







Nursing research: contemporary challenges and strategies for enhancement

Pesquisa em enfermagem: desafios contemporâneos e estratégias para potencialização

Investigación en enfermería: desafíos contemporáneos y estrategias para su potenciación

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ABSTRACT

Objective: to reflect on the challenges of nursing research and pragmatic strategies to enhance its potential. **Content:** a theoretical-reflective essay based on literature related to the topic, the experiences, and the insights of the authors in their individual and collective processes of knowledge construction in the field of nursing. The main challenges identified were maintaining a narrow and limited research profile, lack of funding, deficiencies in undergraduate training, the need for new research leadership, and difficulties in disseminating study results. As key pragmatic strategies, the following are highlighted: promoting greater visibility of nursing science to ensure its inclusion in technical-scientific agendas and funding opportunities, bridging the gap between clinical nurses and research, strengthening nurse training as researchers, and expanding the dissemination and use of research findings. **Final considerations:** the strengthening and the advancement of nursing research require overcoming the challenges faced by the field to increase the visibility of their self-knowledge.

Descriptors: Nursing; Research; Science; Knowledge.

RESUMO

Objetivo: refletir sobre os desafios da pesquisa em enfermagem e estratégias pragmáticas para sua potencialização. **Conteúdo:** ensaio teórico-reflexivo pautado na literatura relacionados ao tema, às vivências e aos *insights* dos autores em seus processos particulares e coletivos de construção do conhecimento na área da enfermagem. Os principais desafios identificados foram: manutenção de um perfil direcionado e limitado das pesquisas, carência de financiamento, deficiência na formação durante a graduação, necessidade de novas lideranças em pesquisa e dificuldades na difusão dos resultados dos estudos. Como principais estratégias pragmáticas, citam-se: promover maior visibilidade da ciência da enfermagem para sua inclusão nas agendas técnico-científicas e nos financiamentos, aproximar enfermeiros assistenciais da pesquisa, fortalecer a formação do enfermeiro enquanto pesquisador e ampliar a divulgação e consumo dos resultados das investigações. **Considerações finais:** o fortalecimento e avanço da pesquisa em enfermagem perpassam pela transposição dos desafios enfrentados pela área para visibilizar seu saber próprio.

Descritores: Enfermagem; Pesquisa; Ciência; Conhecimento.

RESUMEN

Objetivo: reflexionar sobre desafíos de investigación en enfermería y estrategias pragmáticas para su potenciación. **Contenido:** ensayo teórico-reflexivo basado en la literatura relacionada con el tema, en vivencias y *insights* de los autores en sus procesos particulares y colectivos de construcción del conocimiento en el área de enfermería. Los principales desafíos identificados fueron: mantenimiento de perfil enfocado y limitado de las investigaciones, falta de financiación, deficiencias en la formación durante el pregrado, necesidad de nuevos liderazgos en investigación y dificultades en la difusión de resultados de estudios. Como principales estrategias pragmáticas se mencionan: promover mayor visibilidad de la ciencia de la enfermería para su inclusión en las agendas técnico-científicas y en las financiaciones, acercar a los enfermeros asistenciales a la investigación, fortalecer la formación del enfermero como investigador y ampliar la divulgación y el consumo de los resultados de las investigaciones. **Consideraciones finales:** el fortalecimiento y el avance de la investigación en enfermería dependen de superar desafíos enfrentados por el área para visibilizar su conocimiento propio.

Descriptores: Enfermería; Investigación; Ciencia; Conocimiento.

INTRODUCTION

Nowadays, writing about research, *per se*, constitutes a challenge. This is due to both the recurring presence of the topic in the literature across various fields of knowledge, which address methodological approaches and the reasons for its relevance to social and technological progress, and the widely accepted notion that “one only learns to research by researching.” Consequently, writing on the subject might appear redundant or verbose¹. However, in an era marked by scientific skepticism, the proliferation of conspiracy theories, and a flood of fake news masquerading as absolute truths, the urgent need arises to reinforce how research drives progress in the arts, economy, culture, society, science, and humanity.

