

Honduran nursing care to pressure injuries in patients with invasive mechanical ventilation: A qualitative study

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Abstract

Background: Although substantial evidence exists regarding the treatment of pressure ulcers, there is a lack of studies demonstrating a comprehensive nursing approach for managing pressure ulcers in the ICU, particularly among patients with invasive mechanical ventilation from developing countries like Honduras. This gap in research is significant as the risk and impact of pressure ulcers on health recovery cannot be disregarded.

Objective: This study aimed to analyze Honduran nursing care for pressure ulcers in patients with invasive mechanical ventilation admitted to Intensive Care Units.

Methods: A qualitative study approach was used, with in-depth interviews conducted with 12 critical care nurses from July to September 2022. The interviews were recorded, and data analysis was performed using the participants' narratives following Colaizzi's steps.

Results: Three themes were obtained, which provide insight into the phenomenon: "The strengths in Honduran nursing interventions," "Negligence in the Honduran nursing care processes," and "Vulnerabilities in the organizational structures."

Conclusion: Nurses' experiences highlighted their timely reports and comprehensive, holistic care. However, they undergo negligence in their caring processes, such as low frequency of repositioning, lack of caring plans, and absence of self-training, leading to interdisciplinary work codependency for decision-making. Allocating resources toward nursing care and their professional growth is an investment in providing humane treatment and ensuring the prevention and management of pressure injuries in critical care patients. This study highlights the importance of comprehensive training and standardized protocols for intensive care nurses to improve pressure injury prevention and management in mechanically ventilated patients, emphasizing the need for regular patient repositioning, effective communication, and adequate resources to enhance patient care quality.

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Keywords

Honduras; intensive care units; respiration, artificial; pressure ulcer; critical care nursing; decision making; moving and lifting patients; policy making

Background

The National Pressure Ulcer Advisory Panel (NPUAP) describes a pressure ulcer as skin that is intact or non-intact, exhibiting a concentrated region of enduring, non-blanchable discoloration in deep red, maroon, or purple tones or showing separation of the epidermis, revealing a dark wound bed or a blister filled with blood (Sumarno, 2019; The Joint Commission, 2022). Pressure ulcers significantly affect health, affecting quality of life, social interaction, pain, discomfort, and lengthening hospital stays. When infected, they can trigger sepsis, potentially leading to cardiac arrest, and in severe cases, they can result in death (Spear, 2013).

Research indicates pressure injuries frequently occur in the Intensive Care Unit (ICU) (Hahnel et al., 2020). Moreover, risk factors such as bowel incontinence and immobility exacerbate the likelihood of pressure ulcer development.

Pressure ulcers continue to pose a substantial health challenge in the ICU, necessitating thorough care (Shanley et al., 2022; Zhao et al., 2021). Nurses play a crucial role in both managing and preventing it. Nevertheless, there is a scarcity of research that specifically examines the application of nursing theory to the care of pressure ulcers (Sumarno, 2019; Tervo-Heikkinen et al., 2023).

Although there exists substantial evidence regarding the treatment of pressure ulcers, a synthesis of qualitative studies showed the unavailability of studies demonstrating a comprehensive nursing approach for managing pressure ulcers in the ICU, particularly among patients with invasive mechanical ventilation from developing countries like Honduras (Al-Qudimat et al., 2024; Floyd et al., 2021). Studies have addressed nursing care for pressure ulcers, highlighting its importance, challenges, and outcomes. Common interventions include risk assessment, the use of prophylactic

devices, and comprehensive prevention strategies, but there remain areas for improvement, especially in critical care (Asiri, 2023; Darvall et al., 2018; Mendonça et al., 2018; Yilmazer & Bulut, 2019).

A study reviewing the effectiveness of nursing interventions in preventing pressure injuries reported reduced pressure ulcer incidences across several institutions, particularly in patients with medical device-related pressure ulcers (MDRPU) (Al-Qudimat et al., 2024; Mendonça et al., 2018). Nurses in critical care units were trained to assess and manage pressure ulcers, leading to improved outcomes (Mendonça et al., 2018). However, the limitations included a lack of reporting methods, such as differences in assessment time intervals (Al-Qudimat et al., 2024; Rodríguez-Núñez et al., 2019; Turmell et al., 2022). Another challenge is the inconsistent application of pressure ulcer prevention bundles across different hospitals, as some studies failed to analyze their prevention measures statistically (Al-Qudimat et al., 2024; Gaspar et al., 2019). This gap in research is significant as the risk and impact of pressure ulcers on health recovery cannot be disregarded. Furthermore, there is a deficiency in integrating nursing theory to inform appropriate decisions regarding pressure injury care, representing an under-explored area.

