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Quality Assurance and Continuous Improvement in Nursing Education: A Management Perspective

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A B S T R A C T

Quality Assurance and Continuous Improvement in nursing education are increasingly recognized as strategic priorities shaping graduate competence, stakeholder trust, and institutional competitiveness. This study aims to analyze Quality Assurance and Continuous Improvement in nursing education through a management perspective by mapping global publication trends, collaboration networks, thematic developments, and influential references. A bibliometric design was employed using 61 documents indexed in Scopus from 2015 to 2025. Data were analyzed using VOSviewer and Biblioshiny in R Studio to visualize co-authorship, co-citation, keyword clusters, and citation impact. Descriptive indicators included annual publication growth, geographical distribution, leading institutions, and keyword co-occurrence. The findings reveal an annual publication growth rate of 17.46%, with the United States, the United Kingdom, and Australia making the most significant contributions, and an increasing participation from developing countries. Influential institutions include King's College London and Yale School of Nursing. Core themes identified were accreditation, clinical competence, pedagogical innovation, and interprofessional collaboration. The study confirms that Quality Assurance in nursing education represents a multidimensional domain integrating accreditation, innovation, collaboration, and digitalization, contributing to a sustainable management framework that strengthens graduate readiness and institutional resilience.

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1. Introduction

Quality Assurance (QA) in nursing education is undergoing a dynamic transformation driven by increasing demands for accreditation, regulatory frameworks, and international standards (Rahme et al., 2025). QA is no longer positioned merely as an administrative requirement but as a strategic mechanism that connects educational policies with measurable outcomes and institutional performance (Duarte & Vardasca, 2023). The Donabedian model further reinforces this perspective by conceptualizing quality through structural, process, and outcome indicators, offering a systematic lens to evaluate educational effectiveness (Ghofrani et al., 2024). Evaluation of nursing education through an input process output framework can identify improvement priorities across curriculum design, institutional resources, teaching practices, assessment systems, and graduate follow up (Yildirim & Sahin, 2025). In contemporary nursing education, continuous monitoring and clinical assessment practices demonstrate that QA has become embedded within the learning cycle, ensuring accountability, responsiveness, and outcome orientation (Mohamed et al., 2025). In addition, observed variability in clinical assessment discussions and limited dialogue among students, mentors, and nurse educators highlight the need for more consistent assessment processes and stronger opportunities for feedback and reflection (Aase et al., 2022). These

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developments indicate a shift toward a holistic and integrated quality management framework that is sensitive to contextual and institutional dynamics (Ngoatle et al., 2022).

Empirical evidence shows considerable variation in QA implementation across national contexts. An autoethnographic study in Namibia revealed inconsistencies between the principles of constructive alignment and actual assessment practices (Nghitanwa et al., 2025). Similarly, research in South Africa revealed structural constraints, particularly limited resources and inadequate student support systems (Ngoatle et al., 2022). In South Korea, QA practices are closely tied to nurse governance, encompassing communication and career development systems (Choi, 2023). Meanwhile, digital innovations such as electronic portfolios have demonstrated measurable improvements in students' clinical competence (Najaffard et al., 2024). Patient-centered curriculum models strengthen nurse–client relationships (Isangula et al., 2023), and interprofessional collaboration initiatives highlight the growing importance of cross-disciplinary integration (Chou et al., 2024). Despite these advances, knowledge gaps remain regarding the practical implementation of quality interventions (Lyng et al., 2024) and regulatory differences, including emerging certification models such as micro-credentials (Zdunek et al., 2024). These findings suggest that QA in nursing education is deeply influenced by regulatory environments, professional norms, cultural contexts, and stakeholder perceptions (Ejupi et al., 2025).

Although research on QA continues to expand, several critical gaps persist. First, scholarly production remains dominated by developed countries, leaving developing-country contexts underrepresented (Hassan et al., 2024). Second, academic collaboration exhibit fragmented patterns, which limit theoretical integration and hinder cumulative knowledge development (Abou Hashish et al., 2025). Third, most publications focus predominantly on accreditation compliance and administrative procedures (Tenne-Fishbain et al., 2025), while integration with pedagogical innovation, digital transformation, and interprofessional competencies remains insufficient (Rahimi et al., 2023). Furthermore, relatively few studies link QA initiatives to tangible educational outcomes such as graduate readiness, institutional competitiveness, and stakeholder satisfaction (Rahme et al., 2025). These limitations indicate that the current body of literature has yet to fully conceptualize QA as a strategic and multidimensional management framework (López-Entrambasaguas et al., 2020).

