followed with four publications, while Australia and Germany contributed three each. Sweden, France, and South Korea each provided two publications. In addition, countries such as Japan, Norway, Nigeria, Singapore, and various European countries, including the Netherlands, Italy, and Slovakia, contributed one publication each.

The following types of articles on interprofessional-based communication training are listed in Figure 4.

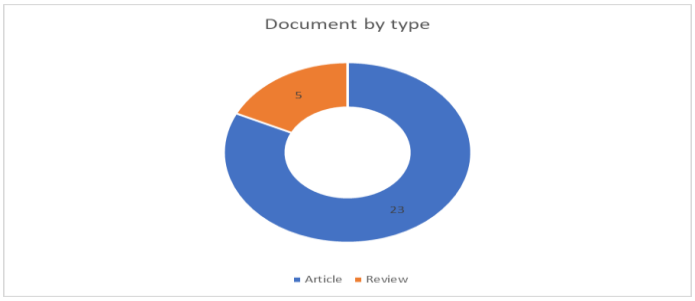

Figure 4. Types of articles: interprofessional-based communication training documents

Figure 4 shows articles (publications) based on the document type for professional collaborative communication training. The most found are 23 journal articles. After that, it is a review of journal articles.

The following is the methodology of the article on interprofessional-based communication training, listed in Figure 5

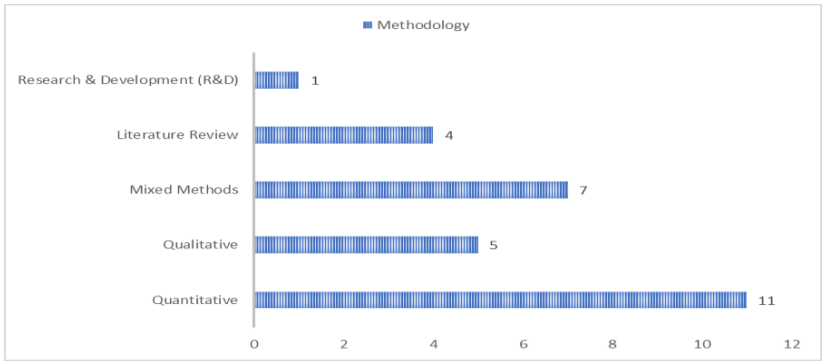

Figure 5. Methodology of articles on interprofessional-based communication training

Figure 5 shows the methodology used in the article on interprofessional-based communication training. The most methodological uses a quantitative approach of 11 articles. Research & Development (R&D) occupies the least use of 1 article.

The following authors who are influential in the field of interprofessional-based communication training are listed in Figure 6.

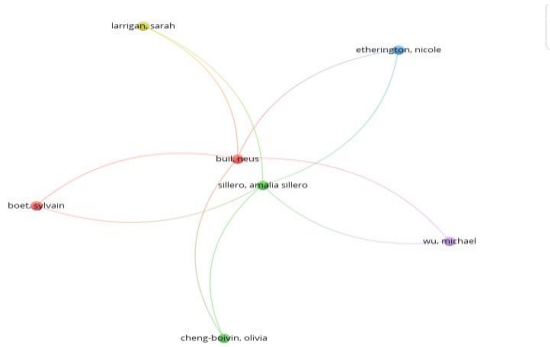

Figure 6. Influential author in the field of interprofessional-based communication training

Figure 6 illustrates the author's influence on interprofessional-based communication training research. Collaborative efforts among researchers are evident. The development of interprofessional-based communication training covers a wide range of disciplines. For example, a study conducted by Sillero Sillero & Buil (2021) on interprofession-based communication training for doctors and nurses, entitled Enhancing Interprofessional Collaboration in Perioperative Setting: from the Qualitative Perspectives of Physicians and Nurses is a reference for the author to conduct and write other research in the field of interprofession-based communication training. The results of the network and overlay of interprofession-based communication training are then presented in Figures 7 and 8.

