

# Advanced Practice Nursing assistance in noncommunicable chronic diseases: a scoping review

## Assistência da Prática Avançada de Enfermagem nas doenças crônicas não transmissíveis: uma *scoping review*

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**Submission:** 29-Mar-2023

**Approved:** 07-Aug-2023

### ABSTRACT

**Objective:** To describe how advanced practice nursing support is provided to individuals with noncommunicable chronic diseases in primary health care through a literature review. **Method:** A scoping review was conducted using databases and grey literature sources by intersecting the terms "advanced practice nursing"; "primary health care"; "outcomes, effects, impacts, consequences" in English. **Results:** The sample consisted of 24 articles, of which 10 (41.60%) focused on advanced nursing practice support in patients with diabetes; six (25.00%) in the area of patients with cardiovascular disease; three (12.50%) in the area of patients with cancer; three (12.50%) addressed the role of advanced practice in more than one noncommunicable chronic disease, and two (8.30%) addressed performance in patients with respiratory disease. **Conclusion:** Advanced nursing practice support for individuals with noncommunicable chronic diseases was identified, and positive outcomes were observed in the care of the four chronic diseases studied.

**Descriptors:** Advanced Practice Nursing; Primary Health Care; Noncommunicable Diseases.

### RESUMO

**Objetivo:** Mapear na literatura como ocorre a assistência da prática avançada de enfermagem às pessoas com doenças crônicas não transmissíveis no contexto da atenção primária à saúde. **Método:** Scoping review, realizada em bases de dados e fontes de literatura cinzenta pelo cruzamento dos descritores "Prática Avançada de Enfermagem"; "Atenção Primária à Saúde"; "Resultados, efeitos, impactos, consequências" em inglês. **Resultados:** A amostra foi de 24 artigos, 10 (41,60%) enfocam a assistência de enfermagem de prática avançada em pacientes com diabetes; seis (25,00%) no campo dos pacientes com doença cardiovascular; três (12,50%) no campo dos pacientes com câncer; três (12,50%) abordam o papel da prática avançada em mais de uma doença crônica não transmissível e dois (8,30%) abordam o desempenho em pacientes com doenças respiratórias. **Conclusão:** Identificou-se a assistência da prática avançada de enfermagem às pessoas com doenças crônicas não transmissíveis e observou-se resultados positivos na atenção das quatro doenças crônicas estudadas.

**Descritores:** Prática Avançada de Enfermagem; Atenção Primária à Saúde; Doenças Não Transmissíveis.

### INTRODUCTION

Chronic noncommunicable diseases (NCDs) represent significant global health concerns, encompassing cardiovascular disease (CVD), diabetes, chronic respiratory diseases, and cancer. According to the World Health Organization (WHO), NCDs accounted for 73.6% of global deaths in 2019. In Brazil, during the same year, these diseases were responsible for 41.8% of deaths in the age group of 30-69<sup>(1-2)</sup>.

Primary Health Care (PHC) stands as a critical model for both preventing and treating these diseases, despite having weaknesses in their management<sup>(3-4)</sup>. Strengthening this approach necessitates the expansion

of available human resources for healthcare provision. Consequently, certain organizations across the Americas have initiated discussions on means and methodologies to bolster the support for Advanced Practice Nursing (APN) within their respective countries<sup>(5)</sup>.

The International Council of Nurses defines advanced practice nurses as individuals possessing specialized knowledge, intricate decision-making skills, and clinical competence for extended practice. These attributes can vary depending on the specific country where the nurse is authorized to practice<sup>(6)</sup>.

In the Brazilian setting, Advanced Practice Nurses (APNs) are well-positioned to address the workforce requirements of Primary Health Care (PHC) and to assume a crucial role in advocating for the Unified Health System (SUS). The contributions of Brazilian nurses underscore their substantial capacity to cater to the healthcare demands of the populace, particularly in regions with limited resources and a high prevalence of NCDs.

Therefore, the present study aims to systematically review the literature to discern how Advanced Practice Nursing care is administered to individuals afflicted by chronic noncommunicable diseases within the framework of primary health care.

