

Global Nursing Support: A Bibliometric Analysis of Economic Impact

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ABSTRACT

Background: This study presents a comprehensive bibliometric analysis of global research concerning support for nurses from their respective governments and its economic implications.

Methods: Drawing on 278 articles indexed in Scopus between 2016 and 2025, the analysis identifies trends, influential publications, contributing countries, institutions, and thematic clusters.

Results: The findings highlight critical strategies in nursing workforce development, the role of nurses in healthcare system resilience, and the ethical and economic complexities of international nurse migration. Notably, nations investing in nurse education, fair compensation, and supportive policy frameworks demonstrate enhanced healthcare outcomes and economic benefits. The study also explained the persistent undervaluation of nursing labour, particularly in low- and middle-income countries, exacerbated by global labour imbalances.

Conclusion: This bibliometric insight offers evidence-based guidance for policymakers, educators, and healthcare leaders to better support nurses and optimize the economic performance of health systems worldwide.

Keywords: Nurses; Economic impact; Bibliometric analysis; Migration

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INTRODUCTION

Nurses represent the backbone of healthcare systems globally, serving on the frontlines in hospitals, clinics and community settings. Their responsibilities extend far beyond bedside care, encompassing health promotion, disease prevention, patient advocacy, education and leadership in health policy. Nurses are considered as one of the costliest professions in healthcare as they are high in number compared to other health care worker (1). As healthcare needs grow increasingly complex, the demand for a well-trained and adequately supported nursing workforce has become more urgent than ever. Global health events, such as the COVID-19 pandemic, have further emphasized the indispensable role of nurses in maintaining public health, responding to crises, and sustaining healthcare delivery under pressure. The need to have a balanced staffing with the consideration of the cost and budget is very important (2). Investing in an adequate nursing workforce is essential not only for societal health but also for strengthening a nation's economy through increased productivity, ultimately contributing to GDP and national income (1).

However, the level of support provided to nurses varies significantly across countries. This support can take many forms, including investment in nursing education and training, provision of safe working environments, fair wages, mental health resources, and opportunities for professional development and leadership. Some countries have established robust frameworks to attract, retain, and empower nurses, while others struggle with chronic understaffing, poor working conditions, and migration of nursing talent to more supportive regions. It also depends on each country whether they have enough resources to hire more nurses (1).

The economic impact of nursing is multifaceted. On a macroeconomic level, a strong nursing workforce contributes to healthier populations, which in turn supports labour productivity and reduces national healthcare costs. Countries such as the United Kingdom recruited health provider to overcome the lack of their locally trained personnel (3).

On a microeconomic level, nurses improve patient outcomes, reduce hospital readmissions, and ensure cost-effective care. Yet, despite their economic significance, nurses are often undervalued in national budgets and policy planning. The strategic investment in nursing can

yield high returns, but many governments and institutions have yet to fully recognize or quantify this potential.

Bibliometric analysis offers a powerful method to systematically examine the global research output related to this critical issue. By analysing trends in scholarly publications, it is possible to identify which countries are leading research efforts, what themes are most frequently studied, how collaborative networks are formed and where significant gaps in the literature remain. Such an analysis not only maps the academic discourse on nursing support and its economic implications but also informs future policy directions and research priorities.

METHODS

Although the global importance of nurses is widely acknowledged, there remains a fragmented understanding of how countries differ in the ways they support their nursing workforce and how such support translates into economic benefits. Most existing literature tends to focus on isolated issues such as staffing shortages, burnout or salary structures without offering a holistic view of systemic support mechanisms across different health systems.

In addition, while there is growing interest in the economic contributions of healthcare professionals, the specific impact of nurses is frequently underestimated or overlooked in broader health economics research. Migration has become a huge problem, most of the nurses are disappointed with their own government making them immigrate. These caused a great lot of skilled and experienced nurses, and it became a challenge to the source country. Policymakers and healthcare leaders often lack access to consolidated evidence that highlights the return on investment in nursing, leading to underinvestment in workforce development and retention strategies.

The absence of a comprehensive bibliometric analysis on this topic represents a critical knowledge gap. Without a clear understanding of the volume, scope, and focus of global research on nursing support and its economic consequences, it is difficult to evaluate progress, share best practices, or set informed priorities. Therefore, this study aims to conduct a bibliometric analysis to systematically explore the global research landscape surrounding national support for nurses and its economic impact. By identifying key trends, influential publications, countries,

and research clusters, the analysis will provide valuable insights for scholars, policymakers, and health system leaders aiming to strengthen nursing support and enhance economic efficiency in healthcare.

Bibliometric analysis, unlike traditional hypothesis-driven research, is primarily an exploratory method. Its main goal is to map the structure and evolution of a field by analysing patterns in publications, citations, and keywords. Instead of testing pre-defined hypotheses, it aims to uncover key trends, influential works, and emerging themes within the existing literature. While guided by research questions, the analysis focuses on identifying patterns *within* the data, rather than confirming or refuting expectations. This approach allows for a broad overview of the research landscape and the identification of areas for future investigation.