While these studies underscore the significance of nursing care for preventing pressure ulcers in critically ill patients, there is still a need to explore the subjective experiences of nurses and the nuanced factors influencing care in different settings, such as resource-limited hospitals. Moreover, previous research often lacks qualitative insights into how nurses perceive challenges related to pressure ulcer care under IMV, especially in developing countries like Honduras, where healthcare resources may differ. Thus, conducting a qualitative study is justified to understand the contextual factors, barriers, and facilitators that influence nursing care. A qualitative approach provides deeper insights into how systemic, cultural, and logistical challenges shape nursing practices in this environment, ultimately leading to more targeted interventions and improved patient outcomes.

To develop intervention projects for pressure ulcers involving nurses, it is essential to initially explore the knowledge, attitudes, and perceptions of pressure ulcer prevention (Kara et al., 2021; Tesfa Mengist et al., 2022). Therefore, further qualitative research is warranted to guide advanced nursing care of pressure injuries. Considering the above points, this study aimed to analyze Honduran nursing care for pressure ulcers in patients with invasive mechanical ventilation admitted to the ICU.

Methods

Study Design

It is a qualitative study with a descriptive phenomenological approach since it allowed us to explore the Honduran nurses' experiences among pressure ulcer patients with mechanical ventilation admitted to the ICU of the Honduran teaching hospital based on the participants' narratives. Moreover, this approach assumes that the lived experiences of people can provide deep insights into the realities of their work or personal lives. By choosing this method, the subjective experiences of

the ICU nurses are prioritized, and the aim is to capture the nuances of their roles, particularly concerning pressure ulcers in mechanically ventilated patients. The underlying philosophy assumes that truth and understanding arise from human experiences rather than external, objective observations (Colaizzi, 1978; Speziale et al., 2011).

Participants

Through intentional sampling and following the objective of the study, 12 nurses were selected. According to Morse (1994), a minimum of six and a maximum of 20 participants are typically recommended for phenomenological studies. The inclusion criteria were being a nursing staff at the ICU, Hospital Escuela, Honduras; Having at least one year of experience in managing users with mechanical ventilation; Having been responsible for the care of users with pressure injuries within the period from 2020 to 2022; and having been available to participate in the interviews, that is, not having been incapacitated or on vacation during data collection. No exclusion criteria were included due to the type of sampling used, where each participant is chosen objectively by fitting the inclusion criteria.

Data Collection

The data were collected from July to September 2022 through in-depth interviews that lasted 20 to 30 minutes. This instrument was composed of four open questions, with the supervision of a specialist in qualitative studies, for the proper conduct of the interviews. The instrument was validated by a committee of experts to review the agreement of the content with the objectives of the study. The interviews were carried out in person in a private space within the hospital, which was assigned by the head of nursing to guarantee the comfort and privacy of the participants. Similarly, they agreed to record the interviews to maintain the integrity of the participants' narratives. Those responsible for data collection were nurses with a prior approach to the participants, which favored the creation of an environment of trust for the authentic expression of their perceptions.

Data Analysis

The data analysis was through the participants' narratives, following the (Colaizzi, 1978) seven steps: familiarization, identification of the main narratives, formulating meanings, grouping of themes, development of an exhaustive description, producing the fundamental structure, and seeking verification of the structure. Both the collection and analysis of the data were carried out by the authors of the study, nursing professionals with qualifications and experience with qualitative approaches.

For the interpretation and implications of the theoretical framework, triangulation steps (Speziale et al., 2011) were followed, which consisted of reflecting on the combined findings to conclude the quality of care for stroke patients and its impact on participants' experiences and outcomes, Identifying opportunities for quality improvement based on the insights gained from both phenomenological research and the Longest's Model of Policy Making (Beaufort B. Longest, 2010); Considering the implications of the findings for healthcare policy, practice, education, and research. Following Longest's Model of Policy Making and this study's findings, it was planned to design a model for Policymaking in Honduran

nursing care for pressure ulcers on patients with Invasive Mechanical Ventilation.