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The desire and pursuit of producing knowledge are essential elements of both humanity and society. In this sense, science has been a part of human life since its earliest days. Nevertheless, it was refined by Galileo Galilei (1564–1642) through the development of the scientific method and the understanding that the universe could only be comprehended through the grasp and knowledge of language and its respective characters. He believed that science was hidden within mathematical language, represented by symbols such as circles, squares, triangles, and other geometric figures. Without these “characters,” it would be impossible to understand the “words,” that is, the general laws governing the universe².

Since the early 19th century, the practice of science has evolved into an institutionalized professional activity, a status it maintains to this day. From that embryonic stage, science has gradually and increasingly been marked by a series of advancements in methodological tools, knowledge, and technologies, elements that mutually complement one another and form a *continuum* for new and intriguing discoveries, as well as inspire new possibilities for creation and development².

Knowledge built over time is fundamental to societal development, as it drives social and technological changes, which in turn spur the emergence of new ideas, methods, and tools. This knowledge has been produced and disseminated by individuals and groups who question, challenge, and rethink concepts and practices often regarded as absolute truths or immutable laws. Thus, research, in a cyclical and successive manner, begins with inquietudes and ends with further questions, fostering the creation of new knowledge and behaviors^{1,3}.

Worldwide, for the sake of progress and collective well-being, the advent and dissemination of knowledge have largely stemmed from higher education institutions. Such environments encourage critical reflections, the replication and transformation of existing knowledge, and the production of science. The vocation of universities is closely tied to their social commitment to cultivating critical, reflective, and ethical individuals, prepared to lead and sustainably transform the contexts in which they operate or will operate³, grounded in evidence.

In this context, nursing has established itself as both a profession and a science within universities, building on the foundational ideas of Florence Nightingale in the mid-1850s. Since then, it has advanced in its conceptualization, being understood as a practice in service to society through education, research, management, and legal responsibilities. Nursing is both dynamic and a driver of change, as it is considered the science of the art of assisting human beings with their basic needs, promoting health, self-care, and recovery, always in a collaborative and interprofessional manner⁴.

In the scientific domain, nursing, which is a relatively young and emerging science compared to other fields of knowledge, began generating its body of knowledge in the late 19th century, undergoing four recognized phases. The first phase, led by Florence Nightingale, focused investigations on “what to do.” During this period, nursing needed to organize its daily work, emphasizing the need for formal and systematic training to acquire knowledge in the practical and procedural aspects of the profession. The second phase aimed to master technical skills, seeking to define “how to do it.” This shift led to an understanding that the proper and rigorous execution of techniques was more important than patient care itself⁵.

In the third phase, nursing focused on grounding its actions and initiating teamwork. To achieve this, it relied on scientific principles and investigated “why to do it,” striving to become more scientific and underpin its work processes. In the fourth phase, nursing has been dedicated to scientific research, attempting to construct answers to the question, “what is nursing’s unique knowledge?” This effort has led to the development of various concepts, models, and theories to support its practice, education, management, and research. However, it is worth noting that, historically, these phases did not occur in a strictly linear progression. Instead, they overlapped and continued to do so⁵.

In the Brazilian context, a historical timeline shows that from the 1940s to the 1960s, under the influence of the public health campaign and biomedical models, nursing professionals carried out administrative and care-related activities with a curative focus, emphasizing individual care⁶. Subsequently, in the 1970s and 1980s, the hospital-centered biomedical model became hegemonic, and nursing continued its care activities centered on the individual, with an emphasis on technical procedures. By the late 1980s, with the strengthening of the movement for the country’s re-democratization and the establishment of the Unified Health System (SUS- Sistema Único de Saúde), nursing aligned its efforts more closely with Primary Health Care (APC- Atenção Primária à Saúde), providing direct care to individuals and families while managing health services⁷. Additionally, the scope of nursing within Primary Health Care includes research, which seeks evidence to improve care, management, and educational practices for both users and health workers.

It is important to consider that nursing in Brazil and many other countries has advanced in producing knowledge and carving out its “place in the sun” within the scientific field, despite various challenges⁸. This

progress is reflected in the growth of graduate programs, scientific journals, funded projects, and published articles over the past three decades, which have exponentially increased in both quantity and quality.