Research Objectives

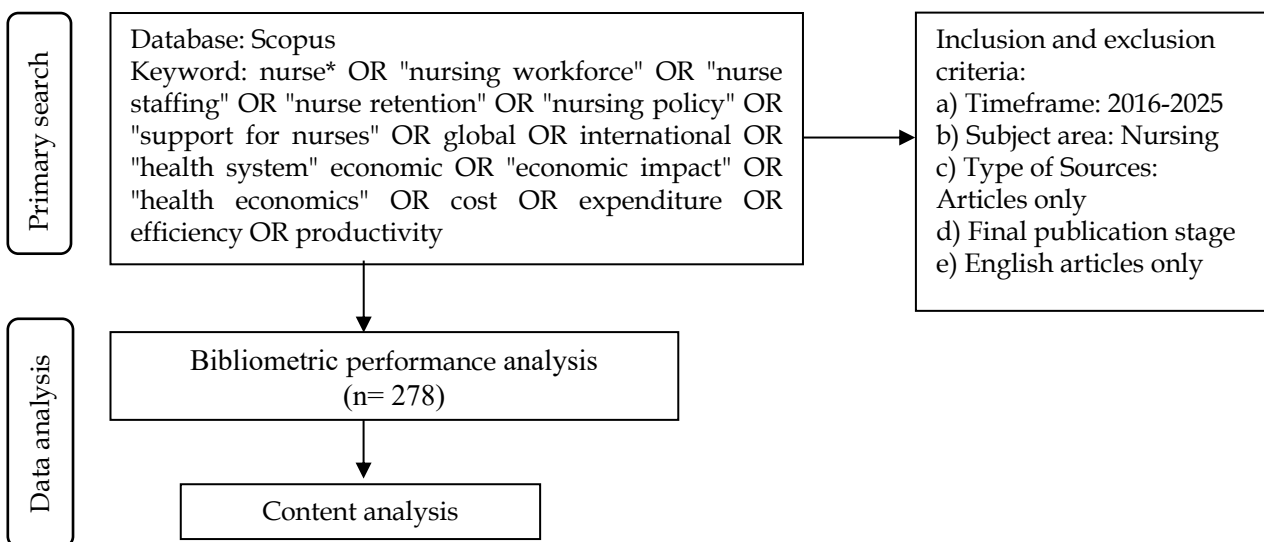
1. To examine the strategies adopted by various countries to support nurses
2. To determine the economic impact of supporting the nurses
3. To identify the key challenges in supporting the nurses
4. To explore policy frameworks implemented globally to enhance nurses' welfare

Search Strategy

Figure 1 below illustrates the study's methodological flow chart, showing the

systematic approach used for the bibliometric analysis. In this bibliometric analysis, the decision was made to rely solely on Scopus, as it ensures high-quality, consistent, and reliable data. This is crucial for facilitating precise trend analysis, impact evaluation, and citation tracking. While alternative databases were considered, Scopus emerged as the most suitable and commonly used option for bibliometric research because of its comprehensive coverage, well-structured information, and robust analytical capabilities. Consequently, Scopus was the primary data source for this analysis. The research involved a comprehensive search using SCOPUS as the primary data source used in this bibliometric analysis was Scopus database, where a comprehensive search was conducted using a combination of keywords related to the nursing workforce (nurse* OR "nursing workforce" OR "nurse staffing" OR "nurse retention" OR "nursing policy" OR "support for nurses" OR global OR international OR "health system" economic OR "economic impact" OR "health economics" OR cost OR expenditure OR efficiency OR productivity"). To ensure relevance and quality, the study applied specific inclusion and exclusion criteria: articles published between 2016 and 2025, focused on the nursing subject, written in English, at the final publication stage, and limited to journal articles only. Following the initial screening and selection process, a total of 278 articles were identified for analysis. Subsequently, a content analysis of those 278 articles was conducted to interpret key themes emerging from the literature.

Figure 1: Methodological Flow Chart



RESULTS

Bibliometric Analysis

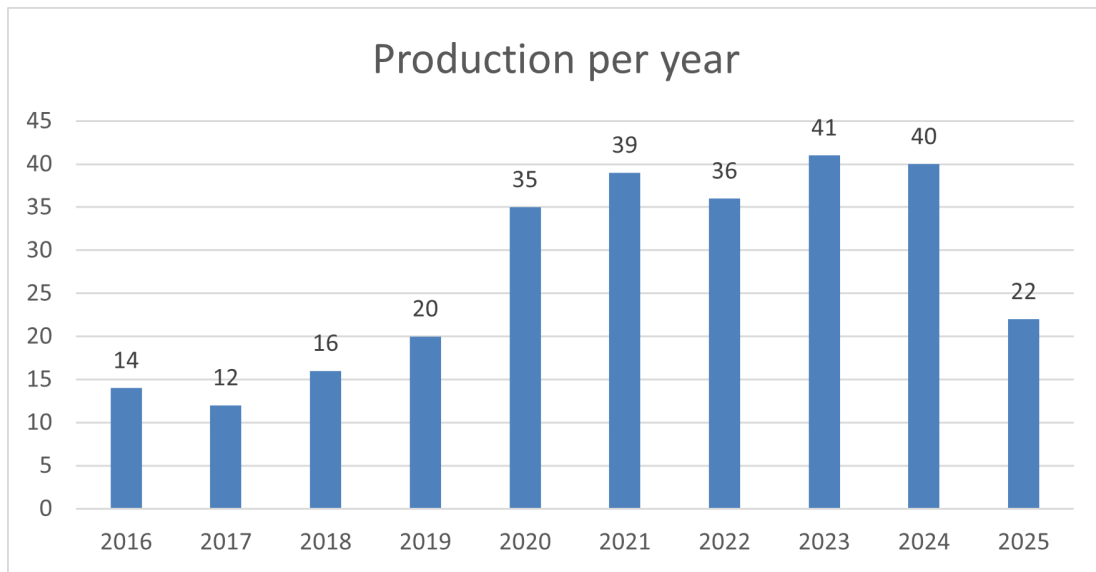
Content Analysis

The number of articles produced for each year was kept increasing, showing the relevancy of the topic (Figure 2). Although it was low from 2016 to 2018 with less than 20 articles, the number

steadily increased from 2020 until 2024.