The urgency of this research lies in the need to reconceptualize QA beyond compliance toward a sustainable, continuous improvement framework that is adaptive to social, political, and cultural dynamics (Hassan et al., 2024). Bibliometric mapping of global trends, collaboration patterns, and thematic clusters offers an evidence-based foundation for understanding how QA and Continuous Improvement are positioned within international scholarship (Hidigow et al., 2024). By analyzing 61 Scopus-indexed documents published between 2015 and 2025, this study aims to identify publication growth patterns, leading authors and institutions, collaboration structures, and core research themes. The study hypothesizes that QA in nursing education has evolved from an administrative orientation to a strategic management dimension encompassing accreditation, pedagogical innovation, interprofessional collaboration, and digitalization, forming a sustainable quality framework that strengthens graduate competence and institutional resilience (Ntumi, 2025).

2. Methods

This study employed a bibliometric design with a quantitative-descriptive approach. Bibliometric analysis is recognized as a systematic and quantitative method for mapping scientific publications, identifying research trends, collaboration networks, and thematic development within a specific field (Donthu et al., 2021; Massimo & Cuccurullo, 2017). The study focuses on mapping publications related to Quality Assurance and Continuous Improvement in nursing education using a management perspective to interpret structural and thematic patterns in the literature.

There were no direct human participants because this study is based on literature analysis. The unit of analysis consisted of journal articles indexed in the Scopus database. Scopus was selected due to its wide international coverage, standardized indexing system, and suitability for bibliometric studies (Mongeon & Paul-Hus, 2016). The research population included all articles relevant to the topics of Quality Assurance and Continuous Improvement in nursing education. Purposive sampling was applied with the following inclusion criteria: (1) articles published between 2015 and 2025, (2) written in English, and (3) indexed in Scopus. After applying these criteria, 61 documents were included in the final analysis.

The research instrument was a bibliographic dataset extracted from Scopus. The dataset contained titles, abstracts, keywords, author names, affiliations, country information, and citation metadata. Data validity was maintained through the quality assurance mechanisms of Scopus indexing, while reliability was supported by the use of standardized bibliometric software tools. Two analytical tools were used. VOSviewer was employed to visualize collaboration networks among authors, countries, and institutions, and to map relationships between keywords through co-occurrence analysis (van Eck & Waltman, 2010). Biblioshiny, a web interface of the Bibliometrix package in R Studio, was utilized for descriptive performance analysis, including publication trends, author productivity, country distribution, institutional contribution, and journal sources (Massimo & Cuccurullo, 2017).

The analysis was conducted in descriptive bibliometric analysis Quantitative indicators such as publication growth rate, geographical distribution, institutional productivity, and journal sources were calculated to assess research performance. Network-based analysis including Co-authorship analysis identified collaboration patterns among researchers and countries. Keyword co-occurrence analysis mapped thematic structures and research concentration areas. Citation and co-citation analyses identified influential publications and intellectual foundations of the field. The emphasis of the analysis was placed on identifying structural patterns, thematic clusters, and research evolution within the literature.

3. Results

3.1. Most influential author, affiliation, and country

3.1.1. Summary of the review

Table 1 presents a summary of bibliometric data for research during the period 2015–2025. During this period, 61 scientific articles were published in 38 journal sources. The publications have an average age of 4.41 years, so it can be said that the literature analyzed is still relatively new. The average number of citations per article is 10.36, which indicates that the readability and impact of the publications are in the moderate category. The number of

references used reaches 546, showing the breadth of the theoretical basis and previous research used as references.

