

İleri Hemşirelik Uygulamalarında Çeşitlilik: Bir Bibliyometrik İnceleme

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ÖZ

Amaç: Bu çalışma, İleri Uygulama Hemşireliği (APN) ile ilgili bibliyometrik bir analiz gerçekleştirerek, APN tanımlarının farklılıklarını incelemek ve değerlendirmek için yapılmıştır.

Yöntem: Web of Science veritabanında "Advanced Practice Nurse", "Clinical Nurse Specialist" ve "Nurse Practitioner" anahtar kelimeleri ile yapılan bir arama sonucunda 8.770 çalışmaya ulaşılmıştır. Son filtrelemeler sonucunda 2021-2023 yılları arasında yayımlanan 984 çalışma seçilmiştir. Veri analizi için RStudio Bibliometrix ve Vosviewer 1.6.19 programları kullanılmıştır.

Sonuçlar: Toplam 984 belgede, farklı ülkelerden gelen 124 farklı kaynaktan toplam 984 belge incelenmiştir. Tanımlardan en çok APN (%27,08), pratisyen hemşire (%18,75) kullanılmıştır. 2021'de 361 belge yayımlanırken, 2022'de bu sayı 407'ye yükselmiştir. Amerika Birleşik Devletleri 644 makale ile dominant pozisyonda bulunurken, en çok atf alan dergi "Journal of the American Association of Nurse Practitioners" olmuştur. Anahtar kelimelerde "Care", "Impact", ve "Education" öne çıkmaktadır.

Tartışma ve Öneriler: İleri hemşirelik uygulamaları birçok bölgede farklı olarak isimlendirilmiştir. Bu durum, uluslararası alanda birliktelik ve standardizasyon eksikliği oluşturmakta ve bu alandaki etkinliği azaltmaktadır. Standart bir dil birliği sağlanmalı ve Amerika dışında farklı ülkelerde de bu konuda literatüre katkı sağlayacak araştırmacılar teşvik edilmelidir.

Anahtar Kelimeler: Bibliyometrik Analiz, İleri Uygulama Hemşireliği (APN), Pratisyen Hemşire (NP), Tanım Çeşitliliği, Yoğun Bakım Üniteleri

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Advancements in Nursing Practices Diversity: A Bibliometric Analysis

ABSTRACT

Objective: This study aimed to conduct a bibliometric analysis of Advanced Practice Nursing (APN), examining and evaluating differences in APN definitions.

Methods: A search was conducted in the Web of Science database using the keywords "Advanced Practice Nurse," "Clinical Nurse Specialist," and "Nurse Practitioner" resulting in 8,770 studies. After further filtering, 984 studies published between 2021 and 2023 were selected for the analysis. RStudio Bibliometrix and Vosviewer 1.6.19 programs were used for data analysis.

Results: In total, 984 documents from 124 different sources across various countries were examined. The most frequently used terms in the definitions were APN (27.08%) and nurse practitioners (18.75%). The number of publications has increased from 361 in 2021 to 407 in 2022. The United States held a dominant position with 644 articles, and the most cited journal was the 'Journal of the American Association of Nurse Practitioners'. Key terms such as 'Care,' 'Impact,' and 'Education' stood out.

Discussion and Recommendations: Advanced nursing practices are labeled differently in various regions, creating a lack of international unity and standardization and reducing effectiveness in the field. Standard language unity should be established and researchers contributing to the literature in this field outside the United States should be encouraged.

