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Theoretical Essay Article

Family experiencing fear of death in a pediatric intensive care unit: phenomenological study

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Abstract

Background: pressure injuries are a multifactorial complication that significantly affects patients' quality of life and increases healthcare costs. Due to the complexity of the issue, a systematized approach based on structured theoretical models is necessary for their effective prevention.
Objective: to analyze the development of pressure injuries in intensive care units in light of the Nursing Role Effectiveness Model, highlighting the importance of nurses' roles in their prevention.
Methodology: a narrative theoretical essay documenting a reflective process of applying the Nursing Role Effectiveness Model as a theoretical framework to analyze the role of nurses in preventing pressure injuries in intensive care units.
Results: the application of a nursing conceptual model allows for understanding and explaining the relationships between the multiple variables involved in the development of pressure injuries.
Conclusion: the use of the Nursing Role Effectiveness Model can enable a systematized approach to understanding pressure injuries in intensive care units, highlighting the importance of nurses' independent, interdependent, and dependent roles, as well as the variables that influence nursing-sensitive outcomes.

Keywords: nurses; nurse's role; pressure ulcer; nursing theory

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Introdution

Pressure injuries (PI), also known as pressure ulcers, represent a significant challenge in healthcare, particularly affecting patients with reduced mobility and chronic conditions. These injuries result from prolonged pressure on the skin and underlying tissues, and are associated with serious complications such as infections, pain and prolonged hospitalization (European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance, 2019). Its prevention is therefore a priority in clinical practice, requiring a multidisciplinary approach where the role of nurses is fundamental.

The Nursing Role Effectiveness Model (NREM) has emerged as a conceptual model with the potential to explain and improve the effectiveness of the nurse's role in their intervention. This model, developed to evaluate nurses' contribution to health outcomes, is structured around three main components: structure,

process and outcome. The structure includes the resources available, such as training, the experience of nurses and the conditions of the working environment. The process covers the interventions and roles assumed by nurses in their practice, namely the independent, dependent and interdependent role. The outcome refers to the effects of these interventions on the client, such as reducing the incidence of PI and improving quality of life (Irvine et al., 1998b).

The application of the NREM in nursing practice allows for a more in-depth understanding of the factors that influence nurses' practice, as well as the effectiveness of the interventions implemented by these professionals.

This theoretical essay aims to reflect on the usefulness of this conceptual model for systematizing and structuring the analysis of the role of nurses in preventing PI in intensive care units (ICUs), as well as the factors that influence their intervention.

Development/dissertation

Definition and impact of pressure injuries

A PI can currently be defined as damage caused to the skin and/or underlying tissues as a result of pressure, or the combination of pressure and shear forces. PIs usually occur on bony prominences but can also be associated with medical devices or other objects (European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance, 2019).

Regarding the etiology of PIs, they can arise from forces exerted by the person's body weight, as a result of forces exerted externally by a medical device or other object, or a combination of both. The injury can present as intact skin (without a solution of continuity) or as an open wound and can be painful. Tissue damage occurs because of prolonged and/or intense exposure to deformation by compression (perpendicular to the tissue surface), tension or shear (parallel to the tissue surface), or a combination of these mechanisms. Tolerance to this type of force depends on factors such as the type of tissue involved, the microclimate, perfusion, age, the person's health state, comorbidities and soft tissue conditions (European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance, 2019). The literature describes numerous factors that contribute to the development of these injuries, the main one being immobility.

PIs have a significant impact on the person and their quality of life. They are associated with pain, discomfort, reduced autonomy and safety, increased anxiety and depression. They also contribute to increased morbidity and mortality, longer hospital and ICU stays, higher hospital readmission rates and higher healthcare costs.

This type of injury is a problem with a significant prevalence in various contexts of the health system, whether hospital or out-of-hospital, data reinforced in a systematic review which estimated a prevalence of PIs at hospital level of 14.8%, with an average incidence of 6.3% (Al Mutairi & Hendrie, 2018).