Keyword analysis yielded 564 keywords plus (ID) and 170 authors' keywords (DE). This illustrates the diversity of concepts and topics used in the research. A total of 424 authors were involved in the publications, and all articles were written collaboratively. On average, there were 10.9 authors per document, with an international collaboration rate of 13.11%. These findings confirm that research in this field is developing with a high level of collaboration, is multidisciplinary, and is supported by international cooperation. Overall, publications on this topic show positive growth of 17.46% per year, extensive author collaboration, and global contributions that play a role in enriching the development of science in this field. The benefit of this summary is that it empirically situates QA and Continuous Improvement as an active, collaborative, and still-consolidating domain, creating space for integrative studies that connect quality mechanisms with measurable educational outcomes.

Table 1. Summary of the review

Description	Results
Main information about data	
Timespan	2015–2025
Sources (Journals, Books, etc)	38
Documents	61
Annual Growth Rate %	17.46
Document Average Age	4.41
Average citations per doc	10.36
References	546
Document contents	
Keywords Plus (ID)	564
Author's Keywords (DE)	170
Authors	
Authors	424
Authors of single-authored docs	0
Authors collaboration	
Single-authored docs	0
Co-Authors per Doc	10.9
International co-authorships %	13.11
Document types	
Article	61

3.1.2. Document growth by year

To illustrate the temporal development of research on Quality Assurance and Continuous Improvement in nursing education, Figure 1 presents the annual publication growth from 2015 to 2025.

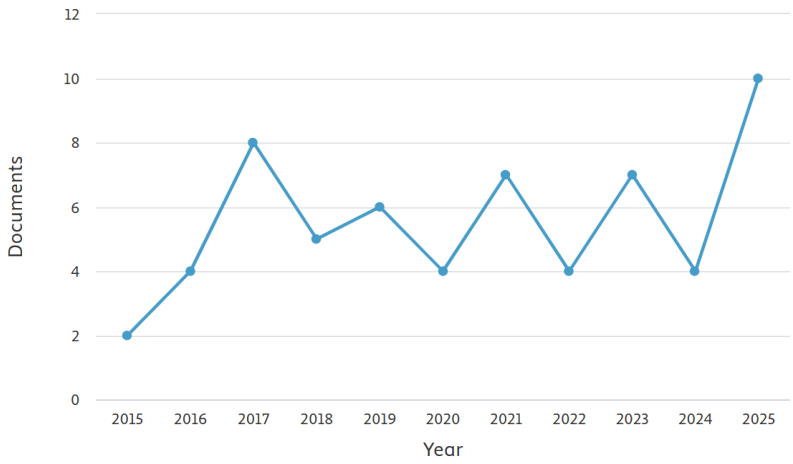


Figure 1. Document Growth by year

Figure 1 shows the growth trend in research publications from 2015 to 2025. The number of documents has fluctuated, with the highest point occurring in 2025, with 10 publications and in 2017 with 8 publications. Years with relatively low productivity are seen in 2015 with only 2 publications, and in the following years, such as 2020, 2022, and 2024, which each recorded 4 publications. Overall, the publication trend shows a positive growth direction, despite variations in the number of documents each year. This growth is in line with the bibliometric findings of O'Connor (2024), who examined more than two decades of publications in Nurse Education in Practice and found an increase in the volume of articles on various topics, ranging from simulation interprofessional education to student mental health. Thus, these results reinforce that the issue of QA in nursing education is becoming increasingly relevant globally and has entered the realm of broad academic discourse. The average age of documents (4.41 years) and the average citation (10.36) indicate relatively new literature with moderate influence, which signals a continued need for further research in this field.