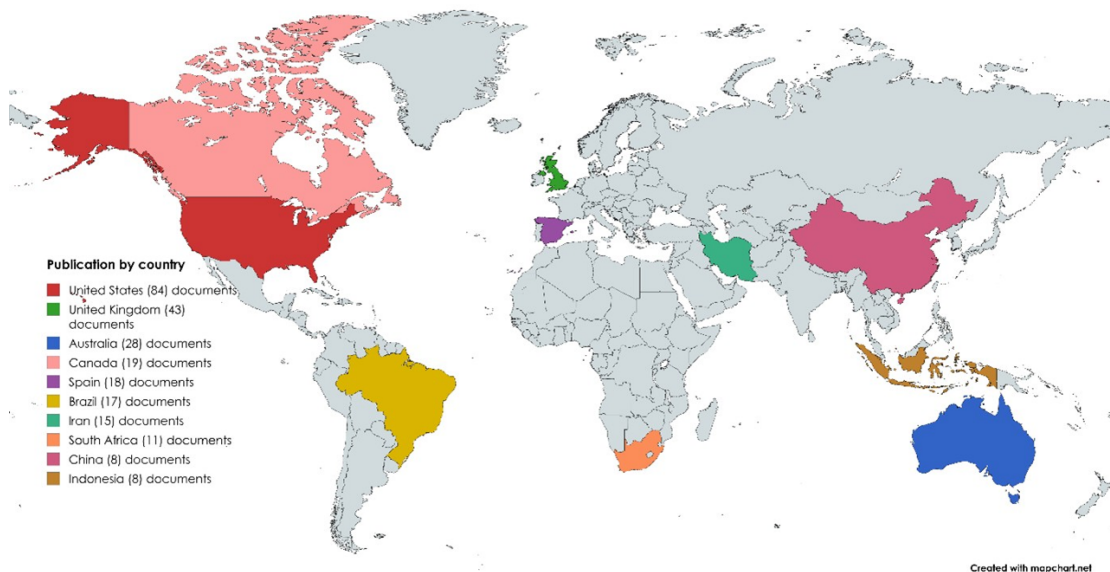
Figure 3 shows the number of articles published from each country, with the United States the highest at 84 articles, followed by the United Kingdom and Australia with 43 and 28, respectively. The other countries produced an ample number of articles including Canada (19), Spain (18), Brazil (17), and Iran (15).

Figure 2: Total Articles Production Count Per Year



Source: Data sourced from Biblioshiny (Bibliometrix R package) and visualized using Microsoft Excel

Figure 3: Publication of Articles by Country



Source: MapChart (<https://www.mapchart.net/world.html>) assessed on 4th May 2025

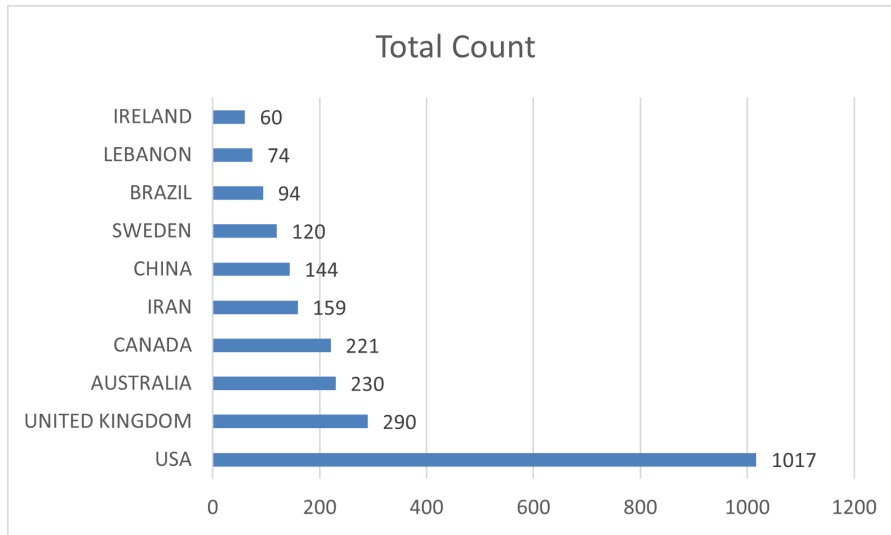
Bibliometric Performance Analysis

Most Influential Countries and Publications

The bar chart in **Figure 4** shows the top ten most cited countries based on total count. The USA has the highest number with 1,017 citations, far more

than any other country. The UK is next with 290, followed by Australia (230) and Canada (221). Other countries like Iran, China, and Sweden have between 120 and 160 citations, while Brazil, Lebanon, and Ireland have fewer than 100. This shows that most of the citations come from high-income countries, especially the USA.

Figure 4: Top Ten Most Cited Countries Based on Total Count

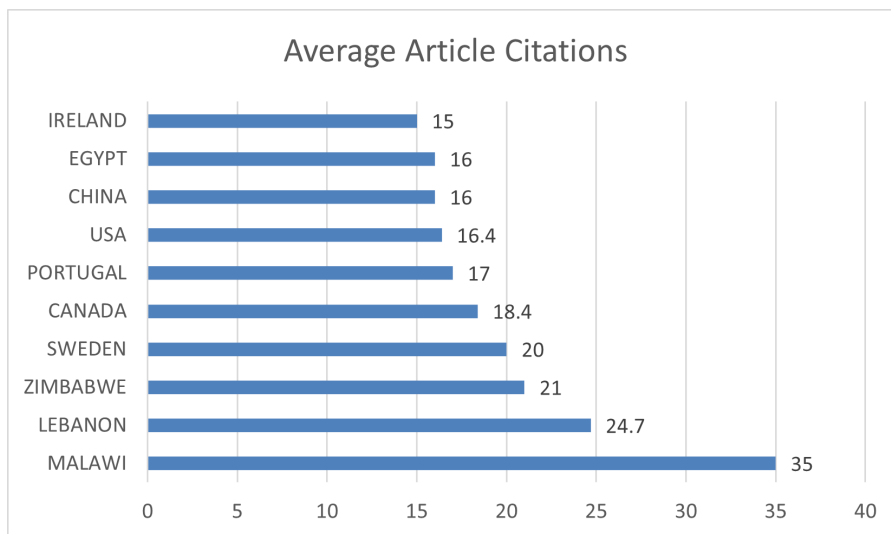


Source: Data sourced from Biblioshiny (Bibliometrix R package) and visualized using Microsoft Excel

The chart in **Figure 5** shows the average number of citations per article for different countries. Malawi has the highest average with 35 citations, followed by Lebanon with 24.7 and Zimbabwe with 21. Other countries like Sweden, Canada, and Portugal have averages between 17 and 20.

The USA, China, Egypt, and Ireland have the lowest averages, ranging from 15 to 16.4. This means that articles from Malawi and Lebanon are cited more often, suggesting they may have a stronger research impact compared to the others.