The extent of this phenomenon varies depending on the care setting within hospital institutions. At the ICU level, Chaboyer et al. (2018) estimated a cumulative prevalence of PIs of 16.9%-23.8%, and an average incidence of 10.0-25.9%. These results were recently reinforced by a large prospective observational study carried out in 1117 ICUs in 90 countries, in which data was collected from 13,254 individuals. This study revealed an overall prevalence of PIs in intensive care of 26.6%, with the prevalence of PIs acquired in intensive care being 16.2% (Labeau et al., 2021).

The higher prevalence of this phenomenon in ICUs can be explained by the characteristics of the person admitted to this context of care. A person in critical condition can be defined as one suffering from a life-

threatening condition, or at risk of developing one (Jackson & Cairns, 2021). This commonly implies the presence and combination of multiple risk factors for the development of PIs, such as: multi-organ failure; hemodynamic instability; insufficient perfusion and oxygenation; multiple comorbidities; reduced mobility; specific medication; and insufficient nutritional support (Fulbrook et al., 2023).

In 1860, in Notes on Nursing, Florence Nightingale described PIs as a phenomenon closely associated with the care provided by nurses:

"If a patient is cold, if a patient is feverish, if a patient is faint, if he is sick after taking food, if he has a bed sore, it is generally the fault not of the disease, but of the nursing" (Nightingale, 1969, p. 21).

However, it is necessary to refer to the following paragraphs of the same document in order to contextualize Nightingale's vision more appropriately:

"By this I do not mean that the nurse is always to blame. Bad sanitary, bad architectural, and bad administrative arrangements often make it impossible to nurse. But the art of nursing ought to include such arrangements as alone make what I understand by nursing, possible" (Nightingale, 1969, pp. 21–22).

From the author's perspective, nurses and nursing care should not be seen as the only factors contributing to negative health outcomes, including the development of PIs. The entire care system should be analyzed in a global and systematic way. This analysis should focus on a strategy that eliminates blame, focusing on interprofessional processes, ensuring that institutions guarantee adequate resources, as well as an environment conducive to the safe provision of care.

Although far removed from Nightingale's nursing reality, many of the problems are still relevant today. The cause of PIs is complex and involves multiple factors, known and unknown, modifiable and non-modifiable, which are the subject of constant investigation (Coleman et al., 2013).

Currently, PIs are often described as preventable adverse events and are considered a nursing-sensitive outcome, linked to the quality and effectiveness of care provided by nurses (Oner et al., 2021). A nursing-sensitive outcome can be defined as a relevant outcome, based on the scope and domain of nurses' practice, and for which there is empirical evidence linking nursing input and interventions to outcomes (Doran, 2011).

To facilitate the identification and investigation of nursing-sensitive outcomes, Irvine et. al (1998b) developed the NREM, a conceptual model that represents the complex nature of nursing care by proposing correlations between the different roles that nurses assume, the expected outcomes of the care they provide, and the structure in which they are embedded.

The use of this model is justified by the need to gain an in-depth understanding of the role of nurses in the prevention of PI in ICUs, where the person in critical condition is at high risk due to their clinical condition. The intensive care setting requires highly specialized interventions, as specific risk factors significantly increase the predisposition to developing PIs. The choice of the NREM makes it possible to analyze these variables in a structured way, providing a theoretical framework that guides reflection on nursing practice. In addition, the literature reveals a gap in the systematization of nursing interventions in this specific context, justifying the relevance of a theoretical analysis that explores the particularities of PI prevention in the ICU and offers support for the implementation of more effective, evidence-based practices.

Based on these assumptions, it is considered pertinent, and we intend to explain and reflect on the application of this model in the analysis of the role of nurses in the prevention of PIs in the ICU.

Application of the Nursing Role Effectiveness Model

The concept of health outcomes, particularly in nursing, has become more relevant due to the need for health professions to demonstrate their effectiveness. The transformation of healthcare systems and the

emergence of new management and governance models have challenged these professionals to prove and document their contribution to people's health. In the literature, quality indicators have commonly been based on the conceptual model proposed by Donabedian (2005) which involves three dimensions: the structure; the process; and the results of healthcare.