3.1.3. Most relevant author

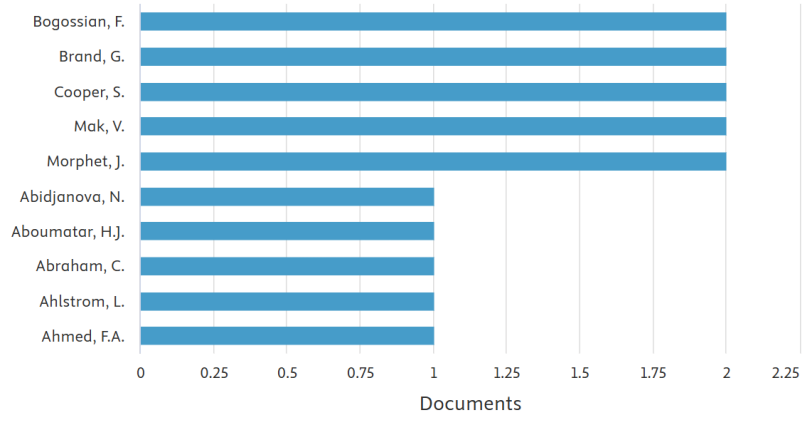


Figure 2. Most Relevant Author

Figure 2 shows a list of the most relevant authors based on the number of publications. There are five authors at the top of the list, namely Bogossian, F.; Brand, G.; Cooper, S.; Mak, V.; and Morphet, J., each with 2 publications. Other authors such as Abidjanova, N.; Aboumatarm, H.J.; Abraham, C.; Ahlstrom, L.; and Ahmed, F.A. are recorded as having 1

publication. This data shows that research contributions on this topic are spread across several authors with relatively balanced dominance among the main groups of authors. The benefit of this pattern is that the field is not shaped by a single dominant author, implying openness for cross-group synthesis and cumulative knowledge building across different research traditions.

3.1.4. Most relative affiliations

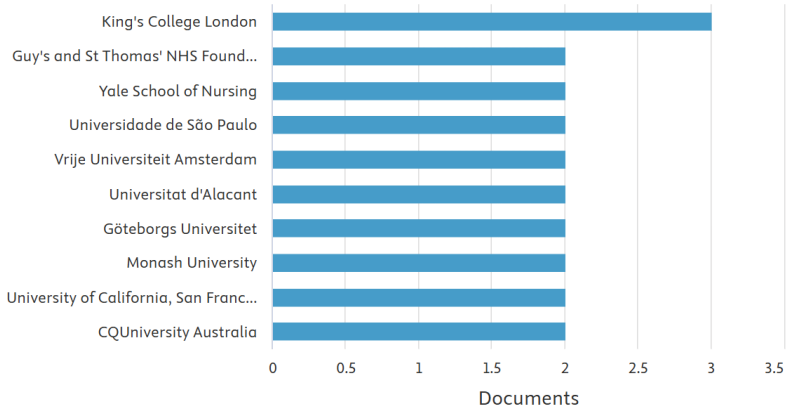


Figure 3. Most Relative Affiliations

Figure 3 shows the most relevant institutional affiliations in research publications. King's College London is the institution with the highest contribution, with 3 documents. Several other institutions, such as Guy's and St Thomas' NHS Foundation, Yale School of Nursing, Universidade de São Paulo, Vrije Universiteit Amsterdam, Universitat d'Alacant, Göteborgs Universitet, Monash University, University of California San Francisco, and CQUniversity Australia, each have 2 documents. This data shows that research in this field is supported by contributions from various world-renowned universities and health institutions, with a predominance of involvement from international higher education institutions. The benefit of this finding is that it indicates the role of research-intensive universities and clinical-academic ecosystems as knowledge hubs that shape QA discourse beyond compliance, toward institutional competitiveness and graduate competence.