**METHOD**

This scoping review was initially conducted in 2020 and subsequently updated in February 2023. The mnemonic approach, Population, Concept, and Context (PCC), was employed to formulate the research inquiry. The components were defined as follows: Population (P) - advanced practice nurses; Concept (C) - management of chronic noncommunicable diseases; Context (C) - primary health care. Hence, the central question emerged: "How do advanced practice nurses manage chronic noncommunicable diseases in the context of primary health care?"

The protocol established for guiding the development of this review was officially registered on the OSF platform, bearing the identification number DOI 10.17605/OSF.IO/4ZDKW. Given the nature of this literature review, it did not necessitate scrutiny by a Research Ethics Committee.

The quest for relevant literature was conducted in English and involved the utilization of specific Medical Subject Headings (MeSH) keywords, including "Advanced Practice Nursing", "Primary

Health Care", and "Outcomes, Effects, Impact, Consequences". Figure 1 below visually presents the interlinked references utilized:

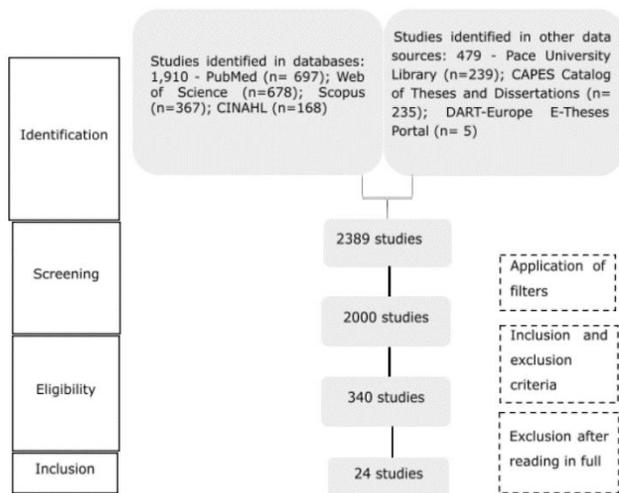
DATABASES	CROSS-REFERENCING KEYWORDS
<ul style="list-style-type: none"> <li>• CINAHL</li> <li>• PubMed</li> <li>• Web of Science</li> <li>• Pace University Library</li> </ul>	<p><i>advanced practice nursing AND primary health care AND (outcomes OR effects OR impact OR consequences)</i></p>
<ul style="list-style-type: none"> <li>• Scopus</li> </ul>	<p><i>"advanced practice nursing" AND "primary health care" AND (outcomes OR effects OR impact OR consequences)</i></p>
<ul style="list-style-type: none"> <li>• Catalog of theses and dissertations of the Coordination for the Improvement of Higher Education Personnel (CAPES)</li> <li>• DART-Europe E-Theses</li> </ul>	<p><i>advanced practice nursing AND chronic disease</i></p>

**Figure 1** – Data sources and cross-referencing used. Natal, RN, Brazil, 2023

Documents in Portuguese, English, or Spanish published from 2010 onwards were selected to ensure a contemporary perspective on the topic. The primary intent was to provide current insight into the topic. The selected documents had to show at least one outcome, effect, impact, or consequence of advanced practice nursing concerning one of the NCDs in the PHC. Consequently, secondary research, papers presented at conferences, studies that lacked clarity in their methodology, and documents that did not directly address the research question were excluded from consideration.

The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system<sup>(7)</sup> was used to rate the trials. According to this system, studies were classified as high, moderate, low, or very low quality.

After applying the specified study criteria, the preliminary search yielded a cumulative number of 2389 of studies (Figure 2). Studies were then selected according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) guidelines.



Source: PRISMA-ScR flowchart adapted from Tricco et al., 2018.

**Figure 2** – PRISMA-ScR flowchart for searching and selecting studies. Natal, RN, Brazil, 2023

## RESULTS

The search identified a total of 24 articles. Of these, ten articles (41.60%) focused on the management of individuals with diabetes, six articles (25.00%) focused on patients with cardiovascular disease, three articles (12.50%) focused on cancer patients, another three articles (12.50%) focused on multiple comorbidities, and two articles (8.30%) focused on respiratory diseases. A visual representation of the distribution of the focus on NCDs within the selected studies is shown in Figure 3 below.

## DISCUSSION

In the context of Brazil, NCDs account for 54.7% of total deaths, with cardiovascular disease being the leading cause of mortality<sup>(32)</sup>.

