

IMPORTÂNCIA DA TECNOLOGIA NO PROCESSO DE ENFERMAGEM PARA O TRATAMENTO DE FERIDAS CRÔNICAS

IMPORTANCE OF TECHNOLOGY IN THE NURSING PROCESS FOR THE TREATMENT OF CHRONIC WOUNDS

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RESUMO | Introdução: O Processo de Enfermagem é um instrumento metodológico que orienta o cuidado profissional e a documentação utilizada na sua prática. É essencial em todos os tratamentos, em específico no de lesões crônicas, por promover um cuidado humanizado e dirigido à resultados. A enfermagem, na condição de ciência promotora do cuidado, deve apoderar-se de todas as tecnologias e recursos existentes para elevar a qualidade da assistência prestada e facilitar sua utilização por estes profissionais. **Objetivo:** reconhecer a importância da tecnologia na aplicação do Processo de Enfermagem em pacientes com feridas. **Metódos:** Trata-se de uma revisão narrativa, na qual foram utilizados artigos nos idiomas português e inglês, e livros, dissertações e teses que apresentaram relevância para o tema. **Resultados:** As categorias temáticas extraídas desse material foram: Histórico, Processo de Enfermagem e Tecnologia na Enfermagem. **Considerações finais:** Apesar dos avanços na utilização de recursos tecnológicos pelos enfermeiros, sua aplicação é encontrada majoritariamente na área acadêmica. Entender a tecnologia como um conceito abrangente, que permeia o cotidiano do profissional de enfermagem, permite a este a compreensão das inúmeras possibilidades que ela traz para aprimorar a assistência prestada ao paciente, em especial ao portador de feridas.

Descritores: Processos de Enfermagem, Aplicativos Móveis, Ferimentos e Lesões, Informática em Enfermagem, Avaliação em Enfermagem.

ABSTRACT | Introduction: Nursing Process is a methodological instrument that guides the professional care and documentation used in their practice. It is essential in all treatments, specifically in the case of chronic lesions, to promote a humanized and results-oriented care. Nursing, as a science that promotes care, must seize all the existing technologies and resources to increase the quality of the care provided and facilitate their use by these professionals. **Objective:** To recognize the importance of technology in the application of the Nursing Process in patients with wounds. **Methods:** This is a narrative review, in which articles were used in Portuguese and English languages, and books, dissertations and theses that presented relevance to the theme. **Results:** The thematic categories extracted from this material were: History, Nursing Process and Technology in Nursing. **Final considerations:** Despite advances in the use of technological resources by nurses, their application is found mostly in the academic area. Understanding technology as a comprehensive concept, which permeates the daily routine of the nursing professional, allows the nurse to understand the innumerable possibilities it brings to improve the care provided to the patient, especially the wounded.

Descriptors: Nursing Process, Mobile Applications, Wounds and Injuries, Nursing Informatics, Nursing Assessment.

INTRODUCTION

Nursing Process (NP), according to resolution 358/09 of the Brazilian Nursing Council (COFEN), is a methodological instrument that guides professional care in nursing and documentation of professional practice. It is divided into five interrelated, interdependent and recurrent stages, namely: Nursing data collection (or Nursing history); Nursing diagnosis; Nursing planning; Nursing implementation and evaluation^{1,2}.

It is a systematic and dynamic way of providing Nursing care, essential in all treatments, promoting a humanized and results-oriented care³. It must be performed in all environments, public or private, in which nursing care occurs¹. And the application of NP in a patient with chronic wounds is a fundamental part of a quality care provided by the nurse.

In order to facilitate the practice of NP, three books assist nurses in these steps. For the Nursing Diagnosis, the book used is NANDA, which contains the classifications of the North American Nursing Diagnosis Association. For nursing planning, the books NOC (Nursing Outcomes Classification) and NIC (Nursing Interventions Classification) can be used as a basis. And for implementation, relevant interventions are performed based in the book NIC⁴.

Despite the legal regulations for using the NP by the professional in their work environment, there is still a gap in the application of this part of the Systematization of Nursing Care (SNC)⁵. The difficulty begins at undergraduate level, when the student still has no understanding of the importance of this application in practice, until the graduated professional, who finds barriers in implementing it^{2,6,7}.

Nursing, as a care-promoting science, must seize all existing technologies and resources to increase the quality of care provided and facilitate its use by these professionals⁸. It has already been verified that computer resources applied to nursing care improve the quality of care, decrease bureaucratic burden and costs, and increase professionals' productivity⁹.