3.1.5. Most relevant countries

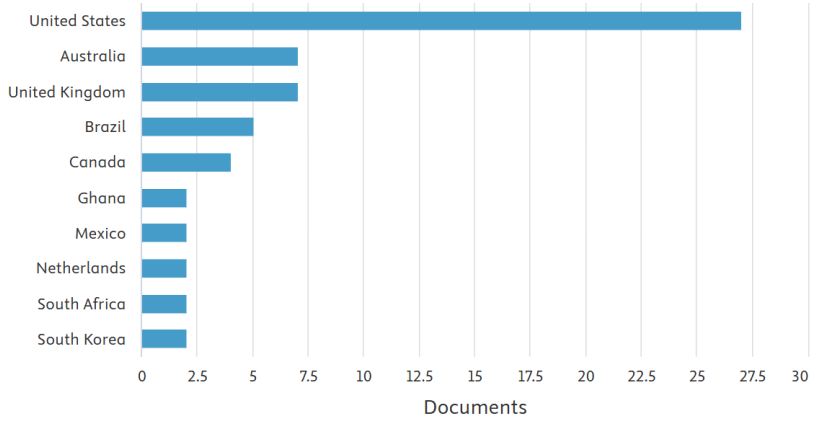


Figure 4. Most relevant Countries

3.2. Citation Analysis

Table 2 shows the ten global documents with the highest number of citations in research. The publication with the highest number of citations is Levine et al. (2017) work entitled Training the Workforce: Description of a Longitudinal Interdisciplinary Education Program, published in the Journal of Pain and Symptom Management with 41 citations. Second place is held by Ramsbotham et al., (2019) with the article "Evaluating the learning environment of nursing students: A multisite cross-sectional study" in Nurse Education Today with 39 citations.

Table 2. Top ten cited global documents

Author	Title	Year	Journal	Citations
Sophia Levine	Training the Workforce: Description of a Longitudinal Interdisciplinary Education Program	2017	Journal of Pain and Symptom Management	41
Jodie Ramsbotham	Evaluating the learning environment of nursing students: A multisite cross-sectional study	2019	Nurse Education Today	39
Mary J. Slattery	An Undergraduate Research Fellowship Program to Support Nursing Workforce Development	2016	Journal of Professional Nursing	35
Tünde Mako	Patients' perceptions of the meaning of good care in surgical care: a grounded theory study	2016	BMC Nursing	34
Mary Schallom	Implementation of an interdisciplinary AACN early mobility protocol in the intensive care unit	2020	Critical Care Nurse	32
Brian James	Time, fear and transformation: Student nurses' experiences of caring for people with dementia	2016	Nurse Education in Practice	27
Rebecca Wright	Doctor of nursing practice project: Key challenges and considerations	2022	Journal of Professional Nursing	23
Julie Blackburn	Nurses' Education, Confidence, and Competence in Wound Assessment and Dressing Selection	2019	Advances in Skin and Wound Care	23
Aline Branco	Education to prevent ventilator-associated pneumonia: An integrative review	2020	Revista Brasileira de Enfermagem	22
Giovana Fernandes C. Linch	An educational intervention impact on the quality of nursing records	2017	Revista Latino-Americana de Enfermagem	22

This data shows that the most cited articles come from internationally reputable nursing journals and discuss important issues such as the learning environment of nursing students, service quality, and the implementation of clinical practices. The diverse distribution of publication years, from 2016 to 2022, indicates that these works are important references and remain relevant to this day. The benefit of this citation pattern is that it clarifies the intellectual anchors of QA discourse, which prioritize learning environments, workforce development, and demonstrable educational or clinical outcomes rather than administrative compliance alone.

3.3. Network Analysis

3.3.1. Bibliographic coupling

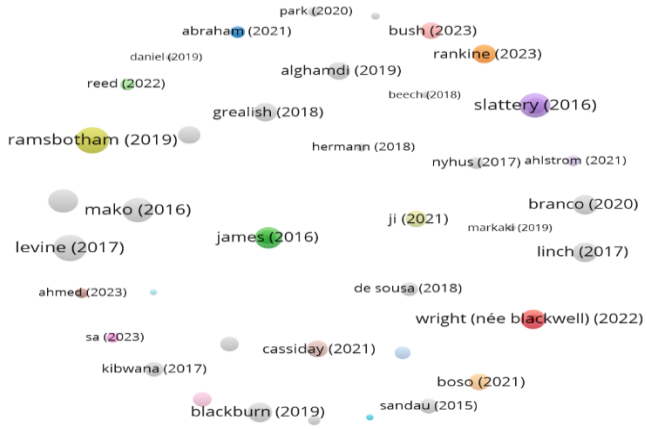


Figure 5. Bibliographical coupling

Figure 5 shows a bibliographic coupling map that illustrates the relationships between documents based on similarities in their reference lists. Larger circles represent documents with stronger reference connections. It can be seen that the works of Ramsbotham et al., (2019), Mako et al., (2016), Levine et al., (2017) James et al., (2016), Slattery et al., (2016), and Wright et al., (2022) form the main nodes in the network, indicating that these articles share many of the same references and therefore often appear as a basis for similar research. Other works, such as Branco et al., (2020), Linch et al., (2017), Blackburn et al., (2019), and Ahmed et al., (2023) are also connected in the network, albeit with smaller circles indicating relatively more limited influence. This distribution pattern shows that there are groups of articles that are closely related and form the core of the literature in the field of research, as well as several other publications that serve as complements with specific contributions to certain topics. The benefit of this mapping is that it evidences both a coherent core literature stream and peripheral substreams, supporting the gap claim that research outputs are not yet fully integrated.