Key Words: Advanced Practice Nursing (APN), Bibliometric Analysis, Intensive Care Units, Diversity of Definitions, Nurse Practitioner (NP)

1. INTRODUCTION

Healthcare units where critically ill patients are treated, adopting a high-tech and multidisciplinary approach, are characterized by the adoption of a multidisciplinary approach. As a result, the competencies of healthcare professionals working in these units can directly influence patients' treatment processes and outcomes. The quality of patient care in units where Advanced Practice Nurses work is closely related to the quality of nursing services (Gerkuş & Sivrikaya, 2020). In clinical settings, there are numerous factors that positively impact patient outcomes, and in recent years, Advanced Practice Nurses have held a significant position among these factors (Miranda Neto et al., 2018). The International Council of Nurses (ICN) defines Advanced Practice Nurses as "a registered nurse who has acquired expert knowledge, complex decision-making skills, and clinical competencies for expanded practice, shaped by the context or country in which recognized by practice authority" (Bryant-Lukosius et al., 2016). Advanced Practice Nurses are highly specialized individuals in nursing education and practice. These nurses possess in-depth knowledge and skills in various areas, including clinical assessment, treatment planning, research, and education. Particularly in intensive care units, the clinical decision-making abilities of Advanced Practice Nurses have a positive impact on patient outcomes (Bryant-Lukosius et al., 2016). Due to the complex and critical health conditions of patients, the expertise and competencies of Advanced Practice Nurses hold great significance. These nurses collaborate effectively with multidisciplinary healthcare teams to optimize patient care processes and improve patient outcomes. Furthermore, the presence of Advanced Practice Nurses in intensive care units plays a crucial role in patient safety, quality improvement, and the standardization of clinical practices (Sánchez-Gómez et al., 2019).

Advanced Practice Nurses adopt a comprehensive approach to meet both the physiological and psychological needs of patients. This approach can help patients better understand their treatment processes, improve adherence to treatment, and ultimately achieve more positive health outcomes. Additionally, Advanced Practice Nurses facilitate effective collaboration with other healthcare professionals, enabling more coordinated and efficient patient care processes (Schober et al., 2020). This study focuses on the role of

Advanced Practice Nurses and their impact on patient outcomes. Additionally, it will emphasize the nomenclature of Advanced Practice Nurses in different countries and the potential implications of these variations. The purpose of this review is to help us better understand the significance of Advanced Practice Nurses and their potential contributions in this field, as well as to examine how they are defined at the international level and their contributions to the literature.

1.1. Advanced Practice Nurses

Advanced Practice Nurses originated over 40 years ago in Canada and the United States and have seen significant development in the United Kingdom. More recently, they have been implemented in Ireland, Germany, Australia, New Zealand, China, and Nigeria. The need and interest in implementing Advanced Practice Nurses in low- and middle-income countries have been well-documented. Over 70 countries are exploring how to incorporate Advanced Practice Nurses into their healthcare practice settings. The International Council of Nurses (ICN) suggests that Advanced Practice Nurses should ideally have advanced education, preferably at the master's level, acquired through recognized postgraduate programs for this role. Additionally, they should obtain licensure, certification, and registration from the regulatory bodies of professional practice (Miranda Neto et al., 2018; Sánchez-Gómez et al., 2019).

ICN identifies seven clinical activities within the scope of Advanced Practice Nurses:

1. Autonomy to prescribe
2. Autonomy to request medical tests and devices
3. Autonomy to for diagnosis or advanced health assessment
4. Autonomy to specify medical treatments
5. Responsibility for a caseload of clients
6. Autonomy to refer and discharge clients
7. Initial point of contact (Miranda Neto et al., 2018).

Advanced Practice Nurses are referred to in various ways, including: 1.

1. Advanced Nursing Practice (ANP)
2. Advanced Practice Nurse (APN)
3. Advanced Practice Nursing (APN)
4. Advanced Practice Registered Nurse (APRN)
5. Clinical Nurse Specialist (CNS)
6. Nurse Practitioner (NP) (Schober et al., 2020).

Following advanced analysis, six primary Advanced Practice Nurses roles have been identified: Nurse Practitioner, Clinical Nurse Specialist, Nurse Midwife, Nurse Anesthetist, Nurse Consultant, and Case Manager Nurse. The analysis indicates that the APN role (27.08%) is clearly dominant, followed by Nurse Practitioners (18.75%).