The conceptual model under analysis, the NREM, is a model proposed by Irvine et al. (1998a), which is based on the "structure-process-result" model of quality of care, first proposed in 1966 by Avedis Donabedian, to analyze the roles assumed by nurses, and the influence of these roles on the results obtained from their care. Irvine et al. (1998b) define professional roles as the positions assumed by nurses in organizations, associated with a set of expected behaviors.

Conceptual models are paradigms made up of general concepts and propositions that reflect a philosophical position, a cognitive orientation, or a research tradition of a group of researchers. Conceptual models do not describe, explain or offer predictions. Conceptual models can, however, provide guidelines for the development of middle-range theories (Fawcett, 1988, 2005).

The NREM has three fundamental components that establish relationships with each other: structure; process (nurses' roles); and results (Figure 1).

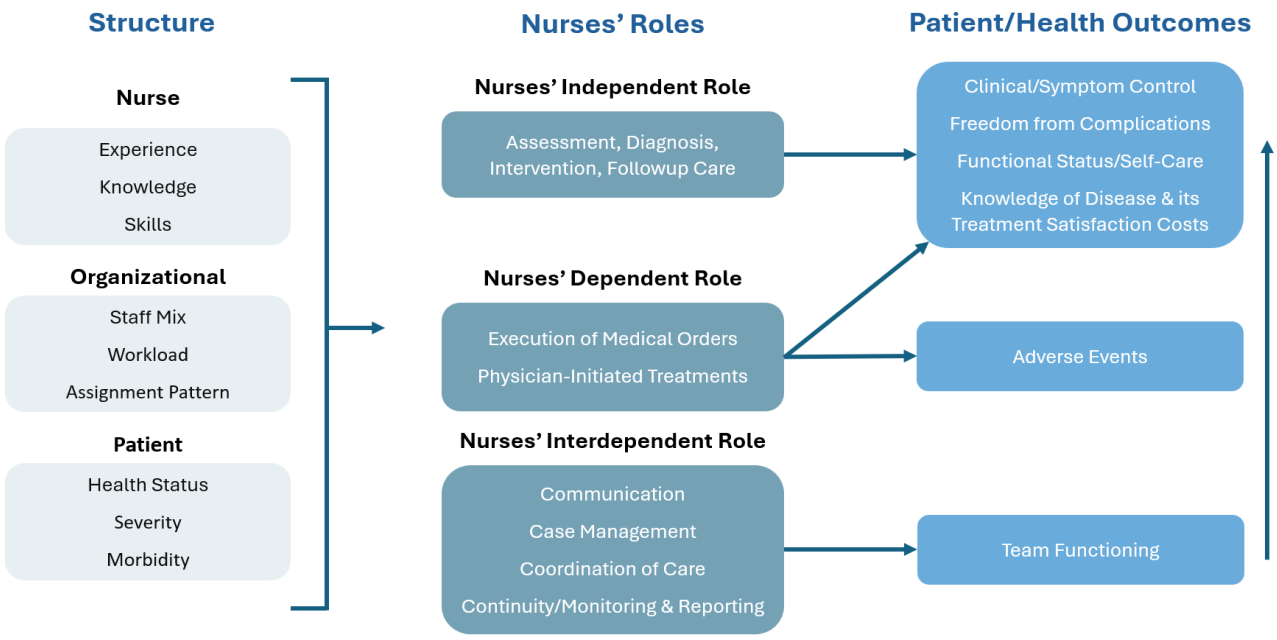

Figure 1 The Nursing Role Effectiveness Model (adapted from Irvine et al., 1998, p.59)

The first dimension, structure, consists of the set of variables associated with the nurse, patient and organization, which in turn influence the processes and results of care. The variables associated with nurses include their professional experience, knowledge and skills. Variables associated with the patient are those that reflect demographic characteristics, such as age and gender; disease-related characteristics, such as disease severity; and physical and psychosocial health status at the time of admission to care. Organizational variables focus on measures such as team characteristics, task distribution and workload (Irvine et al., 1998b).