3.3.2. Co-citation of a journal



Figure 6. Co-citation of a journals

The graph above shows the co-citation network between journals. *Nurse Education Today* appears to be the journal with the strongest connections, occupying the leading position in this network. This journal is frequently cited alongside *BMJ Quality* and *Safety and Nursing Outlook*, reflecting its significant influence in the discourse on the quality of nursing education and patient safety. The close relationship between these journals indicates that research in the field of nursing education quality management often refers to the same literature, particularly that which discusses quality, safety, and the development of nursing

education curricula. The benefit of this result is that it locates the journal ecosystem where QA debates are consolidated and where education quality intersects with safety and governance.

3.3.3. Co-citation analysis



Figure 7. Co-citacion Analysis

The graph above shows the results of a co-citation analysis between authors. Elizabeth A. occupies a central position in the network, connected to several other authors such as Ayello and Karen J., indicating that their works are often cited together in nursing literature. On the other hand, groups of authors such as Flott, Carter, Anderson, Adam M., and Peplau also form their own clusters, indicating strong citation links between them. This pattern indicates that there are two main groups in the author citation network: one group focuses on nursing education and practice issues, while the other group emphasizes nursing theory and models. These connections show that both theoretical and practical foundations play a role in the development of research in the field of nursing. The benefit of this pattern is that it explains why QA literature simultaneously evolves through practice-oriented improvement studies and theory-driven frameworks, reinforcing the multidimensional nature of QA.

3.3.4. Co-authorship by the author

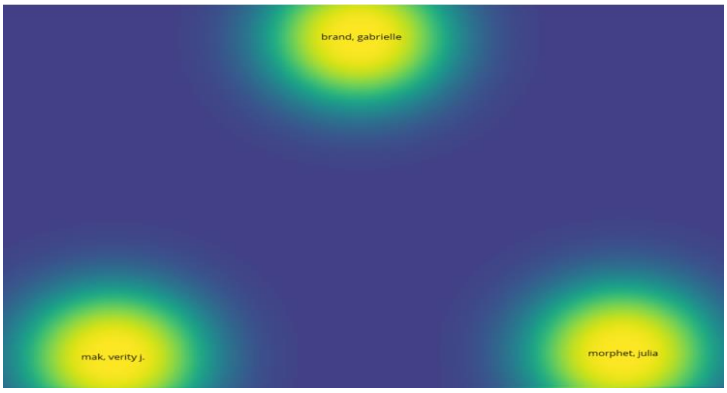


Figure 8. Co-authorship by the author

Figure 8 shows a visualization of co-authorship based on authors. It can be seen that there are three prominent authors in the network, namely Brand, Gabrielle (Monash University), Mak, Verity J. (Monash University), and Morphet, Julia (Monash University). Circles with brighter colors indicate stronger contributions to publications in writing collaborations. This pattern shows that research in the field of nursing is supported by a number of leading authors who actively collaborate with their peers. However, the still separate distribution between authors also indicates that collaboration is not yet fully

integrated into one large network, but is divided into small groups according to their respective research focuses. This answers the gap on fragmented collaboration networks by demonstrating that high collaboration volume does not automatically translate into integrated global knowledge structures.