Advanced Practice Nurses play a critical role in intensive care quality and safety. Intensive care units are among the most critical and complex areas of patient care, making quality and safety a top priority for healthcare providers. These units require a high level of expertise and coordination to save lives and optimize the health of patients. Quality and safety in intensive care encompass numerous factors that directly impact patient outcomes. Advanced Practice Nurses, as professionals who have completed the highest level of nursing education, hold a crucial position in improving quality and safety in this field (Woo et al., 2017). Advanced Practice Nurses working in intensive care units stand out with their advanced education and skill levels. These professionals, often graduates of nursing graduate programs, have the ability to provide quality and safe care by combining advanced clinical skills and theoretical knowledge. This education specializes nurses in complex patient care, clinical decision-making, and leadership. Furthermore, Advanced Practice Nurses training equips them with in-depth knowledge about providing care in compliance with quality standards, which contributes to patients receiving the best outcomes in intensive care units. Patient safety is a cornerstone of intensive care, and Advanced Practice Nurses adopt a variety of strategies and approaches to enhance patient safety. For example, Advanced Practice Nurses conduct clinical assessments to detect and prevent potential risks early. They also contribute to improving the knowledge and skills of other healthcare professionals in patient safety through education and mentorship.

The achievements of Advanced Practice Nurses play a significant role in enhancing the quality of intensive care units (Woo et al., 2017).

1.2. The Contribution of Advanced Practice Nurses to Patient Recovery and Survival Rates

The clinical assessment and decision-making abilities of Advanced Practice Nurses can have a positive impact on patient outcomes, potentially enhancing the quality of care patients receive. They can improve the quality of care patients receive, and in particular, the ability of Advanced Practice Nurses to assess and monitor patients can aid in the early recognition and treatment of complications. Furthermore, the expertise of Advanced Practice Nurses in patient and family education can contribute to better outcomes for patients in the post-intensive care period. Research on the effectiveness of Advanced Practice Nurses indicates a positive impact on patient outcomes. In particular, the contribution of Advanced Practice Nurses to the clinical assessment and treatment of patients can expedite the recovery process and enhance survival rates. One study found that Advanced Practice Nurses improved clinical outcomes by reducing in-hospital mortality and the need for more intensive care transfers. However, the same study noted that these clinical benefits were accompanied by longer hospital stays and higher costs per admission (Patel et al., 2021). Additionally, the effective communication skills of Advanced Practice Nurses within a multidisciplinary team can improve the comprehensiveness and quality of patient care. In another study conducted in 2017, it was concluded that the use of Advanced Practice Nurses in emergency departments reduced the length of stay, resulted in cost savings, decreased the length of stay in intensive care units, and improved patient satisfaction (Woo et al., 2017). Furthermore, the importance of using Advanced Practice Nurses in the management of patients with chronic conditions was established in a 2019 study in Spain. This study found improvements in the control of diabetes and hypertension, as well as related risk factors (Sánchez-Gómez et al., 2019). Another study highlighted a significant amount of international evidence regarding the positive impact of Advanced Practice Nurses roles on patient health outcomes, care quality, and healthcare system efficiency. It concluded that Advanced Practice Nurses could meet the needs of countries