Thus, the overall strength of the methodology lies in the inductive depth provided by Colaizzi's phenomenological approach (Colaizzi, 1978), complemented by the deductive application of Longest's Model (Beaufort B. Longest, 2010) for policy implications. This ensures that the study not only captures the lived experiences of nurses but also translates those findings into actionable recommendations for improving pressure injury care in mechanically ventilated patients in a culturally specific context. This triangulation strengthens the validity of the findings and enhances the relevance of the research for both nursing practice and policy development.

Trustworthiness

The criteria of Sandelowski (1993) and Beck (1993) were followed, which consist of the credibility, adequacy, and auditability of the study. To establish these criteria, the peer review technique was used with specialists in qualitative studies to review the thematic groups according to the narratives of the participants; the negative case technique, where all narratives were compared for contradictions; and finally, the review of the groups and narratives by the members, which consisted of showing the transcripts to each of the participants to verify if the narratives agree with what the participants were trying to propose.

Ethical Considerations

The study was approved by the biomedical research ethics committee of the Faculty of Medical Sciences, National Autonomous University from Honduras (IRB: 00003070), with approval code 037-2022. The latter gave written authorization to carry out the data collection, and then the participants signed the informed consent after the interviewer explained to them the aim of the study and that their participation in the study would not put their integrity at risk. Therefore, the identities of the participants were coded as a protective method, using the letter P (participant) followed by the number of the interview.

Results

Several thematic groups emerged to elucidate the meaning of nurses' experiences in the care provided for preventing and managing pressure injuries in patients with invasive mechanical ventilation. The participants, aged between 27 and 31 years, included one male and 11 females. Four participants held a bachelor's degree in nursing, while eight had a technical diploma. Their ICU work experience ranged from one to 13 years. The study identified three central themes, 12 subthemes, and 14 concepts. Table 1 presents a summary of these thematic groups, and definitions of themes and subthemes are available in Table 2. The thematic groups are described in detail, along with relevant quotations.

Table 1 Summary of thematic groups on Honduran nursing care to pressure ulcers with invasive mechanical ventilation

Themes	Subthemes	Concepts
1. Having strengths in Honduran nursing interventions to pressure ulcers	1.1 Timely detection and registration of pressure ulcer	1.1.1 Risk assessment 1.1.2 Verbal report 1.1.3 Nursing Notes 1.1.4 Physical Assessment
	1.2 Knowledge regarding repositioning practice of bedridden patients	1.2.1 Butterfly repositioning technique 1.2.2 Lower limb elevation 1.2.3 Block mobilization 1.2.4 donut-shaped pillow 1.2.5 Inflatable mattress 1.2.6 Water mattress
	1.3 Carrying out comprehensive holistic nursing care	1.3.1 Skin hydration 1.3.2 Nutritional condition 1.3.3 Bed bath
	1.4 Periodic wound management	
2. Undergoing negligence in the Honduran nursing care processes	2.1 Low frequency of repositioning	
	2.2 Lack of nursing care plan	
	2.3 Absence of self-training	
	2.4 Interdisciplinary work codependency for decision making	
3. Facing vulnerabilities in the organizational structure	3.1 Unavailability of institutional protocols	
	3.2 Paucity of professional commitment	3.2.1 Dehumanized care
	3.3 Nursing role overload	
	3.4 Shortage of medical-surgical supplies	

Having Strengths in Honduran Nursing Interventions for Pressure Ulcers

Actions performed by nurses in the immediate contact with the patient when they are admitted to the ICU and during daily integrated care: *"At the time of admission, the patients are checked, and it is identified if they come with ulcers, then it is also reported if they come with ulcers from other wards or from the emergency room"* (P1). As stated by the participant, the main purpose is to discover the presence of pressure injuries by employing an exhaustive physical examination.

The diagnoses, size, and characteristics of the lesion are recorded in the nursing notes, and the physician in charge of the shift is notified verbally. A participant mentioned: *"The professional with a nursing degree are the ones responsible for writing nursing notes and reporting in the ICU"* (P2). Another participant also said: *"The doctors on duty are called and reported to them. It is recorded in the nursing notes indicating whether the patient has ulcers, their size, and a photograph is also taken"* (P1). That assessment is also developed in another moment as the participant stated: *"If the*

patient has to be mobilized for any reason, we take advantage of the opportunity to assess pressure injury risks" (P5). Similarly, another participant mentioned: "It is assessed when bathing or when repositioning is performed" (P6).