Regarding studies of APNs in the management of people with diabetes, research suggests that health outcomes may be equivalent to or better than those of physician-led care<sup>(14)</sup>. Within diabetes care overseen by APNs, several interventions have demonstrated notable improvements, such as glucose monitoring and hemoglobin A1C laboratory testing, which have yielded results within the normal range<sup>(11)</sup>.

The authors emphasize the importance of nurse counseling as a central tool in the care of people with diabetes. They emphasize the empathic approach to patients' needs as a powerful strategy to promote adherence and effective control of the disease<sup>(33)</sup>.

Regarding CVDs, studies indicate that care provided by advanced practice nurses, characterized by effectiveness and a holistic approach,

results in patients achieving significantly lower blood pressure and cholesterol levels. These authors also address healthcare costs, highlighting significant savings, the delivery of high-quality care, and an individualized approach that uses effective communication skills to address specific patient needs<sup>(13-14,16)</sup>.

In Brazil, cardiovascular diseases are projected to account for 364,132 deaths in 2019, with 38.7% occurring during the productive years of life (20 to 69 years). The absence of proper health monitoring exacerbates conditions, leading to deteriorating health, hospitalizations, and, in severe instances, fatalities. This scenario impacts healthcare expenditures and family income. Nursing, as a profession centered around guidance, assistance, and contributions to health prevention and promotion, emerges as a vital ally. It plays a pivotal role in mitigating the number of individuals constrained by cardiovascular issues<sup>(32, 34-35)</sup>.

Regarding the advanced practice nurses' support for individuals with cancer, a systematic review revealed noteworthy advantages for the well-being of this population. These benefits encompass improved pain management, enhanced quality of life, augmented survival rates, and comprehensive support for psychosocial dimensions and shared decision-making under professional guidance. Despite these gains, the authors accentuate the imperative of specialized training, encompassing specific knowledge and skillsets, to deliver this type of care. Furthermore, they stress the necessity for the regulation of APNs within the Brazilian context<sup>(36)</sup>.

Aligned with these points and in consonance with the objective of APN implementation, the authors conducted a comprehensive mapping and validation of 125 competencies intended for the training of advanced practice nurses in the field of oncology. These competencies are classified into six domains that concentrate on equipping nurses with evidence-based care provision, instilling ethical commitment, cultivating leadership and collaboration within interdisciplinary teams, and advancing health education and research initiatives<sup>(37)</sup>.

In the context of chronic respiratory diseases, nursing interventions have been linked to improved control and recognition of exacerbation indicators by patients. This has led to a decrease in the frequency, duration, and cost of hospitalizations, highlighting the advantages of nursing support within the respiratory popula-

tion <sup>(38)</sup>.

<b>STUDY/ DISEASE</b>	<b>COUNTRY</b>	<b>LEVEL</b>	<b>RESULT</b>
( <sup>8</sup> )S1/Diabetes	USA	Low	The interventions carried out by APNs yielded a more pronounced reduction in hemoglobin A1C and glucose levels compared to those performed by doctors.
( <sup>9</sup> )S2/Diabetes	USA	Moderate	APNEs reported feeling well prepared and demonstrated moderate effectiveness in providing lifestyle change counseling.
( <sup>10</sup> )S3/Diabetes	England	Moderate	Numerous benefits have been identified, including improved access to appropriate counseling and medications, increased understanding and ability to self-manage, ability to troubleshoot problems, and increased feelings of safety, confidence, and overall well-being.
( <sup>11</sup> )S4/Diabetes	USA	Low	The intervention group demonstrated superior clinical outcomes (lower glycemia and A1C levels), increased knowledge, and improved self-management compared to the usual care groups.
( <sup>12</sup> )S5/Diabetes	USA	Very low	The frequency of visits by APNEs (n = 262) and visits by volunteer physicians (n = 52) did not show statistically significant differences in the achievement of A1c, HDL, or LDL goals. However, there was a slight increase in ophthalmology and podiatry referrals and more frequent use of microfilament testing among APNEs compared with volunteer physicians.
( <sup>13</sup> )S6/Diabetes	USA	Low	NPs had treatment rates comparable to or slightly lower than physicians, in line with diabetes guidelines. NPs demonstrated relatively higher utilization of specialist consultations, while keeping total cost of care at a similar level to physicians.
( <sup>14</sup> )S7/Diabetes	USA	Very low	As the United States continues to advance the implementation of APNs, the authors suggest that reducing APN scope of practice restrictions would strengthen primary health care (PHC) capacity, expand accessibility, improve health outcomes, and yield both direct and indirect savings in chronic disease management.
( <sup>15</sup> )S8/Diabetes	USA	Very low	Patients who had two or more visits with FNPs and two or more visits with the interprofessional education team experienced statistically significant reductions in HgbA1c levels at the end of one year.
( <sup>16</sup> )S9/Diabetes	USA	Low	At the time of diagnosis and throughout four years of follow-up for diabetes, care provided by nurse practitioners and physician assistants was equivalent to care provided by physicians. The approach used within the Veterans Health Administration involving nurse practitioners and physician assistants may offer a widely applicable model to address the growing need for primary care providers in the United States.
( <sup>17</sup> )S10/Diabetes	USA	Low	Patients in the nurse-only group had significantly better outcomes compared to all other primary care provider groups, including health care utilization, patient health outcomes, and health care costs.
( <sup>18</sup> )S11/Diabetes, Hypertension, or Stable Ischemic Heart Disease	Australia	Low	All groups found significant benefits to the model and chose to continue APNE-led care after the study ended.