When considering a way to apply these technological resources associated with the practice of performing care in dressings and with the NP, the idea to elaborate a narrative review on its current situation emerged. In view of the above, this study aims to delineate the historical trajectory of the Nursing Process, its importance in the evaluation and follow-up of the treatment of chronic wounds and its association with the computer resources available for market use.

METHODS

This is a narrative review aimed to meet the goal proposed by the research. The following steps were taken to develop the study: selection of a theme, preliminary bibliography, formulation of the guiding question, search of data sources, selection and reading of the material and writing of the text.

The search for articles was carried out in the SCIELO, LILACS and MEDLINE databases. The terms standardized by DECS (Descriptors in Health Science) of the Virtual Health Library were used as descriptors: nursing processes, mobile applications, injuries and wounds, computer skills, nursing informatics, nursing evaluation.

Articles in Portuguese and English languages were used, and books, dissertations and theses were also included as relevant references for the theme. After an initial survey, the titles and abstracts were read and the ones that were duplicated and not available in their entirety for free were excluded.

Table 1. Studies included in the narrative review.

YEAR	TYPE OF PUBLICATION	MAIN AUTHOR	TITLE	OBJECTIVES
2004	Case report	Marineli Méier	Nursing process as a technology for care: an instrument for practice.	To structure the nursing process in a surgical clinics of a teaching hospital in the city of Curitiba.
2004	Doctoral thesis	Marineli Méier	Technology in Nursing: development of a concept.	A qualitative study that aimed to build a concept of Technology in Nursing with nurses from health and education institutions in Curitiba.
2005	Book	Wanda Horta	Nursing Process	To provide subsidies that will make it easier, in practice, to introduce procedures related to the application of the nursing process.
2009	Original article	Roberta Costa	The Legacy Of Florence Nightingale: A Journey In Time.	To reflect on the ways in which Florence Nightingale is represented in the scientific production of Nursing in the period from 1950 to 2008.
2009	Experience Report	Telma Garcia	Nursing process: from theory to practice of care and research.	To present studies linking the elements of professional practice, inherent to the Nursing Process, to scientific research.
2009	Resolution	Brazilian Nursing Council	COFEN Resolution 358/2009	The resolution provides on the Systematization of Nursing Care and implementation of the Nursing Process in public or private environments.

Table 1. Studies included in the narrative review. (continuation)

YEAR	TYPE OF PUBLICATION	MAIN AUTHOR	TITLE	OBJECTIVES
2009	Article / Lecture	Alba Barros	Nursing Diagnoses and Interventions Classification: NANDA-NIC.	To discuss the state of art and science in Nursing.
2009	Review article	Emeline Lopes	Nursing technology and practices: analysis of scientific productions - a bibliographic study.	To analyze the scientific production related to the nursing practices that make use of technologies.
2010	Book	Sue Moorhead	Nursing Outcomes Classification - NOC.	To standardize the terminology and criteria needed to measure and evaluate the results of nursing interventions.
2010	Review article	Priscila Aquino	Analysis of the concept of technology in nursing according to the evolutionary method.	To make a conceptual analysis of technology in Nursing.
2011	Review article	Marcos de Alcântara	Nursing Theories: the importance for the implementation of Nursing care.	Systematic review of the literature on nursing theory and its importance in the implementation of SNC.

Table 1. Studies included in the narrative review. (continuation)

YEAR	TYPE OF PUBLICATION	MAIN AUTHOR	TITLE	OBJECTIVES
2014	Book	Telma Geovanini	Wound and dressing treatment: a multidisciplinary approach.	Techniques and new technologies for the care of people with wounds and injuries in a holistic approach.
2014	Original article	Maria Angélica Peres	Historicity of nursing in power spaces.	To emphasize historiographic aspects characterized by the empowerment of Brazilian nursing throughout the development of the construction of its professional identity.
2014	Original article	Regina Bousso	Nursing concepts and theories.	To present a theoretical reflection on the construction of knowledge in nursing and to point out subsidies for future research in the area.
2015	Book	NANDA I	Nursing diagnoses of NANDA: definitions and classification 2015-2017	Guide to Nursing Diagnostics.

RESULTS AND DISCUSSION

HISTORY

Nursing arose in the mid-nineteenth century with Florence Nightingale. She became an icon after working on the Crimean War because of her ideas and concepts about the influence of the environment on the healing of soldiers¹⁰. After realizing that the lack of hygiene was related to the high rate of infectious diseases, and that these led to death, she used the principles of her Environmental Theory and aerated environments, moved beds to clean places, sanitized patients with baths and clean clothes, improved diet and removed outbreaks of infection¹¹.