From this context emerges the question that guided the present reflection: What are the contemporary challenges and main strategies that can enhance nursing research? Based on this, the objective of this study was defined as to reflect on the challenges of nursing research and pragmatic strategies to enhance its potential.

CONTENT

This is a theoretical essay of a reflective nature, based on current scientific literature on the topic and enriched by the authors' experiences and insights. The authors, who are nursing PhDs and professors in undergraduate and graduate *stricto sensu* programs at various Brazilian public universities, bring a collective and in-depth perspective on the processes of knowledge construction in the field of nursing.

To identify relevant literature, a search was conducted in the following databases: the Nursing Database (NDB), the Latin American and Caribbean Literature in Health Sciences (LILACS) via the Virtual Health Library (VHL), and PUBMED/Medline. The following descriptors were applied: Research, Nursing, Science, and Health, using the Boolean operators "AND" and "OR." This search was crucial for identifying relevant texts published in the field to enable reflection and theorization on the subject.

The database search was carried out in May 2024 and was limited to texts in Portuguese, English, and Spanish, considering the researchers' proficiency in these languages and their status as the primary languages of scientific publications in the field. So that they could be incorporated into the reading and analysis, no publication period restrictions were applied, as it was deemed important to conduct a historical-social review of the advances in nursing research.

The focus of the study was to describe how nursing science and knowledge production have overcome challenges, evolved, and transformed over time. These changes are grounded in economic, social, educational, political, and philosophical aspects of different periods. A manual search was also conducted to expand the scope of selected studies, allowing for the inclusion of additional relevant texts that contributed to the theoretical discussion but had not been identified in the initial database search.

The organization and presentation of reflections were structured into two guiding axes, namely: "Challenges Faced by the Nursing Field in Scientific Research" and "Pragmatic Strategies to Enhance the Development of Nursing Research." These axes emerged from the interpretation of scientific literature and the reflective insights of the authors, allowing for a grounded and articulated approach to the topic.

Challenges Faced by the Nursing Field in Scientific Research

In addition to understanding the previously mentioned four evolutionary phases through which nursing science has undergone and continues to undergo in terms of knowledge production, it is important to grasp the most contemporary state of the art in this process. This understanding enables the identification of the main challenges that nurse researchers face in their daily scientific work.

Historically, nursing research has demonstrated a focused and, to some extent, limited profile. This is due to a predominant emphasis on clinical topics, a reflection of the professional training model that has traditionally prioritized hospital-based practice over community care and curative approaches over care. Most research participants are individuals, with families and communities on the margins. The majority of studies are descriptive, which can be explained by the field's relatively recent adoption of advanced materials, methods, and technologies, the limited funding available for projects, and the still-emerging body of nurse researchers in Brazil and many other parts of the world⁹⁻¹⁰.

Additionally, scientific production in nursing continues to be strongly influenced by the positivist approach in healthcare and research. While nurses often investigate their own daily work, they tend to do so individually, perpetuating a gap between theory and clinical practice. Collaboration with other professionals is often limited, and when it does occur, it is typically in support of the research process, such as for example, through statistical analysis⁹⁻¹⁰.

For applied and emerging sciences, such as nursing, to fulfill their transformative social role and promote improved quality of life, it is essential for national and international organizations to support and foster their development, particularly through research funding¹¹. According to data from the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), in 2024, the national research budget, which includes scholarships at all levels, support for events,

and project funding, was approximately 33 billion Brazilian reais. Health Sciences, which encompasses nursing, accounted for 11.6% of this total, ranking fifth in proportional allocation¹².

When individual fields are analyzed, it is observed that nursing is responsible for only 0.75% of the budget. In contrast, fields such as Agronomy, Chemistry, Physics, and Medicine each receive over 4.0% of the total funding. Consolidated data from 2005 to 2024 reveals that nursing ranks 45th among all fields, receiving a total of 251 million reais over 20 years. During the same period, fields like Agronomy, Chemistry, Physics, Medicine, and Computer Science each received over one trillion reais in funding¹².