STUDY/ DISEASE	COUNTRY	LEVEL	RESULT
(19)S12/ Diabetes and Cardiovascular Disease	USA	Low	The quality of diabetes and cardiovascular disease (CVD) care did not differ significantly between physicians and APNEs, with differences of little clinical significance. Regardless of provider type, there remains a need to improve performance on eligible measures for patients with diabetes or CVD.
(20)S13/Diabetes e Cardiovascular Disease	USA	Moderate	Physicians managed significantly larger patient panels compared to APNEs. In adjusted analyses, patients with diabetes received fewer primary and specialty care visits while undergoing more lipid panels and HbA1c testing compared to patients managed by physicians.
(21)S14/ Cardiovascular Disease	England	Very low	The act of prescribing empowered nurses to address existing service delivery challenges, resulting in improved access, efficiency, and patient convenience. This approach contributed to a reduction in hospital admissions and shortened length of stay. In addition, prescribing facilitated patient-centered counseling, which promoted self-management, improved medication adherence, and reduced inappropriate use of services.
(22)S15/ Cardiovascular Disease	Canada	Moderate	The evidence presented highlights the effectiveness of both approaches in modifying smoking habits, dietary choices, and physical activity. Thus, the use of APN as a means of implementation is recommended.
(23)S16/ Cardiovascular Disease	USA	Low	Patients reported satisfaction with NP care. The NP was able to effectively manage the congenital heart disease/illness (95%) and an increased likelihood (94%) or willingness to see an NP at a future appointment. Only 73% reported an understanding of NP education and how an NP differs from a registered nurse. There was a stronger perception of how an APN differs from a physician (83%).
(24)S17/ Cardiovascular Disease	USA	Low	Hospital admissions, emergency department visits, and 30-day readmissions were reduced by 64%, 85%, and 95%, respectively. APNs can be fully utilized to provide high-quality, cost-effective care.
(25)S18/ Cardiovascular Disease	Slovenia	Moderate	At the follow-up visit, the nurse-advised patients had significantly lower systolic blood pressure and cholesterol levels and were much more likely to engage in regular physical activity than the primary care physician-advised patients.
(26)S19/ Cardiovascular Disease	The United Kingdom	High	The authors did not demonstrate the effectiveness of nurse-led care compared with physician-led care.
(27)S20/Cancer	USA	Very low	APNEs have a strong impact on cancer survivorship care, acting in multiple roles and settings throughout the cancer journey to improve patient outcomes.
(28)S21/Cancer	USA	High	They did not find differences between the two groups in patient-reported primary outcomes (symptoms, health problems, depression, functional status, self-reported health) at one and three months after baseline; however, physical and emotional symptoms remained stable or improved significantly from baseline in both groups.
(29)S22/Cancer	Switzerland	Very low	Overall, 35 of 46 patients successfully met feasibility criteria by attending all scheduled APNE appointments. Approximately 56% (26 of 46) of patients, with a 95% confidence interval of 0.41 to 0.71, completed the patient-reported outcome measures (PROMs) at all three designated time points. Throughout the study, self-efficacy for symptom management remained stable, while the intensity of predominant symptoms increased.