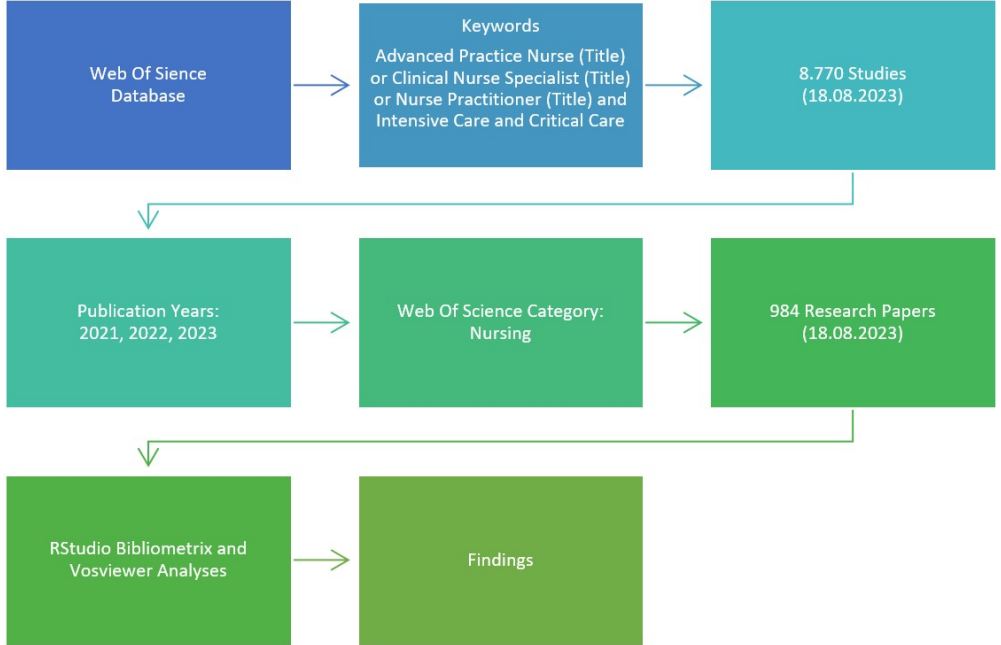
in Latin America and the Caribbean to enhance universal health coverage and access to healthcare (Bryant-Lukosius et al., 2017).

1.3. The Impact of Advanced Practice Nurses on Staff, Patient, Economic and Social Factors

Advanced Practice Nurses have a positive impact on the perception of care quality by patients and their families. In particular, the clinical skills of Advanced Practice Nurses, as well as their ability to provide patient education and family support, can significantly enhance the care experiences of patients and their families. People worldwide have the right to receive high-quality, safe, and affordable healthcare. Advanced Practice Nurses are one of the solutions to make this a reality (Schober et al., 2020). Employee job satisfaction and contentment are increased through the contributions of Advanced Practice Nurses. Advanced Practice Nurses can act as bridges between team members, promoting teamwork, and supporting the clinical decision-making abilities of staff (Bryant-Lukosius et al., 2016). Nurses can collaborate more effectively with the support of Advanced Practice Nurses clinical skills and knowledge. Advanced Practice Nurses can contribute to the professional development of nurses by providing support for their clinical practice and mentoring them. The impact of Advanced Practice Nurses on healthcare can be assessed through cost-effectiveness analyses. Advanced Practice Nurses can make positive contributions to healthcare economics by improving patient outcomes and enhancing the efficiency of healthcare services. Advanced Practice Nurses are also valuable in terms of social factors and societal contributions. They contribute to society by enhancing public health and addressing patients' social needs. Advanced Practice Nurses can play a crucial role in the development and implementation of healthcare policies (Woo et al., 2017).

2. METHOD

Flowchart of the Search Strategy



Advanced Practice Nurses has been referred to in at least six different ways in many countries, such as APN and NP. When conducting a search in the Web of Science database with the search terms 'Advanced Practice Nurse (Title) or Clinical Nurse Specialist (Title) or Nurse Practitioner (Title) and Intensive Care and Critical Care', as of August 18, 2023, we found a total of 8,770 studies. After filtering these studies by publication years 2021, 2022, and 2023, as well as by the Web of Science category 'Nursing', we narrowed it down to 984 studies.

Following these final filters, we conducted analyses on the 984 studies using RStudio Bibliometrix and Vosviewer 1.6.19 software, and obtained the following findings (Figure 1).

3. RESULTS

Table 1. Key Information about the Data

Main Information About Data	
Timespan	2021:2023
Sources (Journals, Books, etc)	124
Documents	984
Annual Growth Rate %	-22.65
Authors	2775
Authors of single-authored docs	133
Single-authored docs	177
Co-Authors per doc	3.42
International co-authorships %	8.232
Article	672
Editorial material	159
Review	50

Between 2021 and 2023, a total of 984 documents from 124 different sources were examined on intensive care units and Advanced Practice Nurses. The majority of these documents, a total of 672, consist of full-text articles. Editorials and reviews follow with 159 and 50 documents, respectively. The number of authors in these studies is 2,775. There are 177 single-authored documents, with 133 authors for these documents. This indicates that some authors have multiple single-authored articles. On average, each document has 3.42 authors. The rate of authors involved in international collaborations is 8.232% (Table 1).