Figure 5: Top Ten Cited Countries Based on Average Articles Citation

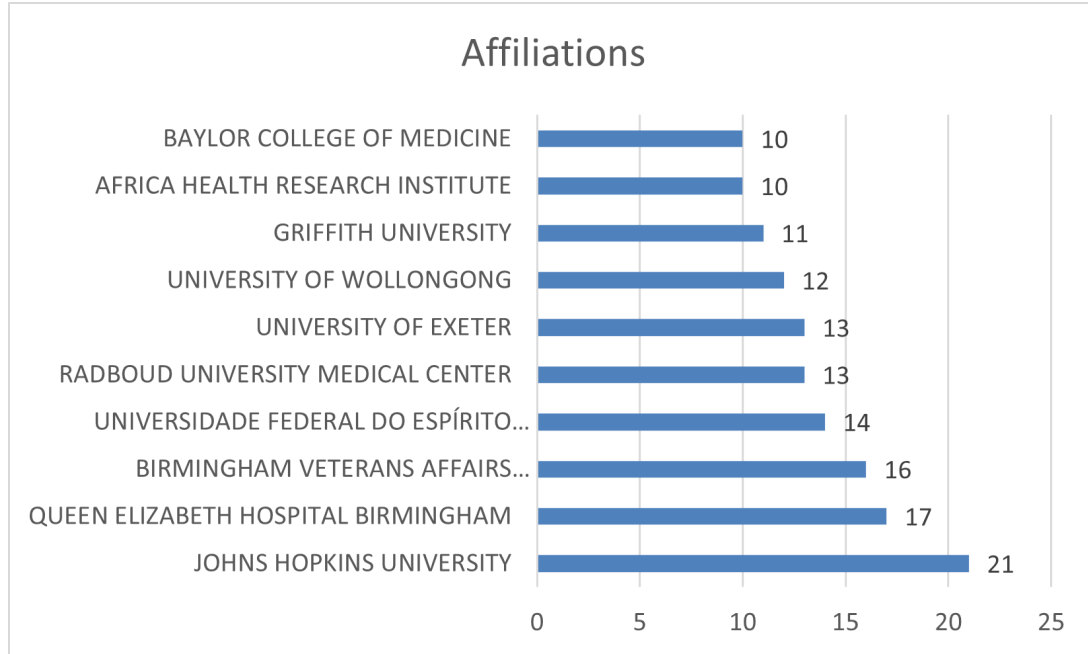


Source: Data sourced from Biblioshiny (Bibliometrix R package) and visualized using Microsoft Excel

The chart shows the number of articles linked to different institutions. Johns Hopkins University has the highest number with 21 articles (Figure 6). Queen Elizabeth Hospital Birmingham and

Birmingham Veterans Affairs follow with 17 and 16 articles. Other institutions, like Baylor College of Medicine and Africa Health Research Institute, have fewer articles which is ten.

Figure 6: Most Influential Institutions from Number of Citation Perspective



Source: Data sourced from Biblioshiny (Bibliometrix R package) and visualized using Microsoft Excel

Most Influential Journal and Authors

Based on the Table 1, BMC Nursing is the most relevant journal with the highest number of

articles which 31, followed by Journal of Advanced Nursing and International Nursing Review with 13 and 12, respectively. The other seven journals each recorded below ten articles.

Table 1: Top Ten Most Relevant Journals Based on Total Documents

Rank	Journal	Articles
1	BMC NURSING	31
2	JOURNAL OF ADVANCED NURSING	13
3	INTERNATIONAL NURSING REVIEW	12
4	BMJ OPEN QUALITY	9
5	JOURNAL OF CLINICAL NURSING	9
6	JOURNAL OF NURSING MANAGEMENT	7
7	JOURNAL OF NURSING SCHOLARSHIP	7
8	NURSE EDUCATION TODAY	7
9	INTERNATIONAL JOURNAL OF NURSING STUDIES	6
10	JOURNAL OF PAIN AND SYMPTOM MANAGEMENT	6

Source: Data sourced from Biblioshiny (Bibliometrix R package)

*Most Influential Articles***Table 2:** Most Influential Articles Published

	Author	Title	Journal	Total Citations
1	McCauley et al., 2020	Doctor of nursing practice (DNP) degree in the United States: Reflecting, readjusting, and getting back on track	Nursing Outlook	78
2	Rocque et al., 2016	The patient care connect program: Transforming health care through lay navigation	Journal of Oncology Practice	77
3	Calzone et al., 2018	The Global Landscape of Nursing and Genomics	Journal of Nursing Scholarship	75
4	Gebregziabher et al., 2020	The relationship between job satisfaction and turnover intention among nurses in Axum comprehensive and specialized hospital Tigray, Ethiopia	BMC Nursing	73
5	Poortaghi et al., 2021	Exploring nursing managers' perceptions of nursing workforce management during the outbreak of COVID-19: a content analysis study	BMC Nursing	71
6	Yifan et al., 2020	Symptom Cluster of ICU Nurses Treating COVID-19 Pneumonia Patients in Wuhan, China	Journal of Pain and Symptom Management	66
7	Devries et al., 2017	Implementing an overdose education and naloxone distribution program in a health system	Journal of the American Pharmacists Association	61
8	Alameddine et al., 2021	Factors Associated With the Resilience of Nurses During the COVID-19 Pandemic	Worldviews on Evidence-Based Nursing	60
9	Gardulf et al., 2016	The Nurse Professional Competence (NPC) Scale: Self-reported competence among nursing students on the point of graduation	Nurse Education Today	56
10	Rosa et al., 2020	Leveraging nurse practitioner capacities to achieve global health for all: COVID-19 and beyond	International Nursing Review	51