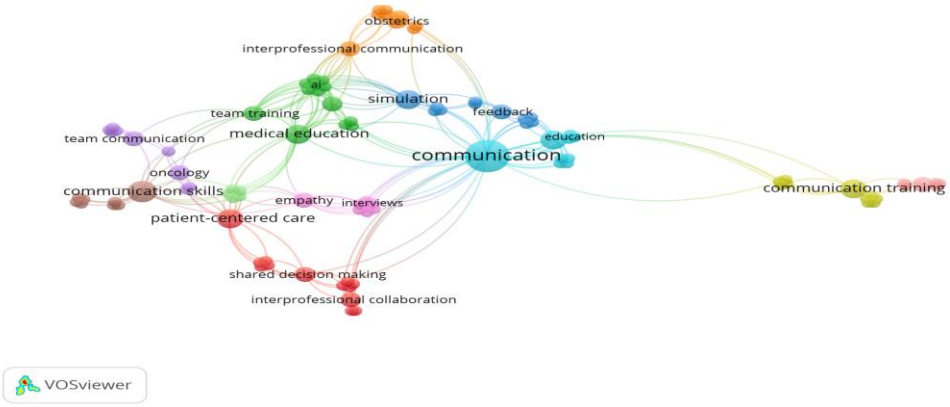

Figure 7. Network visualization for interprofessional-based communication training

Figure 7 illustrates the growing network of interprofessional communication training research. The VOS Viewer visualization illustrates the relevance of keywords in health communication research. The term "communication" is essential and related to medical education, simulation, feedback, patient-centered care, and collaboration between professionals. The clusters identified indicate that communication is intertwined with education, training, teamwork, and patient-focused methods. The map signifies communication's broad coverage and integration across different healthcare domains.

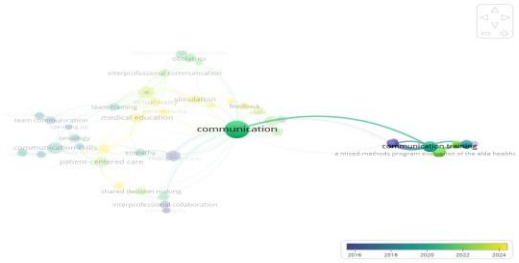

Figure 8. Overlay visualization for interprofessional-based communication training

Figure 8 shows ongoing research in interprofessional communication training. It describes the evolution of communication research topics in healthcare from 2016 to 2024. The yellow color signifies the current primary focus on communication training. In contrast, previous themes such as communication skills and patient-centered care have diminished. The map shows the transition in the research focus towards contemporary communication training practices.

The following is the research development for each classifier presented in Table 1 below:

Table 1. Research Development For Each Client

No	Color	Number of Keywords	Keywords
1	Red	13	Barriers-facilitators, deprescribing, ethnography, general internal medicine, interprofessional collaboration, nurse-physician relations, patient-centered care, primary care, provider-patient communication, safety patient, shared decision making, surgical team, teamwork
2	Green	13	AI, artificial intelligence, health care education, interprofessional education, medical education, nursing education, nursing student, patient-facing, scoping review, sepsis care, team training, technology, virtual reality
3	Dark Blue	11	Audit, clinical pharmacy, clinical skills, feedback, interprofessional medical communication, learning, organization, simulation, students, team, teamwork
4	Dark Yellow	10	A mixed-methods program evaluation of the alda, healthcare exper, alda healthcare experience, effectiveness of education, healthcare workers burnout, interprofessional healthcare teams, medical improvisation, midwifery, midwifery students, review
5	Purple	9	Communication education, hermeneutic research, nursing, nursing management, oncology, risk management, safe maternity care, speaking up, team communication
6	Light blue	9	Aboriginal, clinician, communication, education, family-centred care, intensive care unit, needs, torres strait islander, training
7	Orange	9	Health action process approach (hapa), healthcare workers (hcw), interprofessional communication, interprofessional cooperation, obstetrics, patient safety, preventable adverse events, qualitative health research, safety
8	Coklat	8	Attitudes, communication skills, confidence, continuing medical education, pharmacy education, pharmacy student, physician/patients relationship, quantitative research methods
9	Light Purple	8	Emergency care, empathy, health care, health care professionals, interprofessional, interviews, relationships, semi-structured
10	Pink	6	End-of-life care, palliative and end-of-life communication training, palliative care, parents of children with a brain tumor, pccm fellowship education, serious illness
11	Light Green	5	Breaking bad news, congenital heart disease, pediatric cardiology, physician-patient communication, simulation-based training

(Source: Scopus 2013-2015)

Table 1 illustrates the evolution of research across ten important topic groups in

communication training that focus on collaboration between professionals within the health sector, each distinguished by a unique color. The red cluster emphasizes teamwork, interprofessional communication, and patient-centered care, while the green cluster examines technology-enhanced health education, including AI and virtual reality. Other clusters address the various dimensions of clinical training, program evaluation, and communication in specific contexts, demonstrating the rich diversity in research themes centered on interprofessional collaboration and innovative educational strategies.