3.3.5. Co-authorship by countries

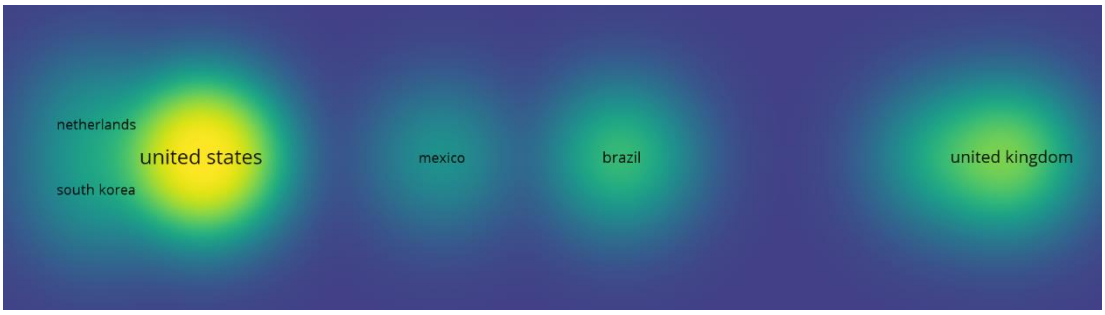


Figure 9. Co-authorship by country

Figure 9 shows co-authorship patterns by country. The United States appears as the main center of collaboration with the largest circle, indicating its dominant contribution to the publication network. Other countries, such as the Netherlands and South Korea, are in the same cluster, indicating collaborative links with researchers from the United States. On the other hand, Mexico, Brazil, and the United Kingdom also play a role in the network, albeit with lower intensity than the United States. This pattern shows that research in this field is still heavily influenced by the contributions of large countries, particularly the United States, while other countries provide additional support in building international networks. The benefit of this finding is that it provides a clear basis for strengthening cross-regional coalitions, particularly to bring developing-country contexts into more central collaborative positions.

3.3.6. Keyword co-occurrence

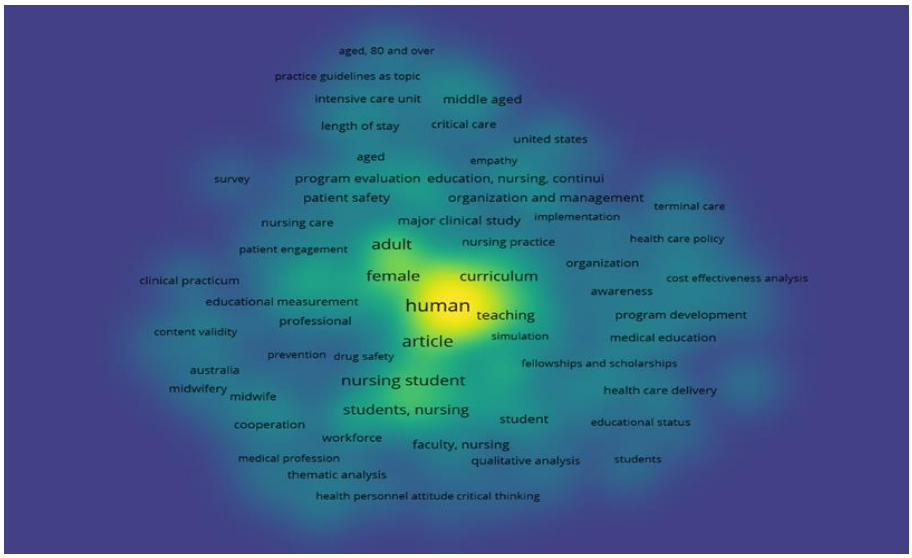


Figure 10. Keyword co-occurrence

Figure 10 shows a keyword co-occurrence map that illustrates the relationship between keywords in research publications. The most prominent keywords are human, article, female, adult, teaching, curriculum and nursing student. These keywords are located at the

center of the network with brighter colors, indicating a high frequency of occurrence and a close connection with other keywords. Other keywords, such as students, nursing, education, nursing, patient safety, program evaluation, and organization and management, also appear quite frequently and form thematic clusters. This reflects the research focus on aspects of nursing education, patient safety, and organizational management in health services.

4. Discussion

The distribution of keywords on the periphery, such as critical care, clinical practicum, midwifery, qualitative analysis, and health care delivery, reveals more specific supporting topics, which, although not dominant, still contribute to the overall research framework. This pattern shows that research in the field of nursing combines issues of education, clinical practice, and health policy with a primary focus on the role of students and nursing staff. The benefit of this thematic structure is that it demonstrates a shift from a structural orientation toward broader integration, supporting the study's argument that QA increasingly encompasses accreditation, pedagogical innovation, interprofessional collaboration, and digital technology rather than being confined to administrative control.