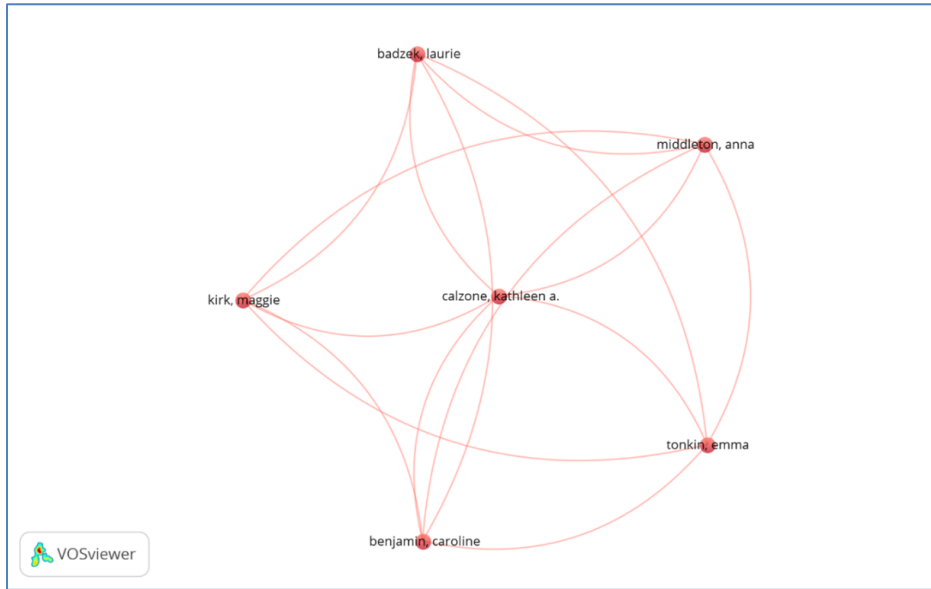
Source: Data sourced from Scopus

Science Mapping

The co-authorship network reveals the collaborative relationships among researchers

(Figure 7). The network shows a concentration of larger nodes at the centre, indicating authors with extensive publications or wide-ranging collaborations. These central figures are likely key contributors in the field.

Figure 7: Co-Authorship Analysis

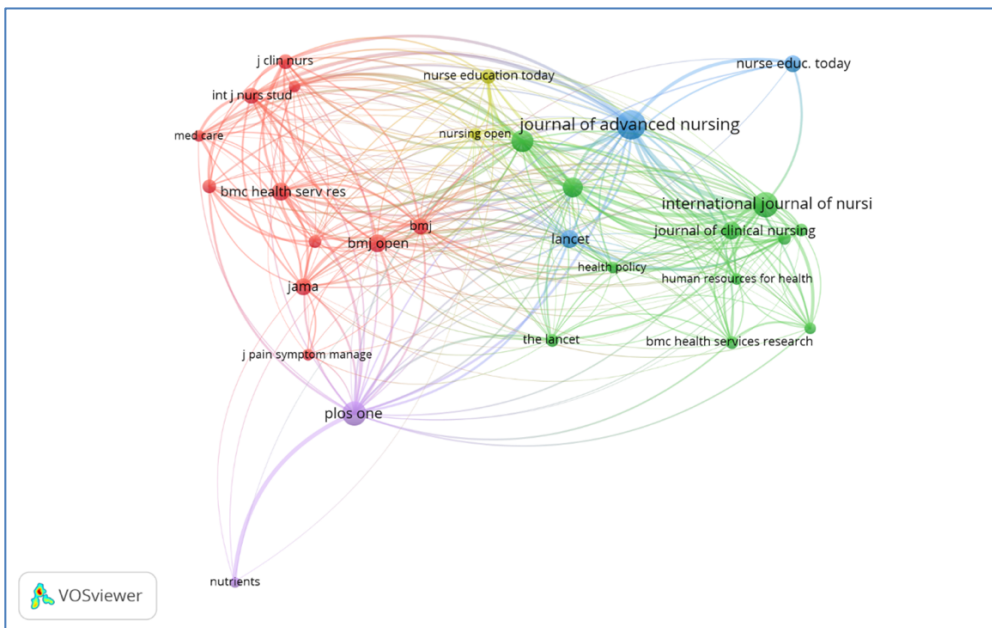


Source: Analysed result from VOSviewer version 1.6.20

The co-citation analysis of sources identifies the intellectual structure of the field by examining how frequently journals are cited together (Figure 8). The map consists of several distinct clusters, each representing a set of journals that are

commonly co-cited, thus reflecting shared academic influence or thematic alignment. Larger nodes in the network denote highly co-cited sources, indicating their significant influence in shaping the field.

Figure 8: Co-Citation Source Analysis

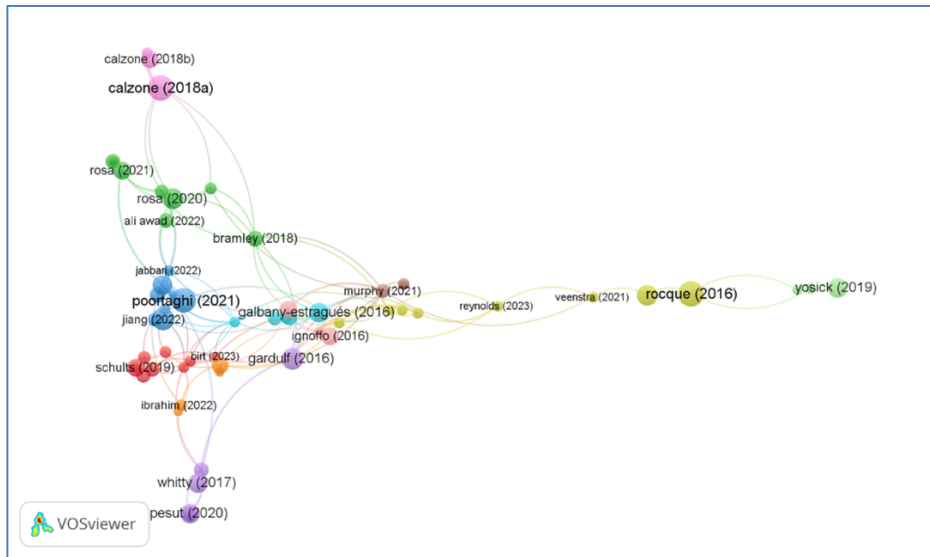


Source: Analysed result from VOSviewer version 1.6.20

The bibliographic coupling map visualizes the thematic connections among documents based on shared references (Figure 9). Distinct clusters,

represented by various colours, highlight the grouping of articles that cite similar sources, indicating shared research focuses.