After the war ended, she used her influence to promote educational programs and campaigns. She created the first nursing school, used her great mathematical reasoning ability to elaborate statistical and epidemiological calculations, promoted reforms in military hospitals and contributed to the training of new professionals¹⁰.

Florence also provoked a revolution in wound and dressing management. Initially, dressings were performed through the use of various substances and without scientific support, study or skilled people. It was common to use substances such as animal manure and cobwebs, and later the use of medicinal plants, clay and water was included¹¹.

Florence, with her strict principles of cleanliness and hygiene, avoided the proliferation of infectious microorganisms and stimulated physical and mental well-being of patients with wounds and amputees. In direct care, she promoted cleaning of wounds and used to bandage them, avoiding contact with external environment. Due to her coherence and, above all, effectiveness, her principles have been used until the present time in the treatment of diseases¹¹.

NURSING PROCESS

For many years, Nursing had been performed based on clinical experience and practical procedures. However, after the revolution of ideas initiated by Florence, between the decades of 1950 and 1960, several nurses gathered in search of more theoretical framework¹².

From then on, Nursing has been built inserted in several areas in which care is fundamental, and this arouse the need that care is supported by science¹³. In the 1960s, the first nursing theories appeared, trying to establish scientific bases for care, addressing aspects of the environment in which the patient was cared for and broader issues such as nurse-patient interaction, the importance of self-care and patient's autonomy¹².

The expression Nursing Process (NP) that had been used in a discreet way by some theorists was divided in phases, initially in 1967, by Helen Yura and Mary B. Walsh. These phases were: data collection, planning, intervention and evaluation⁶.

In 1973, there was a conference to classify and implement the term Nursing Diagnosis, thus generating a revolution in thinking, shifting the focus to a critical thinking of identification and decision-making based on a dynamic and recurring system of patient data management and professional interventions¹².

In Brazil, the most studied and theorized method was that from the author Wanda Horta Aguiar, who sought to develop a theory that could explain the nature of the profession, its specific field of action and its scientific methodology. She used Abraham Maslow's Theory of Human Motivation, associated with her own theory of Basic Human Needs, which encompasses laws governing universal phenomena such as the law of balance, adaptation, and holism, with the classification of João Mohana¹⁴.

In 1979, with the publication of her book entitled "Nursing Process", Wanda Horta called the methodology based on the systematization of nursing actions as Nursing Process¹². This methodology had its practice grounded legally with the Law of Professional Exercise No. 7498/86 and with the COFEN resolution 358/2009 that provides on the Systematization of Nursing Care and the implementation of the Nursing Process in all environments, public or private, in which nursing care occurs¹.

In Article 2 of this Resolution, the Nursing Process is organized into five interrelated, interdependent and recurrent phases, namely:

1. Nursing Data Collection (or Nursing History);
2. Nursing Diagnosis;
3. Nursing Planning;
4. Implementation and
5. Nursing Evaluation.

The importance of the Nursing Process is also based on a theoretical framework that guides data collection, establishing of diagnoses, planning and interventions and that is the basis for the evaluation of nursing outcomes¹⁵.

In Brazil, the North American Nursing Diagnosis Association (NANDA) was launched at the First National Symposium on Nursing Diagnoses in a publication translated by nurses from the Federal University of Paraíba State. NANDA has the function of classifying Nursing diagnoses, which are defined as “a clinical judgment about the response of an

individual, a family or a community in relation to actual or potential health problems”¹⁶.

The term NIC, in turn, represented by Nursing Interventions Classification, defines nursing intervention as “any treatment based on judgment and clinical knowledge performed by a nurse to improve patient outcomes”. NANDA diagnoses are the basis for NIC intervention, which will support the elaboration of outcomes by the NOC (Nursing Outcomes Classification)⁴.

NOC is a conceptual model for standardization of outcomes in Nursing. The outcome is determined at a given time and evaluated on a scale ranging from 1 to 5 points. Each outcome is measured on a specific scale to determine whether the patient presented deterioration, stabilization or improvement in the clinical picture¹⁷.