The bibliometric analysis's findings offer a thorough scientific basis for addressing a number of research gaps pertaining to interprofessional communication in Indonesian health systems. The visualization of keyword networks that highlight "communication training" (Boström et al., 2025; Cardile et al., 2023; Wittenberg et al., 2019) "simulation" (Foucault-Fruchard et al., 2024; Padovani et al., 2024; Umoren et al., 2020) then "feedback" (Jin et al., 2019; Preis et al., 2022) (Figures 7-8) provide an evidence-based approach that can be tailored to local contexts related to the gap on effective interprofessional communication training methods.. Cultural and structural barriers in the implementation of the interprofessional collaboration model can be overcome by paying attention to the relationship between "communication" and "interprofessional collaboration" (Etherington et al., 2019; Sillero Sillero & Buil, 2021) as well as clusters that focus on communication in specific cultural contexts (Bernardes et al., 2022)especially considering the distribution of publications dominated by developed countries (Figure 3), which indicates the need for adaptation according to Indonesia's unique characteristics.

While variations in publication trends (Figure 1) and the evolution of research themes (Figure 8) offer a longitudinal perspective on communication interventions in health systems, gaps pertaining to the long-term impact of communication training can be filled by the evaluation framework shown in the dark yellow cluster (Table 1), which emphasizes the assessment of communication education programs and their impact on health workers (Preis et al., 2022; Wittenberg et al., 2019). Together with the measurement framework of current quantitative studies, the development of suitable evaluation tools can benefit from a number of factors found in thematic clusters, including risk management (Rönnerhag et al., 2019), shared decision-making (Lussier et al., 2021; Stuijt et al., 2024), patient safety (D'Agostino et al., 2017; Schmiedhofer et al., 2021).

To address the gap in program sustainability strategies, visualize authors' collaborative networks (Figure 6) and clusters related to skill development (Jin et al., 2019; Škodová, 2016; Yang & Kim, 2022) and continuing education (brown cluster, Table 1) provide practical models for integrating interprofessional communication training into hospital HR development systems. Overall, these bibliometric findings not only provide a theoretical foundation to address the five research gaps, but also offer an applicable framework that can be tailored to the specific dynamics and needs of the health care system in Indonesia.

CONCLUSION

The results of a bibliometric analysis of the communication literature in healthcare highlight a shift in global research focus from theoretical concepts to the development and evaluation of more applicable training methods, with a significant increase in interest in communication training in recent years (Figure 8). These results, which are backed by solid empirical evidence of the predominance of quantitative methodologies, highlight the necessity of incorporating interprofessional communication training into health worker education curricula and continuing professional development programs in Indonesian hospitals (Figure 5). The dearth of R&D-based studies, however, suggests that contextual model development requires creativity. The intricacy of healthcare communication necessitates a comprehensive approach, as seen by the study theme's diversification into 11 clusters (Table 1) that address interprofessional collaboration,

technological integration, patient safety, and particular clinical situations. On the other hand, the worldwide researcher collaboration pattern (Figure 6) can serve as an inspiration for the creation of comparable networks in Indonesia in order to expedite the sharing of best practices and expertise. The fact that developed nations dominate the distribution of publications (Figure 3) highlights the significance of contextual research in Indonesia to fill in knowledge gaps regarding structural and cultural barriers to the adoption of interprofessional communication models. It also calls for the creation of thorough evaluation tools to gauge the efficacy of training, particularly in areas like risk management and shared decision making. Developing a plan to incorporate interprofessional communication training programs into the hospital's HRM system, backed by appropriate organizational and national regulations, is essential for long-term viability. The primary drawback of this bibliometric analysis, however, is the underrepresentation of research from Indonesia and other developing nations, which restricts the findings' applicability.

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