Furthermore, an analysis of productivity scholarship applications between 2022 and 2023 shows an approximate 12% increase in the number of scholarship recipients across Brazil, with 32% of all submissions approved. However, when focusing solely on nursing proposals, the approval rate drops to 24%¹². These data reaffirm that nursing must consolidate itself as a national strategic field to channel more financial resources into its development.

Another predominant challenge is that research must be understood as an essential component in nursing education, aimed at fostering an investigative attitude in students, which can favorably impact the application of scientific knowledge in their future professional practice. In this context, there is an exponential and multidimensional challenge in integrating research into undergraduate nursing education to ensure its continuity in professional settings and to attract the most interested students to postgraduate studies³.

Thus, the inclusion of research in nursing education represents an opportunity to reframe the professional training process. Previously focused primarily on a welfarist perspective, the goal now is to develop more well-rounded, critical, and dynamic professionals. These can be termed as *researcher-practitioners* or *nurse scientists*, who should be regarded as fundamental agents of innovation and technology. This challenge remains particularly pronounced in nursing education within private universities or in hybrid/distance learning models (where most enrollments occur). In these contexts, education continues to focus heavily on producing technically skilled nurses, often neglecting reflective thinking¹³.

After graduation, as part of a continuous education process, it is crucial to emphasize that nurses with initial training at the master's level and consolidated in the doctorate will emerge as a research leader. These professionals are expected to develop at least three core competencies: integrate scientific knowledge with other sources to advance nursing practice; develop theoretical explanations of nursing phenomena through empirical research and create and apply scientific methods to test, refine, and expand the body of knowledge in the field.

However, leadership in research goes beyond these competencies. Training master's and doctoral-level researchers with this broader perspective remains a significant challenge. This is especially true given the limited number of doctoral programs, particularly in northern and central-western regions of Brazil, as well as in other Latin American countries such as Colombia, Chile, Peru, and Argentina. Thus, the training of proactive, entrepreneurial, and engaged new leaders at the doctoral level remains a persistent challenge¹⁴.

It is also worth emphasizing that the innovation in producing and disseminating research results requires skills that encompass both individual and collective initiatives, with the nucleation of researchers in co-creation projects. This collaborative body, established through the creation of knowledge, goes beyond merely forming research teams; it seeks to amplify the role of the entrepreneur, breaking stereotypical barriers within research and science. This process includes the following steps: identification and evaluation of opportunities; development of the plan to be implemented; determination and acquisition of necessary resources; and project management. This leadership focuses on funding as a dynamic enabler, fostering and facilitating the production and dissemination of knowledge¹⁴.

A key challenge lies in the dissemination of results and answering the critical question: *Who do we want our research to reach?* Despite an increase in the number of nursing journals, there are limitations in the institutionalization and systematic organization of scientific output in the field, which still impact publicization. The diffusion of the produced works is low due to editorial problems in distribution and the consumption of this literature. Many studies remain unpublished, unseen, and unknown. The restricted dissemination of nursing research, often confined to narrow circles, hampers its accessibility to professionals and scientists from other areas and its integration into professional practice⁹.

Another concerning issue is the publication of studies in journals and publishers with predatory practices. Such practices undermine the credibility and reliability of current research carried out by nurses¹⁵. Consequently, the impact

of nursing scientific production has been questioned for decades, as its potential contributions to addressing key issues in the field remain underutilized. This challenge persists in undergraduate and postgraduate education⁸.

Practical strategies to enhance the development of nursing research

Considering these various challenges, it is necessary to reflect on the most pragmatic strategies to enhance nursing research. In this regard, it is clear that, as a component of the healthcare field, nursing must be attentive to the rules governing the distribution of funding in the country and align itself with these policies to ensure the approval of its projects. Trends suggest that studies valuing multidisciplinary and pluralism, both theoretical and methodological, in the construction of research lines and areas of study are more likely to be approved in calls for proposals^{8,14,16}.