3.1. Annual Scientific Production

There is an observable change in scientific production over the years between 2021 and 2023. It started with 361 documents in 2021, increased to 407 in 2022. As of now, in 2023, 216 documents have been produced. However, it is important to note that we are only in the 8th month of 2023. Considering that scientific production is expected to continue in the remaining months of the year, it can be anticipated that this number may increase further by the end of 2023.

3.2. Most Relevant Sources

In scientific studies on Advanced Practice Nurses, it is observed that certain journals stand out. 'Journal of The American Association of Nurse Practitioners' takes the lead in this field with 170 articles. It is followed by 'Jnp- The Journal for Nurse Practitioners' with 114 articles and 'Clinical Nurse Specialist' with 57 articles. Considering that 'JNP-Journal for Nurse Practitioners' is listed as two separate entries, this journal can be said to have contributed a total of 162 articles. Other journals have generally contributed in the range of 20-36 articles.

3.3. Local Impact of Sources According to the H-Index

When examining the bibliometric indicators of the listed journals, some variations in impact values and contributions are observed. 'Journal of The American Association of Nurse Practitioners' has the highest h-index (8) and g-index (10) values, with a total of 266 citations.

3.4. Temporal Production of Sources

When looking at the production of specific journals over time, we observe an increase in all journals from 2021 to 2023. 'Journal of The American Association of Nurse Practitioners' is the journal that has shown the most significant increase during this period. It started with 70 articles in 2021, increased to 145 in 2022, and despite being only in August of 2023, it has reached 170 articles. This journal has consistently shown a growth trend over the specified period.

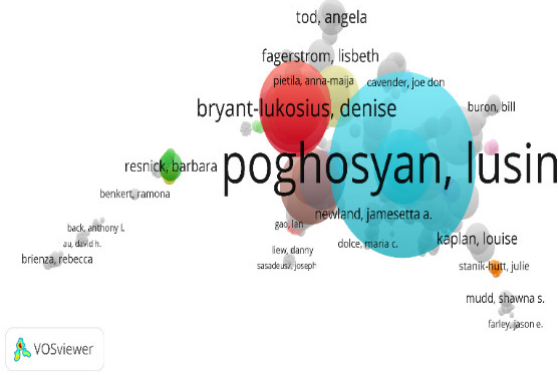


Figure 2. Most Relevant Authors

Another important aspect of the bibliometric analysis conducted in this study is identifying the most influential authors in the field. For instance, Poghosyan L stands out on the list with 30 articles (Figure 2).

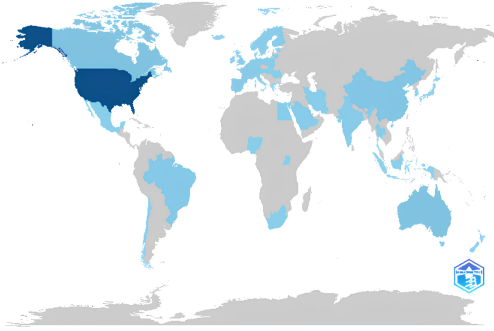
3.5. Most Relevant Institutions

The bibliometric analysis conducted in this study has also identified the most influential universities and institutions in the field. Vanderbilt University tops the list with 68 articles, followed by Columbia University with 64 articles. These two universities have generated significant research output in the field of Advanced Practice Nurses and advanced nursing practice. Univ Pittsburgh and Univ Calif San Francisco are also noteworthy with 54 and 43 articles, respectively. According to bibliometric data from 2021 to 2023, important academic institutions such as Vanderbilt University, Columbia University, Duke University, University of California San Francisco, and University of Pittsburgh have shown a remarkable increase in research output. For example, Vanderbilt University started with 28 articles in 2021, but this number has risen to 68 by 2023. A similar increase is observed for Columbia University; the number of articles, which was 17 in 2021, has reached 64 by 2023. Even renowned health research centers like Johns Hopkins University rank lower on this list, indicating the high competitiveness and diversity in the field. Such an analysis provides a general overview of the leading universities and institutions in Advanced Practice Nurses research, but it is important to

remember that this type of data does not provide a complete picture of the quality or impact of the research.