Figure 9: Bibliographic Coupling

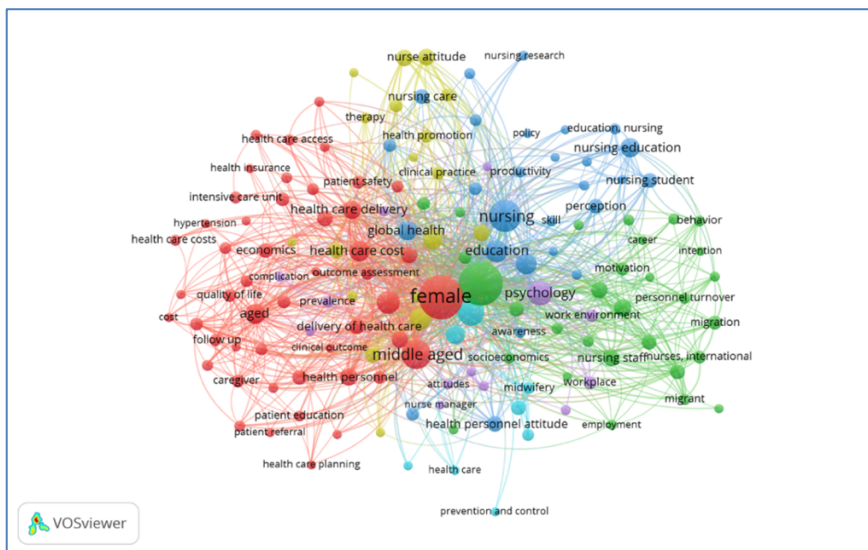


Source: Analysed result from VOSviewer version 1.6.20

The visualizations provided are bibliometric network maps generated using VOSviewer (Figure 10). These maps analyse the co-occurrence of keywords in scientific literature related to health and nursing topics. The first image represents a co-occurrence network visualization, while the second adds a temporal overlay to indicate the average publication year associated with each keyword. In the co-occurrence map, the term “female” appears as the most central and frequently occurring keyword, indicating its strong presence across multiple research themes.

Other highly connected terms include “middle aged,” “nursing,” “education,” “psychology” and “health care delivery.” These keywords are grouped into distinct color-coded clusters, each reflecting specific thematic concentrations. For instance, the red cluster emphasizes topics such as economics, aging and quality of life, the green cluster includes themes like behaviour, nursing workforce issues, and migration; the blue cluster centres on nursing education and perception; and the yellow cluster focuses on nurse attitudes and health promotion.

Figure 10: Keyword Co-Occurrence Networks

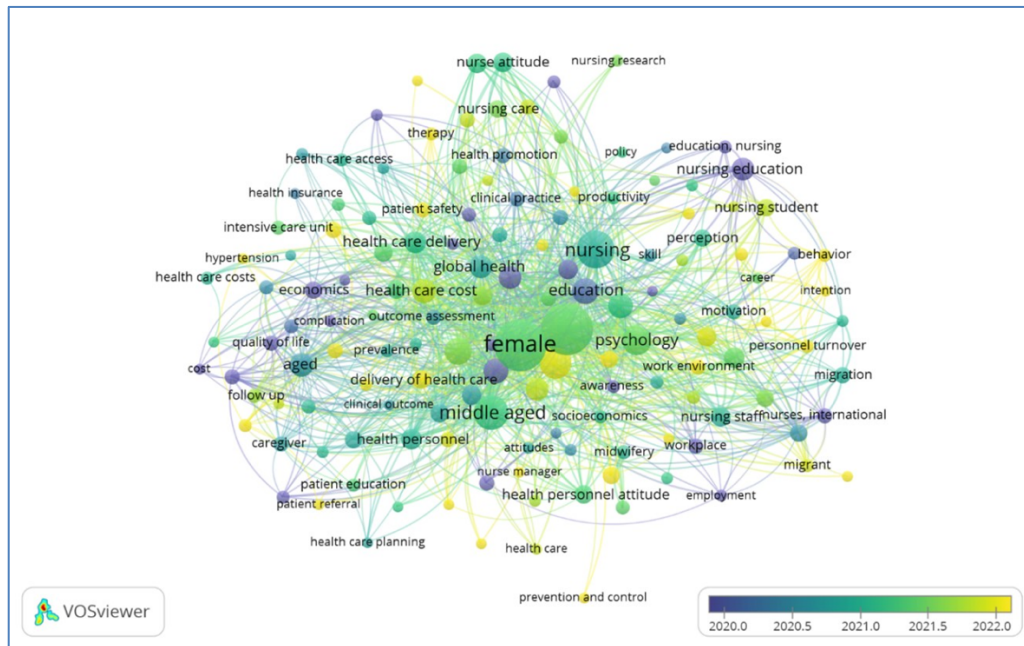


Source: Analysed result from VOSviewer version 1.6.20

The overlay visualization incorporates a temporal element, highlighting changes in research emphasis over time (Figure 11). Keywords shaded in darker tones such as purple and blue for example, “aged,” “economics” and “education” were more prominent in earlier years, primarily around 2020. In contrast, keywords displayed in green and yellow tones like the “prevention and control,” “migration”

and “health promotion” indicate newer areas of focus in the literature, typically emerging around 2021 to 2022. In summary, the analysis shows that while traditional themes like gender, aging and healthcare access remain central in health and nursing research, there is a noticeable shift toward newer topics such as public health prevention, global workforce dynamics and health promotion in recent studies.

Figure 11: Overlay Visualization Over the Years



Source: Analysed result from VOSviewer version 1.6.20

Theme 1: Strategies for Nursing Workforce Development

Across the globe, countries are implementing diverse strategies to bolster their nursing workforce in response to increasing healthcare demands, ageing populations, and persistent nursing shortages (3). These approaches typically include enhancing the capacity of nursing education systems, offering scholarships and incentives to attract new entrants, and investing in continuous professional development (4). Nations such as Canada and Australia have significantly increased funding for nurse education and introduced targeted recruitment schemes, particularly for rural and underserved areas. Similarly, India and the Philippines have become major global suppliers of nursing professionals by scaling up their training institutions to meet international accreditation standards, effectively positioning themselves as key players in the global nursing labour market (5,6).

The United Arab Emirates, for instance, continues to rely heavily on foreign-trained nurses, particularly from developing countries, highlighting the need for equitable international workforce policies (6). Host nations can ease this transition through effective integration strategies. For example, Indian nurses working abroad reported smoother adaptation when orientation programs and workplace support systems were in place, showing the value of structured training and managerial involvement (6).