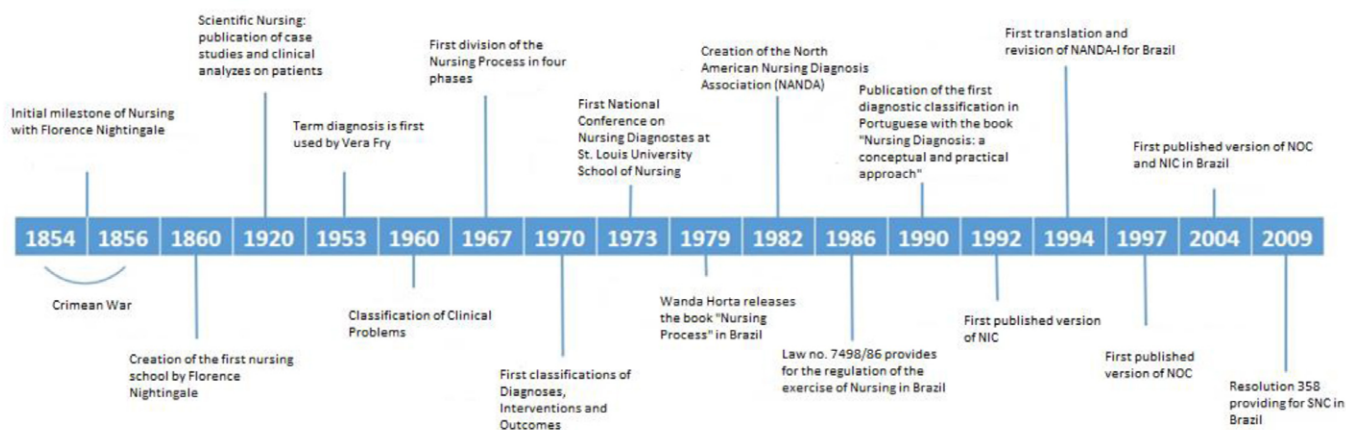


Figure 1. Chronological scale of the Nursing Process.

Source: Prepared by the authors.

TECHNOLOGY IN NURSING

Parallel to this evolution, a concept that is constantly changing is that of technology, especially in the nursing area. This term has presented an aggregation of values ranging from access to equipment for daily use to involvement in work processes, such as health care and work^{6,18,19}.

Technology can be divided into 3 categories: hard (represented by machines), light-hard (structured knowledge) and light (process of subjective relations)¹⁸. Technologies have been included in the health area at the same fast pace in which they have been inserted in the society, generating a great transformation in habits and facilitating or aiding daily actions.

For nursing, technology can be applied in the care area (with rehabilitation, healing activities, use of machines and electronic medical records) and in the teaching and learning process, generating improvement or creating instruments aimed at the application of nursing care targeted to direct or indirect application in patients²⁰.

In this way, Nursing uses various forms of technology, which help in hospital work, as well as in all assistance and academic practices²⁰. However, there is a shortage of publications directed to this area, which highlights the importance of professionals in seizing these technologies. Among the resources that can be used, there are the applications for mobile phones, tablets and computer software that assist

in phases of the assistance applied directly to the client and/or in nursing care²⁰.

Technology requires scientific basis, similar to the Nursing Process, and it is based on the identification of a need, planning for implementation and evaluation of the results obtained²¹. The nurse who has this technological knowledge, associated with scientific and technical knowledge, can use it in all the processes of decision-making, and production of goods and services^{6,21}.

Thus, the development of resources such as applications and software programs emerges as a resource for nursing professionals in the elaboration of an individualized and specific care plan for each patient, legally supported, and taking advantage of the space that new technologies have assumed in the market.

CONCLUSIONS

Understanding technology as a comprehensive concept that permeates the daily routine of the nursing professional allows the nurse to understand the innumerable possibilities it brings to improve patient care, especially for wounded patients^{20,19}. Despite the advances in the use of technological resources by nurses, their application is found mostly in the academic area, which evidences the need to transpose this knowledge to the care and hospital field²⁰.

The understanding of light, light-hard and hard technologies and its associations with professional practice allows the emergence of innovations that will help in the decision-making in a fast, clear and objective way, facilitating the nurses' performance.

Nurses should understand the importance of identifying the real problems of wounded patients, and how much pertinent nursing diagnoses, initial and expected results, and nursing interventions are necessary so that this care is not only a practical act but also something grounded and based in theories and methodologies. The association of these processes with existing computer science and technologies favors a link for the development of high-usability, easy-to-understand, fast, secure, less

expensive and more modern software programs and applications.

It is important that, in addition to further studies in this area, technological processes and forms of practical application are also developed so that the professional keeps updated and has the means to favor their practice.

AUTHOR CONTRIBUTIONS

Queiroz, PES participated in the study conception and design, literature search and articles analysis, results interpretation and in writing the final draft. Schulz, RS participated in the conception of the study and critical review of the final draft. Barbosa, JDV participated in the conception of the study and critical review of the final draft.

COMPETING INTERESTS

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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