Among the characteristics of approved projects, interdisciplinarity is identified, at least at the regional level, along with the possibility of fostering new national and international partnerships for scientific cooperation and the exchange of innovations and technologies⁸. Additionally, these projects often have a multicenter character, encompassing both research and technological development. In response to the increasing demand for funding, initiatives have been observed to meet the criterion of interdisciplinarity by involving research and researchers in networks^{8,14,16}.

Another key point is the need to bring nurses from clinical practice closer to scientific research. This has the potential to bridge theory and practice. Nurses can use the clinical setting as an intensive social laboratory for research, which can serve as a source of motivation and encouragement for writing about their daily actions⁹. A potential movement could be the search for partnerships with workers and users to agree on research that addresses the routine challenges of healthcare services, with interventions based on evidence and knowledge produced within a delicate and intricate network of knowledge from various fields¹⁶.

Regarding the training of nurses as researchers, basic research tools in undergraduate courses and continuing education programs, with participation in collective research projects, multiprofessional group work, and transdisciplinary research, enable the development of scientific thinking. Student participation in research groups and scientific initiation projects offers valuable opportunities to develop knowledge, skills, and attitudes for applying research methodologies. This approach facilitates the experience of "doing science," fosters connections between academics and researchers, and results in academic production that strengthens the field, undergraduate courses, research groups, as well as individual researchers and students¹³.

Participation in research projects during nursing undergraduate programs contributes to the development of entrepreneurial competencies, communication skills, self-confidence, and decision-making abilities for nurses¹⁷. Therefore, it is essential to prepare nurses to manage research projects, propose, execute, and oversee investigations that address challenges in the local and regional context of nursing and the global society⁹. In this way, it is possible to engage with and value complex and contemporary phenomena, such as multiculturalism, planetary health, migration processes, climate change, sustainability of public education and healthcare systems, among many others¹⁸.

Therefore, considering the broad scope of nursing research, it is possible to think about the Sustainable Development Goals (SDGs) of the United Nations (UN), which represent a universal call for the eradication of poverty, environmental protection, and ensuring that all people have access to opportunities and well-being in a fair and sustainable manner. Thus, nursing as a science can benefit from generating knowledge in alignment with the 17 interconnected goals, which address social, economic, and environmental issues, aiming to resolve the world's most pressing challenges. Among these emerging challenges are poverty, hunger, health, education, gender equality, economic growth, decent work, reduction of inequalities, climate action, marine and terrestrial life, peace and justice, and others¹⁹⁻²⁰.

The approach of the SDGs undeniably reinforces nursing's commitment to the development of scientific research that favors health promotion, equity, critical awareness, and sustainability, aiming to contribute significantly to the development of practices and policies that provide quality care, guarantee well-being, and have a positive impact at both local and global levels²¹.

Regarding the dissemination and consumption of nursing research, there is a need for the profession to better understand and apply marketing in its daily practice. This would help increase the visibility of nursing, as well as society's recognition of its value, expanding its opportunities for action and collaboration as a systematic and socially responsible profession. As a result, the incorporation of research conducted by nurses into daily

practice, teaching, and public and social policy formulation will increasingly grow⁹. A strategy to enhance marketing and knowledge dissemination is the use of social media and the potential of Artificial Intelligence by researchers to publicize study results. This can promote the reach to different groups of people who may be interested in and consume the research findings in practice and/or daily life²³.

More recently, the greatest contribution and advancement in the field of nursing is focused on finding findings that can be applied to everyday practice, that is, scientifically consolidated interventions capable of being implemented in care, resulting in Evidence-Based Practice (EBP)^{13,22}. This process enables the emergence of discussions about the necessary competencies associated with science, so that professionals have knowledge of research methods and techniques, using scientific literacy as a work tool²³.

EBP in Nursing is a safe and organized way to establish professional conduct, focusing on identifying and solving problems based on the best scientific evidence. It involves the stages of defining the problem, searching and critically evaluating the evidence, implementing, and evaluating the results. Another aspect to be considered by nurses is the use of evidence according to their professional competence, clinical condition and patient adherence, and the availability of resources and materials in the service²².