Ireland has pursued specific retention measures within Europe to stabilize its nursing workforce. These include restoring nurse pay, lifting employment restrictions, enhancing compensation for student nurses, reducing social insurance contributions and increasing the number of permanent contracts. Additionally, Ireland has introduced inclusive benefits such as paid maternity and paternity leave that apply even when foreign-trained nurses return to their home countries temporarily an initiative likely to improve long-term retention (7).

Globally, aligning national nursing workforce policies with broader public health objectives has yielded healthcare and economic benefits. Sufficient nurse staffing has been linked to better patient outcomes, reduced turnover, and decreased healthcare costs, particularly in outpatient settings (8). As healthcare systems strive to meet the UN Sustainable Development Goals, particularly in ensuring universal health and well-being, substantial investments in the education and sustainability of the nursing workforce will be essential. It includes preparing nurses to address emerging challenges such as climate change and evolving healthcare needs (9).

Theme 2: Nurses' Role in System Resilience and Economy

Nurses are the cornerstone of healthcare systems worldwide, particularly during heightened stress such as pandemics or natural disasters. Their contributions span beyond hospital walls, encompassing essential services like mental health care, maternal and child health, chronic disease management, and preventive care. Importantly, the economic impact of nursing is becoming more widely acknowledged.

For example, during the COVID-19 pandemic, countries such as South Korea and Finland, which had well-developed community nursing frameworks, managed more agile and successful responses to public health emergencies. This is paralleled in the World Health Organization's findings, which suggest that each dollar spent on nursing yields a return of up to four dollars in improved health outcomes and economic productivity. Consequently, robust support for nursing is an ethical responsibility and a strategic economic policy that strengthens national resilience and human capital.

Despite their essential role, nurses have faced economic and systemic constraints. For instance, in Spain, labour market reforms during financial downturns significantly impacted the nursing workforce by limiting replacement hiring for retirees, reducing contract offers, and increasing job insecurity, particularly during off-peak seasons (5). Similarly, in South Africa, nurses reported that the rising cost of living—driven by increased electricity tariffs and the price of diesel and other power-generating equipment which exacerbated financial strain, indirectly affecting workforce stability and morale (6). These examples underline the need for economic policies safeguarding nurses' welfare, ensuring their continued contribution to public health and

national economic strength.

Theme 3: Economic and Ethical Implications

The international migration of nurses has advantages and disadvantages, creating a nuanced dynamic between opportunity and systemic vulnerability for the countries involved. For destination countries such as the United States, the United Kingdom, and Germany, recruiting foreign-trained nurses helps address chronic staffing shortages and bolsters their healthcare systems. These nurses, in turn, gain access to improved wages, safer working environments, and better career pathways. There is another factor as a reason for migration, including the policies for their qualification, the ease to get the permit and others. However, this movement of skilled labour can severely compromise healthcare delivery in source countries such as the Philippines, India, and Nigeria, where health systems are already under strain.

This process, often described as a "brain drain," leads to critical workforce gaps in sending nations, intensifying health disparities across regions. Although remittances from migrant nurses may contribute economically to their home countries, they seldom offset the long-term costs of losing highly trained professionals, especially when educated at public expense.

In South Africa, for instance, the domestic production of nurses once met the nation's healthcare needs. However, in the mid-1990s, restructuring policies led to the closure or merger of several public nursing colleges, triggering a substantial decline in local nurse training (6). As a result, the country now contends with both domestic shortages and outward migration of its health professionals.

Economic volatility further complicates the situation. Indian nurses working in South Africa, for example, reported financial difficulties related to the declining ZAR/INR exchange rate. Many sought additional income through overtime shifts, only to find those options limited or taxed at unexpectedly high rates. Management teams struggled to offer sufficient overtime due to financial and staffing constraints, occasionally risking reliance on unskilled labour during high demand periods (6).

To address these issues, nations are exploring various mitigation strategies, including ethical recruitment codes, bilateral agreements and

service bonds that require nurses to work domestically after training. Still, reconciling the individual's right to migrate with the societal need for healthcare equity remains a profound ethical and economic challenge.

Theme 4: Policy Frameworks Supporting Nurses

Many countries now recognise the importance of supporting nurses through comprehensive policy frameworks. Globally, WHO's "Strategic Directions for Nursing and Midwifery (2021–2025)" provides a blueprint for countries to align their national policies with global best practices, focusing on education, leadership and job creation (10). For education, it was suggested for many countries need to invest in expanding domestic nurse education, developing faculty and improving infrastructure and technology to support workforce growth (10). Similarly, the Philippines passed the Republic Act No. 9173 (Philippine Nursing Act), which ensures the rights of nurses, supports continuous education and defines nurse-patient ratios. High-income countries like the UK have institutionalised nursing leadership within health ministries, allowing nurses to contribute to national health policy.

Meanwhile, in Canada, nurse practitioners are being integrated into primary care models to improve access and reduce physician shortages. On the global stage, campaigns such as "Nursing Now" and "Year of the Nurse and the Midwife" (2020) have raised international awareness, leading governments to increase funding and prioritise nursing in healthcare development plans. This campaign should be deployed in every country to show the appreciation to the nurses a well. These frameworks are essential to institutionalising long-term support and improving the status and contribution of nurses within national health systems.

DISCUSSION

Strategies for Nursing Workforce Development

In response to the global shortage of nurses, estimated by the WHO to reach 4.5 million by 2030, countries have adopted diverse strategies to expand and sustain their nursing workforce. One of the primary challenges contributing to this shortage is the high turnover rate, which compromises patient safety, increases stress among remaining staff and drives up costs due to repeated recruitment and training efforts (11). To address this, many countries have focused on

strengthening nurse education, improving work conditions, and fostering professional development. In addition, studies show that nurse-led preventive care can save money and improve health. It leads to better patient satisfaction, healthier habits, fewer hospital visits, and more confident patients managing their own health (12).

For example, Japan initiated the Japan-Indonesia Economic Partnership Agreement (JIEPA) to recruit qualified nurses from Indonesia by setting rigorous eligibility criteria. This move helps Japan address its aging population challenges while utilizing Indonesia's surplus of trained nurses (13). Similarly, high-income countries such as the UK, Canada and Australia have adopted skilled migration programs to attract foreign-trained nurses. However, such strategies raise ethical concerns, particularly when recruitment targets nations already struggling with their own workforce shortages, such as the Philippines. In response, the WHO Global Code of Practice guides ethical international recruitment, promoting fairness and mutual benefit. It being aid that improving the number of nurse and their educational level manage to improve the patient readmissions and mortality rates (12).