To measure the risk of pressure ulcers, the nurses consider factors such as age, nutritional status, health condition, base pathology, length of stay, and the kind of unit to which the patient is assigned. "The patient's age, nutritional

status, and length of stay are considered. Accordingly, we measure the risk of pressure injuries sustained by the patient ... We consider the number of days bedridden. And most importantly, the level of risk presented by patients on invasive mechanical ventilation is considered" (P3). Pressure injuries are usually diagnosed when they are in the first and second degree. "It is detected when it is lacerated, or with erythema in the area" (P4).

Table 2 Definitions of thematic groups regarding Honduran nursing care for pressure ulcers in patients with invasive mechanical ventilation

Thematic Groups	Definitions
Having strengths in Honduran nursing interventions to pressure ulcers	These are the inherent skills possessed by Honduran nurses, which uniquely enhance their capacity to excel in particular types of tasks or roles in a scenario of deficiency and deficiencies.
Butterfly repositioning technique	The lower extremities are positioned in a butterfly shape by bringing the soles of the feet together while ensuring that the knees do not rub against each other. Additionally, pillows are strategically placed to prevent friction and potential injury to vulnerable areas such as the ankles and elbows, but not at the level of the back and coccyx.
Lower limb elevation	Sitting or lying down with legs elevated, a practice known as leg elevation, offers several potential health benefits, including improved blood flow support and decreased pressure on certain body areas.
Block mobilization	A rapid mobilization system involves lifting a bedridden patient using a block lifting technique. Health workers position themselves between the patient's legs, placing their hands on both sides of the patient to provide minimal lifting support. Meanwhile, another health worker slides a spinal board or stretcher beneath the patient to facilitate movement.
Donut-shaped pillow	Consists in positioning donut-shaped cushions either directly over existing lesions or in areas susceptible to developing lesions to prevent pressure and promote healing.
Inflatable mattress	These are lightweight, compact air mattresses designed to minimize skin pressure and enhance blood circulation.
Water mattress	These are beds or mattresses filled with water, commonly known as waterbeds, designed specifically for medical therapy purposes, as minimizing skin pressure, and enhancing blood circulation.
Skin hydration	Nursing interventions implemented proactively to prevent dry skin and concurrently serve as an assessment tool for nutritional status.
Nutritional condition	Nutrient-related diseases and conditions that result in weight gain can make it challenging for nurses to reposition patients due to increased body weight and potential mobility limitations.
Bed bath	Assisting with bathing for a bedridden patient who lacks the physical and mental capacity to bathe independently.
Undergoing negligence in the Honduran nursing care processes	Neglect refers to the failure or omission to provide care that a reasonable and prudent nurse, faced with similar circumstances, would have administered.
Facing vulnerabilities in the organizational structure	Inability on the part of the health institution to train and care for intervention teams, as a means to manage and prevent risks. Resulting in the inability of health personnel to manage and prevent complications related to pressure ulcers.
Dehumanized care	Nursing care that becomes depersonalized and focused on being efficient but not comprehensive and holistic. Nurses, due to the negative impact of their work environment, are stripped of human, and ethical characteristics.

The knowledge of mobilization of bedridden patients according to specific needs is the understanding of repositioning techniques applied to mechanically ventilated patients whose mobility is limited in order to examine the skin and prevent pressure ulcers. "Repositioning helps a lot, as pressure points are checked, and gives the skin a chance to heal" (P7). Similarly, another participant mentioned, "Depending on the patient's condition and diagnosis, the frequency of postural changes and position are decided in order to reduce the risk of a pressure injury" (P3).

The postural changes of the mechanically ventilated bedridden patients consist of lower extremities mobilization and placement of comfort devices on the coccyx, as the patient cannot be fully mobilized due to the life support therapeutic resource. "We are only able to move the lower extremities" (P1). Furthermore, the repositioning for bedridden patients with mechanical ventilation performed by Honduran nurses in

the ICU is block mobilization, which consists of a set of manual mobilization actions with the use of donut-shaped pillows that allow them to change the patient's position with minimal effort and risk for the nurses. "If the patient has an ulcer, the repositioning is performed. A donut is placed on the coccyx, but only on the patient who already has an ulcer" (P2). These actions may be performed only at the time of bed bathing. "The postural change is done by block technique once a day during the bathing" (P2).