The second component, the process, is represented by the independent, interdependent and dependent roles that nurses assume in the provision of care. The independent role consists of the functions,

responsibilities and interventions for which only nurses can be held accountable. These include nurse-initiated activities that do not require a doctor's prescription, such as collecting data, planning and implementing nurse-initiated interventions, monitoring the patient's condition and evaluating outcomes. Promoting physical comfort, facilitating self-care and managing immobility are examples of nurse-initiated interventions (Irvine et al., 1998b).

The interdependent role consists of activities that the nurse carries out that depend, partially or totally, on the functions of other healthcare providers for their fulfillment. Communicating changes in a person's state of health and coordinating health services illustrate the interdependent role of nursing. The dependent role consists of the functions and responsibilities associated with carrying out medical prescriptions, such as administering medication, or inserting venous access for fluid administration (Irvine et al., 1998a, 1998b).

The third dimension of the model, the outcome, includes results that are sensitive to nursing care, defined as patient states, behaviors or perceptions resulting from nursing interventions. Six major categories of outcomes were identified: i) prevention of complications, such as injuries and infection; ii) clinical outcomes, including symptom control and health status indicators; iii) knowledge about the disease and its treatment; iv) functional health outcomes that encompass physical, mental, cognitive, social and self-care status; (v) patient satisfaction with care; and (vi) cost of care (Irvine et al., 1998b).

This model also puts forward some propositions that reflect the relationships between the three components structure-process-results.

Regarding the structure-process relationship, the nurse's ability to adequately engage in independent, dependent, and interdependent roles is influenced by structural variables related to the nurse, the patient, and the organization. For instance, autonomous nursing interventions, outlined within the independent role, require an accurate assessment of patients' needs, which in turn requires effective communication and adequate patient observation, leading to the structuring of a care plan (Irvine et al., 1998a).

The nurse’s interdependent roles depend on their ability to communicate clearly and accurately with other healthcare team members; these communication skills are enhanced by experience and collaborative models between nurses and physicians (Irvine et al., 1998a).

Regarding the relationships between structure and outcome components, variables associated with the nurse, patient, and organization have both direct and indirect effects on outcomes. The influence of a patient’s age and immune status on hospital infection rates constitutes direct effects. Indirect effects are mediated by process variables or the roles assumed by the nurse (Irvine et al., 1998a).

According to Irvine et al. (1998b), the nurse’s role (the process) impacts care outcomes. The independent functions of the nurse, operationalized through nursing interventions, have direct effects on clinical, functional, knowledge, satisfaction, and cost outcomes.

The dependent roles of nurses can also affect outcomes. An unintentional effect of nurses' dependent roles might be the occurrence of medication errors or adverse events, potentially compromising health outcomes. Nurses' interdependent roles are influenced by the quality of interprofessional communication and service coordination, which subsequently can impact outcomes (Irvine et al., 1998a).

This conceptual model was later applied in various studies that validated its utility in practice and research. The propositions advanced in the original publication were empirically tested in an observational study, which concluded that there is a relationship between certain structural variables, nurses' role performance, and the impact on care outcomes, affirming the interrelation between the model’s three main components (Doran et al., 2002).

Other authors used the same model to study additional variables and their impact on outcomes, such as the impact of interdisciplinary communication quality on outcomes like PI development, or how structural variables such as workplace autonomy and disease severity affect the outcome of ventilator-associated pneumonia (Manojlovich et al., 2009).

Amaral et al. (2014) also studied the implementation of the NREM in a cross-sectional observational study, contributing to model validation and its utility in analyzing complex relationships among variables that influence nurses' caregiving capabilities. This study highlights relationships between structural variables such as the work environment, nurses' professional experience, specialist nurse ratio, and nursing care hours per patient per day, and their influence on process variables (nurse roles) such as communication, nursing interventions, and the nurse-physician relationship. It also underscores the impacts of these two sets of variables on outcomes like activities of daily living, instrumental activities of daily living, therapeutic regimen management, and patients' perception of individualized care.