Figure 3. Scientific Production by Countries

Country Scientific Production



When examining the scientific production of countries, the United States (USA) stands out by far with 2,327 articles in all research. Australia and Canada rank second and third with 185 and 183 articles, respectively. China is in fourth place with 134 articles. The scientific production of Europe is represented by the United Kingdom, Spain, and Switzerland, with these countries contributing 90, 71, and 71 articles to the list. The underrepresentation of the concept of Advanced Practice Nurses in European and Asian countries can be attributed to the fact that it has not been fully defined, and the boundaries of duties, authorities, and responsibilities are not well-established in these regions (Figure 3).

3.6. Countries with the Most Citations

Among the countries with the most citations, the United States (USA) stands out by far, with a total citation count of 768. However, the average citations per article are relatively low, at 1.2. Other countries, such as Australia, China, and the United Kingdom, receive fewer total citations, but their average citations per article are higher. Finland, in particular, is notable with an average of 3.7 citations per article.

3.8. Temporal Changes in Keyword Frequency

When examining the change in the usage of frequently employed keywords in research over the period from 2021 to 2023, a notable increase in the usage of nearly all keywords is observed. For instance, the use of the word 'Care' has risen from 46 to 101, 'Impact' from 19 to 60 and 'Education' from 19 to 50. This indicates an increased significance of the research topics related to these keywords.

Particularly, the visible increase in the usage of the term 'Primary-Care' in 2022 (from 12 to 38) may suggest that this topic gained specific importance in that year. Similarly, 'Health-Care' and 'Workforce' have gained more attention over time. This analysis is essential in demonstrating how the focal points of research have evolved over time.

4. CONCLUSION AND DISCUSSION

This bibliometric study evaluated 984 publications published between 2021 and 2023 to assess the research on Advanced Practice Nurses Nurses. The results indicate that the importance of Advanced Practice Nurses in intensive care units is steadily increasing. Most studies in this field have been conducted in the United States, reflecting the influence and leadership of the United States on Advanced Practice Nurses. The higher number of Advanced Practice Nurses in the United States explains the larger number of studies conducted in this country.

Scientific studies related to Advanced Practice Nurses and intensive care units appear to be concentrated in specific journals and the United States. This analysis suggests that the definition and scope of Advanced Practice Nurses are still evolving in European and Asian countries, and there is a need to establish clear definitions, roles, and responsibilities.

Among the keywords, the concepts of 'Care' 'Impact' and 'Education' are particularly emphasized. This emphasis reflects the multifaceted and comprehensive role that Advanced Practice Nurses play in enhancing both patient care and the overall effectiveness of the healthcare system. Advanced Practice Nurses contribute to improving the health of patients by adopting an effective care approach, while also enhancing the quality of healthcare services through education for healthcare professionals and the community. Therefore,

the concepts of 'Care,' 'Impact,' and 'Education' represent the versatility and comprehensive role of Advanced Practice Nurses. The increasing frequency of terms such as 'Quality' and 'Outcomes' may indicate that research is becoming more outcome-oriented and quality-focused.

This study also revealed the diversity in definitions and terminology. Advanced Practice Nurses have been labeled differently in various regions.

This analysis provides a foundation for understanding how Advanced Practice Nurses can be more effectively positioned in intensive care units and for further research in this field. Additionally, understanding the trends in practice and research in different countries is valuable for enhancing the effectiveness of global healthcare systems in this field.

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