STUDY/ DISEASE	COUNTRY	LEVEL	RESULT
(30)S23/COPD	USA	Moderate	Patients cared for by APNEs had a lower frequency of COPD-related emergency department visits compared to those cared for by physicians. In addition, patients receiving APN care were more likely to have a follow-up visit with a pulmonologist within 30 days of a COPD-related hospitalization.
(31)E24/Asma	China	Very low	As part of the consultation, the nurse conducted an assessment to determine what actions the patient needed to take to meet their self-care needs. The nurse then developed a tailored support system based on the patient's individual needs and grounded in theoretical principles. This model of care provided an appropriate framework for the implementation of advanced practice nursing in PHC.

Caption: Abbreviations: APNE - Advanced Practice Nurse; NP - Nurse Practitioner; PHC - Primary Health Care; FNP - Family Nurse Practitioner; APN - Advanced Practice Nursing; CVD - Cardiovascular Disease; COPD - Chronic Obstructive Pulmonary Disease.

**Figure 3** – Distribution of studies by NCD, country, level of evidence, objective, and outcomes. Natal, RN, Brazil, 2023

Moreover, the significance of utilizing nursing theories as the foundation for APNs is underscored, as demonstrated in one of the studies<sup>(31)</sup>. Integrating theoretical frameworks into clinical practice is pivotal for the success of advanced practice, as it fosters a theoretical comprehension of the field, advancements in education and research, and the systematization of care. Nonetheless, challenges persist in terms of integrating and aligning theory with clinical practice. This calls for increased emphasis on education and the expansion of theoretical components in postgraduate programs to fortify education, research, and care practices<sup>(39)</sup>. In this milieu, advanced practice nurses possess the substantial potential to instigate changes within organizational and healthcare systems, bolstering and enhancing PHC. Distinguished by their extensive theoretical and practical readiness to cater to specific needs, advanced practice nurses play a significant role in the healthcare landscape, a trait notably evident in the realm of patient care<sup>(39)</sup>.

International studies delve into the utilization of scientific evidence by advanced practice nurses, showcasing positive outcomes for care and heightened leadership skills that positively influence the efficiency of the primary care health system<sup>(37,40-42)</sup>. In various countries, the presence of advanced practice nurses is a tangible reality, and their significance within healthcare services is well recognized. This recognition contributes to the improvement of care quality, yielding positive health outcomes for patient<sup>(14)</sup>.

In PHC, the implementation of care manage-

ment through APS has resulted in improvements in the care of patients with NCDs. Effective communication between professionals and patients has led to greater adherence to treatment and an improvement in physical and psychological symptoms. Dialogue and appropriate counseling promote favorable understanding and amplify the patient's capacity for self-care and problem-solving<sup>(15,17,29)</sup>.

As pointed out by the president of the *Conselho Federal de Enfermagem* (COFEN), in Brazil there are already several advanced practices; however, it is essential to identify them in order to achieve the desired results and impact on nursing care. However, in many Latin American and Caribbean countries where APN is not yet regulated, many nurses work beyond their scope of practice without legal recognition and adequate training for advanced practice<sup>(43-44)</sup>. Therefore, the importance of regulating and implementing advanced practice nursing in Brazil is emphasized, with the aim of benefiting the population, promoting health, preventing diseases and illnesses, reducing hospital costs and reducing disparities in health care in the country.

The limitations of this study include the low level of evidence found, which reinforces the importance of developing new studies with robust evidence to help identify the impact caused by APN in different scenarios and health conditions. This study represents a step forward in presenting an overview of APN worldwide, stimulating reflection on its possible implementation in Brazil.

## CONCLUSION

The results of this review underscore the positive impact of advanced practice nursing in the management of primary care for the four major NCDs on a global scale.

Internationally, it is recommended that advanced practice nurses receive training in the use of evidence-based practice to effectively address health issues and provide quality patient care. The Pan American Health Organization supports this approach and emphasizes tailoring health strategies to the needs of populations in Latin America and the Caribbean. In

this context, it is crucial to invest in the training of advanced practice nurses in primary health care in Brazil. This investment aims to expand the range of services available and to provide the population with efficient and high-quality care, thereby contributing to the strengthening and consolidation of the single health system.

## CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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