Analisys of variables

PIs are presented as a negative outcome, categorized as a complication or adverse event. Thus, the NREM can be used to understand the correlations established with the other components - structure and process. A literature review was conducted to identify variables that may influence the outcome in each of the conceptual model's components.

Regarding structural variables, multiple risk factors associated with patient characteristics were identified that may influence the development of PIs in ICUs. Examples include activity and immobility, oxygenation and perfusion, conditions such as diabetes mellitus, skin conditions, skin moisture, age, hematological measures, nutrition, general health status, and priority management due to the patient's clinical instability (Labeau et al., 2021).

Still within the structure component, the nurses' characteristics themselves can influence PI development, such as their knowledge of PI prevention measures, motivation and attitude toward the issue, psychosocial status, and stress levels (Wu et al., 2022).

At the organizational level, some variables can be identified in the literature that, according to nurses' perceptions, may also impact PI prevention, including lack of time, workload, and shortage of nursing staff (Strand & Lindgren, 2010). Additional barriers to prevention or influencing factors include the type of care unit, access to pressure-relief materials and support surfaces, working conditions and environment, established care routines, administration's disinterest regarding the issue, and lack of specific protocols or procedures (Tschannen & Anderson, 2020).

Within the process component, or nursing roles, insufficient continuity of care and communication with other professionals are highlighted in the interdependent role (Manojlovich et al., 2009). In the dependent role, the use of medical devices or medications that influence PI development, following medical prescription, is also identified (Cooper, 2013).

Within the process component, in the nurse's independent role, research has explored the nurses' role and autonomous interventions effective in PI prevention. Some interventions highlighted in the literature include skin inspection, PI risk assessment using validated tools, skin care and hygiene, head-of-bed elevation control, early positioning and mobilization, nutritional and hydration management, use of pressure-relief surfaces, incontinence and moisture management (Lin et al., 2020).

The NREM conceptual model allows for the analysis of the PI phenomenon by systematizing the relationships between the various variables involved in their development. This is a multifactorial issue in which nurses play an independent and autonomous role, with a significant impact. However, it is also a phenomenon

that depends on other variables related to the patient, the nurse, the organization, and relationships established with other professionals.

Conclusion

The development of PIs in ICUs is a complex and multifactorial phenomenon. Understanding and studying this issue requires a systematic and comprehensive approach, supported by an appropriate theoretical framework. The NREM conceptual model has the potential to provide a theoretical framework to serve this purpose.

This conceptual model includes the analysis of three main components: structure, process, and outcome. This framework envisions variables within each component that interact and influence the outcome achieved.

Within the process component, the independent, interdependent, and dependent roles of nurses in providing care are highlighted. These roles may include activities essential for preventing complications, including PIs.

The outcome component of the NREM emphasizes PIs as a nursing-sensitive outcome, an area where nurses play a crucial role. It also underscores that nurses do not provide care in a “vacuum” and are not solely responsible for the outcome. Other structural variables may prevent nurses from performing their role optimally, thus affecting the outcome.

The conceptual model stands out for its ability to consider multiple factors, such as nurse competencies, available resources, and the organizational context, and how these interact to impact clinical outcomes. This integrated analysis is essential, as PI prevention does not depend on a single isolated factor but rather on the synergy between clinical practice, patient conditions, care environment, and the relationships among various elements of the interdisciplinary team.

This essay identified potential variables involved in this phenomenon based on a narrative literature review. In the future, a systematic review or scoping review is recommended to map existing evidence correlating the impact of each of these variables on PI prevention outcomes. Furthermore, empirical studies should be conducted to test the model's practical applicability in the intensive care context to validate the proposed relationships between variables and clinical outcomes.

To strengthen the model’s applicability in clinical practice, it would be useful to identify the variables involved in this issue in each specific context, develop protocols based on these variables, train nurses through targeted education, and incorporate this model into the continuous monitoring of preventive interventions. This approach would allow for practices to be adjusted based on the results obtained, while also identifying and strengthening the roles of nurses in PI prevention within ICUs.

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