A managerial interpretation of these themes requires attention to the organization of clinical learning. A pilot evaluation suggests that structured clinical placement, reflective supervision, and student support may foster a safer learning environment and strengthen relationships between students and clinical staff. However, comparative intervention studies are needed to establish the effects of this approach relative to traditional clinical practice (Thomsen et al., 2024).

Pedagogical innovation also provides a route to improving educational outcomes. Simulated interprofessional education has shown benefits for nursing students' critical thinking and interprofessional collaboration compared with traditional simulation teaching (Zhou et al., 2022). This evidence supports incorporating collaborative learning into curriculum improvement, with explicit assessment of the competencies that these activities are intended to develop.

Digital transformation requires investment in faculty development alongside learning technologies. A theory-guided faculty development program reported high participant satisfaction and positive experiences in integrating digital technology into nursing education (Shon et al., 2024). From a management perspective, these findings support developing educators' pedagogical and digital capabilities, while further evaluation is needed to determine effects on student learning outcomes.

Continuous improvement can be operationalized through iterative planning, action, observation, and reflection. In continuing education for hospital nurses, action research informed by the Holton Learning Transfer System Inventory supported the application of quality management training and the completion of quality improvement projects (Shen & Feng, 2024). Although this evidence comes from a hospital training context, it offers a relevant example of how learning motivation, organizational support, and transfer design can connect educational activities with practical improvement.

Global publication trends confirm that QA and Continuous Improvement are increasingly gaining ground in the global research agenda, with developed countries

dominating, but with potential for growth in other countries. Patterns of collaboration among authors, countries, and institutions confirm that QA in nursing education has become a global agenda pursued through cross-country and cross-institutional collaboration, yet the fragmentation of author networks indicates significant opportunities to build more integrative international collaboration. Main themes and research frontiers confirm that QA has evolved from administrative control to a multidimensional field, encompassing accreditation, pedagogical innovation, interprofessional collaboration, and digital technology. In comparison to previous studies that tended to emphasize accreditation mechanisms or specific implementation contexts, the present bibliometric mapping expands the understanding of QA as an integrated managerial framework and clarifies where the literature is concentrated, where it is fragmented, and where emerging themes signal the next research frontier.

5. Conclusion

This study confirms that Quality Assurance and Continuous Improvement in nursing education have evolved into a strategic and multidimensional research domain. The bibliometric analysis of 61 documents demonstrates consistent growth in scholarly publications, the participation of authors from various countries, and the prominence of leading institutions, indicating strong global attention to quality in nursing education. These findings position Quality Assurance not merely as an administrative mechanism, but as a managerial framework that contributes to cultivating a culture of quality, enhancing graduate competence, and strengthening institutional competitiveness.

The results further indicate a shift in the orientation of Quality Assurance from structural compliance toward a more integrated and comprehensive approach that encompasses accreditation, regulation, pedagogical innovation, interprofessional collaboration, and digital technology. Keyword and citation mapping highlight central themes such as accreditation, clinical competence, learning environments, and graduate outcomes. Although research contributions remain dominated by developed countries, increasing participation from developing contexts suggests opportunities for more adaptive and context-sensitive quality perspectives. Conceptually, this study expands the discourse of Quality Assurance toward sustainable quality management. Practically, the findings provide a strategic foundation for curriculum development, assessment systems, and institutional policy formulation, reinforcing nursing education that is adaptive, collaborative, and outcome-oriented in a globalized environment.

Declarations

Author Contribution Statement

YH: conceptualization, methodology, and writing original draft. HH: data curation, validation, and writing review and editing. ERo: formal analysis, visualization, supervision, and writing review and editing. All authors approved the final manuscript.

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Data Availability Statement

The study used bibliographic data retrieved from Scopus. Derived analysis outputs are available from the corresponding author upon reasonable request. Access to the original records is subject to Scopus licensing conditions.

Declaration of Interests Statement

The authors declare no competing interests.

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