Another strategy used is the elevation of the lower limbs and placing them in a butterfly shape to avoid skin lacerations with the support of donut-shaped pillows or comfort devices. A participant explained, "The lower extremities are placed in the shape of a butterfly. Put the two soles of the feet together, then avoid rubbing the knees ... place pillows or something that avoids rubbing the parts that are easy to injure. Like the ankles and elbows, but not at the level of the back and coccyx" (P1).

Another participant also mentioned, *"Donut-shaped are placed where you have the lesion or in the areas where the lesion may occur"* (P3).

To facilitate the patient repositioning, at the time of admission, the nurses assign the patients with mechanical ventilation to a unit according to their physical characteristics. *"Depending on the patient's condition, we choose the bed type"* (P3). In addition, water and inflatable mattresses allow easier repositioning, decrease pressure on the skin, and improve blood flow. That previous point was stated by a participant, *"We have beds with inflatable mattresses that help in terms of skin pressure and blood irrigation. If we have a patient with obesity, we choose to put them on a water mattress"* (P3).

Comprehensive, holistic nursing care is the execution of techniques that encompass care in all aspects of the patients as a complement to the clinical needs for the protection of the skin from pressure ulcers. A participant mentioned, *"Hygiene and hydration of the skin are important to prevent ulcers"* (P3). Therefore, those actions include hygiene activities such as bed bathing, *"Bed bathing is beneficial in hydrating"* (P7). Likewise, hydration of the skin with Vaseline dressings, *"the skin is moisturized with Vaseline, and we assist in the patient's daily bath. The Vaseline dressing prevents the lesion from increasing in size"* (E4). Finally, caring for the patient's nutritional status, as one participant stated, *"especially if the patient is overweight, nutritional status is also prioritized"* (P3).

Periodic nursing wound management promotes tissue healing or prevents the pressure injury from progressing. *"To prevent them from progressing, wound cure is performed twice a day. In the morning and in the evening"* (P1). For its execution, nurses use saline solution and chlorhexidine for initial disinfection. *"Wound management consists in using chlorhexidine, saline solution and if required topical medication after treatment"* (P1).

Subsequently, if the lesion is superficial without exposed muscle tissue, sufrexal is applied to promote healing, and sulfadiazine is used to prevent infection. *"When the pressure ulcers are superficial, and there is no exposed muscle tissue, we use sufrexal and sulfadiazine"* (P3); also, another participant stated, *"Application of hydrocolloid patches by medical doctor's orders"* (P1). In special cases, if the lesion warrants it, fusidin, silver sulfadiazine, and microdacyn are applied with medical indication. If the lesion is only on the epidermis, Vaseline dressings are used.

Undergoing Negligence in the Honduran Nursing Care Processes

Repositioning of the mechanically ventilated bedridden patient with a frequency of every eight hours or even daily during bed bathing. *"Twice per shift. During bathing, and before the end of duties"* (E5). One participant said, *"We seldom reposition the patients"* (P2). Likewise, Honduran nurses only perform repositioning when receiving a medical doctor's order or when the patients have high-pressure injuries. *"Only if it is a medical doctor's order, or the ulcer is in very advanced stages"* (P1). Similarly, another participant mentioned, *"Repositioning is made when the patient spends a long time bedridden, and the doctor orders it ... sometimes there is no time left to mobilize the patients"* (P4). However, this action may be omitted when the nurses are overloaded with tasks during the shift; as a

participant mentioned, *"sometimes there is no time left to reposition the patients"* (P4).

Besides the work overload, the omission or low frequency of repositioning is due to the lack of personal motivation and the absence of teamwork since the participants stated that they need the integration of the personnel on duty for the performance of the repositioning of bedridden patients since it is not a task that can be carried out individually. *"That's due to a lack of willingness on the part of the team. If your partner doesn't help you, you're not going to move the patient alone"* (P2).

