


Translational Research and the Strengthening of Nursing and Health Care

Pesquisa Translacional e o fortalecimento da Enfermagem e Saúde

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The concept of translational research began in the 1970s, with the idea of accelerating the process of practical application of basic or fundamental science discoveries, with subsequent impact assessments on the improvement of human health, with the mission of bringing efficiency to the development and dissemination of scientific research in the health area⁽¹⁾.

Basic research notably contributes with discoveries for health promotion and disease cure, but its impact is not classically fast, culminating in the need for translational research, strongly supported by the premise of interdisciplinarity to accelerate the use of basic research findings in clinical practice⁽²⁾.

The result of this process was concretely perceived with the scientific success achieved in the way we responded to the COVID-19 pandemic, when a rapid and fruitful translation was achieved from the initial moment of the disease onset up to the impacts verified in health and the daily life of society.

Nursing is extremely and extensively close to the population, who benefits from scientific innovations in health. For Grady⁽³⁾, nursing scientists play a vital role in conducting research and identifying effective strategies to accelerate translational research, and it can therefore be affirmed that this type of research has the potential to contribute to reducing the classic gap between theoretical foundations and health practices that are not based on evidence.

A field of translational research of relevance to nursing science is called inspired basic research or reverse translation, in which “bench” research is inspired by questions that arise at the “bedside”, regarding conducts that are classically performed, but not sufficiently supported by scientific evidence. These are essential to expand and accelerate the use of new findings of nursing research to advance the existing understanding, approach, techniques, and technologies⁽⁴⁾.

Progress in understanding the phases of translational research has led to the proposition of a model that highlights the continuity and feedback of basic and applied research, which, in addition to the care and promotion of individual health and well-being, encompasses population impact analyses⁽⁵⁾. Thus, the translation initiated in the theoretical model or in “bench” research is directed to case studies or the pre-clinical phase of translation to humans (T1), for applied explanatory research or randomized clinical trials (T2), to the development of recommendations, meta-analysis and systematic reviews

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(T3 - translation to patients or groups of individuals), culminating in sustained insertion into everyday practice (science of implementation/science of improvement) and subsequent long-term impact measures (T4) for population health^(1,5).

The science of nursing, among all health sciences, was a pioneer and strengthened the translation of knowledge strongly anchored in the foundations of human sciences, producing not only fundamental research, theoretical models, and non-generalizable findings, anchored in different metaphysical postulates, but also meta-synthesis propositions and practice guidelines sustained on the principles of explanation of phenomena correlated to human subjectivity.

Translational research brings the foundation closer to the clinical practice, or the theory closer to practice, and promotes complementarity in the qualitative and quantitative approaches to the investigation of nursing phenomena. It has the potential to accelerate the development of nursing science and contributes to the improvement of the health and well-being of the population. These approaches to nursing research have an increasing tendency to be coordinated in an interdependent and complementary manner.

Stokes⁽⁶⁾, in his 1997 book entitled “ Pasteur’s quadrant: basic science and technological innovation” describes Louis Pasteur’s contribution to breaking the paradigm of the dichotomous perspective of basic and applied science, as to the scientific motivation for investigating phenomena of fundamental understanding and practical application. In the quadrant of basic research or fundamental understanding, he exemplified Niels Bohr’s quadrant, given his motivation to discover a way to describe the atom. In pure applied research, he proposed the quadrant of Thomas Edison, who ingeniously designed inventions such as the light bulb, without even understanding the fundamentals of such an application at the time⁽⁷⁾. Pasteur’s quadrant would be the upper right quadrant, which describes high theoretical development and practical application in the same historical moment, with the proposition of the microbiological theory of disease and the production of the first human rabies vaccine⁽⁷⁾.

Since knowledge is dynamic and evolutionary, scientific findings in each of these quadrants are not static, as Bohr’s fundamental understanding subsidized subsequent practical applications and advancements of the fundamental understanding, and the application proposed by Edison generated an evolution to the theoretical understanding and based additional application evolutions⁽⁷⁾. This perspective also supports our understanding of translational research for the advancement

of nursing science, in the dynamic, cyclical, and continuous movement of evolutionary discovery, application, and feedback of knowledge for the advancement of human health and well-being, encompassing translational science studies for the strengthening of praxis and, consequently, of the nursing field, as it can be socially exercised in a scientific, aesthetic and ethical manner⁽⁸⁾.

It should be added that, in line with policies to promote science and technology identified in the country and abroad, translational research in nursing, by promoting interdisciplinarity and multiple approaches to the same phenomenon, enhances researchers’ efforts in the cyclical movement of scientific inspiration and proposition implicit in the Stokes’ quadrant model. The classic and most accomplished movement consists of the spiral of nursing theories, evidence-based practice, and implementation contributions to verify how individuals respond to illness and care, and how they perceive them, promote their health, or adapt to change. There is a wealth of genesis of nursing research problems, anchored in clinical practice questions that need fundamental understanding to support future applications or generate new perspectives to be tested, to be eventually returned to practice, grounded in findings that lead to advances and continued improvements in health and quality of life.

In this movement, disciplinary research teams become transdisciplinary, and in the research developed, the limits of the various sciences merge and become blurred, whereas the nuclei of researchers merge to form larger research groups. Moreover, other researchers begin to integrate these teams, such as sociologists, anthropologists, economists, administrators, data scientists, and journalists, including and highlighting the participation of individuals, patients, families, and populations beyond the function of analyzing the impact of the scientific knowledge generated, but as protagonists in the idealization and design of new scientific research.

Translational research or its assumptions encompass strategic and promising characteristics to advance nursing research and the establishment of networks of researchers, working around a common issue to be investigated, bringing academic and healthcare teams, policymakers, and society together and engaging them in the different phases of the translational processes, enhancing the application of scientific knowledge in promoting health and well-being of the population, as well as the sustainability of health systems.

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