It is also worth mentioning the broad and global debate and implementation of Advanced Practice Nursing (APN). The Nightingale ideology of “modern nursing” must be left behind for the advanced version. In other words, APN should be seen as the “turning point” for the profession in the 21st century. Literature shows its positive influence on improving the quality of healthcare, particularly in terms of increasing access to health services, properly managing chronic conditions and diseases, and improving satisfaction for individuals and communities²³. In Brazil, the debate on expanding the clinical practice of nurses is supported by the specifics of Primary Health Care (PHC) and is guided by the Federal Nursing Council and other scientific entities and societies²⁴⁻²⁵.

In summary, it is believed that the focus should be on promoting the visibility of nursing research so that it can be included in the technical-scientific agendas of countries and agencies; defining and developing a nursing research policy; identifying priority areas or lines of research; encouraging the institutionalization of research; training new leaders; disseminating and using research findings; and financing, evaluating, and guiding research⁹. All these actions have the potential to expand the practice of nursing research in Brazil and around the world and can drive scientific production by nurses. Despite the challenges, these professionals have demonstrated competence and commitment to promoting scientific knowledge in their field, contributing to improving the quality of life and well-being of individuals, families, and communities.

Limitations of the Study and Implications for the Advancement of Scientific Knowledge

As a limitation of this study, it is important to note that although it presents a comprehensive reflection on the challenges and strategies for research in nursing, it is predominantly based on the experiences and insights of the authors and selected literature, which may limit its representativeness from a broader perspective and its practical applicability. Furthermore, the absence of empirical data or analyses grounded in experiments or more robust quantitative and qualitative surveys reinforces this limitation, suggesting the need for future studies that integrate concrete evidence to consolidate the conclusions presented. In contrast, the importance of disseminating the strategies and efforts outlined here in the quest to institutionalize and strengthen research in the field is recognized, through the expansion of discussions in research groups and centers, postgraduate programs, advisory committees, and other reflective, deliberative, and knowledge-building spaces.

FINAL CONSIDERATIONS

The strengthening of scientific research in nursing involves overcoming the challenges faced by the field, such as the need to integrate evidence-based practices with the growing demands of constantly evolving healthcare systems, especially in the face of social inequalities and access issues. Additionally, other challenges include the limited scope of investigations, lack of funding, insufficient formation of research leaders, and difficulty in disseminating results. These obstacles reflect a predominantly technicist education, which discourages the production and consumption of scientific knowledge.

This article aimed to reflect on these difficulties, highlighting strategies to overcome them, such as promoting the visibility of nursing science to include it in technical-scientific agendas and funding opportunities, strengthening interdisciplinary and international collaboration networks, bringing clinical nurses closer to research, expanding the dissemination and consumption of research results, and training new nurse researchers. The reflections presented reaffirm the importance of nursing research as an instrument of transformation,

promoting innovations that enhance healthcare and address structural gaps that undermine equity and access to health.

Finally, there is a clear need for further studies to deepen the understanding of the process of training future generations of nurses, particularly regarding the application of research and the scientific method in academic curricula and practice. Additionally, it is important to investigate in more detail how Advanced Practice Nursing interacts with technical-scientific skills from undergraduate to postgraduate nursing education. Moreover, the development of new reflective essays could broaden perspectives on the subject of this study and its connections with practice, management, and teaching in nursing, contributing to the strengthening of the field.

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Author's contributions

Conceptualization, M.S.B., F.R.B.M. and G.T.M.; methodology, M.S.B.; formal analysis, J.L.G.S., N.M.O.G.P. and S.S.M.; investigation, M.S.B., F.R.B.M. and G.T.M.; manuscript writing, M.S.B.; F.R.B.M. and G.T.M.; J.L.G.S.; N.M.O.G.P. and S.S.M.; writing – review and editing, M.S.B. and F.R.B.M.; visualization, G.T.M.; J.L.G.S.; N.M.O.G.P. and S.S.M.; supervision, J.L.G.S.; N.M.O.G.P. and S.S.M.; project administration, M.S.B. All authors read and agreed with the published version of the manuscript.