Countries Strategy

Countries worldwide have adopted a variety of approaches to strengthen their nursing workforce, including expanding nursing education, increasing enrolment of both domestic and international students, recruiting more men into the profession and actively sourcing nurses from abroad (14). To support migrant nurses and ensure equity in the workplace, many health systems have implemented anti-racism and anti-discrimination policies. At the same time, initiatives to build cultural awareness and promote intercultural learning among local staff have helped reduce bias and foster inclusive, supportive work environments (14). Social integration has been further supported through provisions such as communal facilities and financial reimbursements, improving migrant nurses' adjustment and their perception of host organizations (14). However, challenges remain—internationally educated nurses often struggle to fully apply their expertise due to misunderstandings or limited recognition of their qualifications by employers and recruiters (15).

In response, countries like Canada have developed regional training hubs to enhance postgraduate education and research, offering

incentives to retain nurses in remote areas and coordinating immigration policy to better align with labour needs (16). The United States has increased funding for nursing education under the Affordable Care Act, while Costa Rica has pursued a comprehensive national strategy including community-university partnerships and indigenous workforce development (16). Argentina has focused on strengthening public university training and providing financial support through scholarships and benefits like pensions (16). On a global level, circular migration models allow nurses to gain international experience and training before returning to their home countries, contributing acquired skills to local health systems and creating a mutually beneficial exchange between nations (16).

Nurses' Role in System Resilience & Economy

Nurses play a critical role in enhancing the resilience of health systems, especially in times of crisis, as evidenced during the COVID-19 pandemic. Countries like New Zealand and South Korea, which had previously invested in community health nursing and primary care, were able to respond more effectively to the pandemic. These nations demonstrated that strong nursing systems are foundational to pandemic preparedness, chronic disease management and public health.

In contrast, countries like Iran experienced significant strain due to inadequate nurse staffing, highlighting the urgency of workforce investment (17). Economically, nurses deliver strong returns on investment through improved patient outcomes, reduced hospital stays and enhanced system efficiency (18,19). Specifically when the nurses doing a nursing intervention that improves their health. By both reducing complications and shortening hospital stays, nursing practices play a key role in meeting patient care goals while also supporting the financial stability of today's healthcare systems (18). Furthermore, because nursing is a female-dominated profession, investing in it promotes gender equity and economic participation, thereby supporting broader social development goals.

Economic Effect

The economic and ethical consequences of global nurse migration are complex. A major concern is the "brain drain" phenomenon, where trained nurses from low- and middle-income countries (LMICs) migrate to high-income nations for better salaries and work conditions. While migration can

offer financial benefits to individuals, it often results in healthcare gaps in the source countries, which have invested heavily in training these professionals (20).

For example, the Philippines, a major exporter of nurses, bears the cost of educating healthcare workers who often leave to serve abroad, leaving rural and underserved areas in need. At the same time, destination countries may not be fully prepared to integrate foreign nurses, leading to job dissatisfaction, cultural misunderstandings and discrimination based on language, skillset, or cultural norms (20). In contrast, Indonesian nurses working in Japan through JIEPA report high satisfaction due to strong support systems and professional development opportunities (13). On the other hand, imported nurses in South Africa from India face challenges with low job satisfaction and retention due to inadequate integration (6). These retention and turnover affecting the economy of health care organizations as there were increased in cost of separation and recruitment (11). Meanwhile, when a country is having an economic crisis, there was an increase in the migration of health professionals such that occur in Spain as their income were affected by that⁵. Meanwhile in Ireland, it was suggested to give the older nurse incentive such a pension to make sure they remain at work, however, due to some reason including underfunded health services, it was denied (7). This shows the importance of having a stable economy may help in increase the retention of nurses.

More broadly, undervaluation of nurses is a global issue. Many are underpaid, overworked and poorly protected in the workplace. These issues, compounded by gender inequity, contribute to high burnout and attrition. Ethical policy responses must include fair pay, safe working environments and inclusive migration support systems.

Policy Frameworks Supporting Nurses

Robust policy frameworks are vital for sustaining a motivated and protected nursing workforce. Effective policies go beyond legislation, encompassing areas such as fair compensation, clear scopes of practice, safe workplaces and the right to collective bargaining. Countries like Sweden and Norway provide models for such comprehensive support, where nurses enjoy professional autonomy, participation in policy development and strong union representation. These features translate into higher job satisfaction and reduced turnover.

In contrast, many LMICs still lack legal and institutional mechanisms to safeguard nurses' rights. As a result, nurses often face harsh conditions, limited upward mobility and systemic gender-based inequities. Integrating gender-sensitive policies is essential for long-term workforce sustainability. Some countries are experimenting with context-specific strategies to improve retention. In Ethiopia's Tigray region, reforms such as business process reengineering, improved transfer policies, performance-based incentives and health financing changes have been implemented (11). However, these efforts alone have proven insufficient, underscoring the need for holistic, long-term investments in nurse well-being.

Bilateral agreements like JIEPA offer structured, ethical international recruitment. Indonesian nurses must pass Japan's licensing exams and language tests before deployment, ensuring quality care while addressing labour gaps (13). Yet, integrating foreign nurses also requires cultural orientation to mitigate challenges related to unfamiliar practices and patient expectations (7). Importantly, non-wage incentives such as secure housing can improve nurse retention. In South Africa, nurses expressed willingness to co-invest in communal housing, reflecting how practical, co-designed interventions can enhance job satisfaction and workforce stability (6).

LIMITATIONS

This study has some limitations. First, it only used the Scopus database, so important research from other databases like PubMed or Web of Science may have been missed. Second, only articles written in English were included, which might have excluded valuable studies published in other languages. Third, the analysis only covered publications from 2016 to 2025, so it may not reflect newer trends or policy changes.

CONFLICT OF INTEREST

The author declares no conflict of interest in this study.

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AUTHOR CONTRIBUTIONS

The sole author was responsible for the conception and design of the study, data collection, analysis, interpretation of results, drafting of the manuscript and approval of the final version for submission.

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