Lack of protocolization of nursing care according to the patient's needs in the ICU. Hence, there is no nursing diagnosis and no monitoring of the patient's condition to consolidate the evaluations as the axis of improvements in interventions, resulting in basic care, as well as empirical practice based on personal experiences instead of autonomous and evidence-based practice. *"We do not have an established care plan"* (P7). One participant noted, *"We do not make care plans. We act according to what we know about the pathology. We already know what we must do, and if it doesn't work, I ask the head nurse for advice"* (P1). Lastly, another one also stated, *"There is no plan; it depends mostly on the creativity of the nurses to see what they may do for the patients ... the most they can do is basic care"* (P5).

Lack of application of learning processes to overcome the challenges related to pressure injury specialized management in high complexity units by nurses. Instead of using strategies to search for scientific evidence, professionals decide to rely on the recommendations of other professionals with more work experience or even turn to professionals from different disciplines to comply with their advice. One participant mentioned, *"When I don't know what to do, or I feel care is not working, I seek guidance from my supervisor. Because I have basic knowledge, but she has more knowledge that she has acquired through work experience. If she doesn't know what to do, I ask the physicians, but I don't go to study or do research"* (P1).

The participants recognized the need to update their knowledge in pressure ulcer nursing care since these professionals do not know how to intervene when in contact with patients who require advanced care. However, these professionals show a negative and arrogant attitude when the authorities of their institutions organize educational refresher days. *"As nurses, we need to be updated in ulcer care. I feel that our knowledge about ulcer patient care is deficient. The health managers try to do educational workshops on the subject, but sometimes people respond that they already know enough, but it is a lie, and they do not know. Because when it comes to acting with a patient with ulcers, they don't know what to do"* (P1).

The lack of motivation arises from the working conditions of the Honduran public health system, where, due to several limitations, nurses are unable to innovate their practices. *"There is no point in continuing to study pressure injury management because it cannot be put into practice. In the end, we all end up doing the same thing"* (P1). Likewise, participants recognize that by seeking to update their scientific knowledge, their care activities would meet the clinical needs of critical patients. *"The more updated we are, the better the quality of care we can provide to the patient"* (P3).

Workplace behavior affects the nurses' ability to independently rationalize and make decisions regarding the prevention and advanced management of pressure injuries in mechanically ventilated patients admitted to the ICU. *"First, I report the ulcer risk to the nurse manager on duty, and then it is presented to the physician to see what care the medical doctor may order"* (P4).

Facing Vulnerabilities in the Organizational Structure

The lack of standardization of actions to avoid the incidence or complications related to pressure injuries in admitted patients in Honduran high-complexity health services. In other words, the nurses do not have the motivation, resources and an organizational guide that promotes the structuring of strategies focused on preventing pressure injuries, as well as that regulates their advanced, autonomous, and efficient practice in adequately managing injuries. *"Our interventions are focused on preventing the wound from progressing, not on preventing their incidence ... There is no protocol here ... But as nurses, we could do more to prevent. It is so easy because when the ulcer is already there, it is difficult to manage it, especially with our public health system where we do not have the necessary supplies"* (P1).

Consequently, there is no way to oblige the health services authorities to guarantee decent conditions of stay for users hospitalized in ICU with mechanical ventilation; thus, there is no public policy that encourages public and private organizations to invest in public health in the country. *"There is really no protocol or validated guideline where the*

measurements can be taken and compared ... there is none in the ward, nor at the national level" (P7).

There was a lack of effort and purpose in advanced nursing care. Specifically, prevention and specialized pressure injury management. *"Not all nurses have the commitment to check the patient, to take care of ulcers. There are nurses who sometimes do not even report the presence of ulcers when they detect them"* (P1). The lack of such commitment reflects a dehumanized nursing practice that ignores the clinical needs of inpatients. *"It may be limiting factors, but more than anything else, it is a lack of willingness ... we need to be more humanitarian, to try to help the patient"* (P2).

Nursing overload is a situation in the ICU where the nurses are forced to face many responsibilities or demands of inpatients that exceed their ability to manage effectively during their workday. This limitation occurs due to the limited availability of nurses in each shift, which is not commensurate with the influx of patients in critical condition who come to the ward for specialized nursing care. *"Not enough staff on duty for patient demand"* (P4). This situation is worsened by situations that prevent regular personnel from working, such as medical incapacity. *"Also, there is an overload of work due to staff incapacities"* (P4).

Limited availability of medical-surgical material for preventing and properly managing pressure injuries. This problem is presented as a barrier to advanced nursing practice. *"There are limitations in terms of supplies for pressure injuries prevention and management"* (P5).

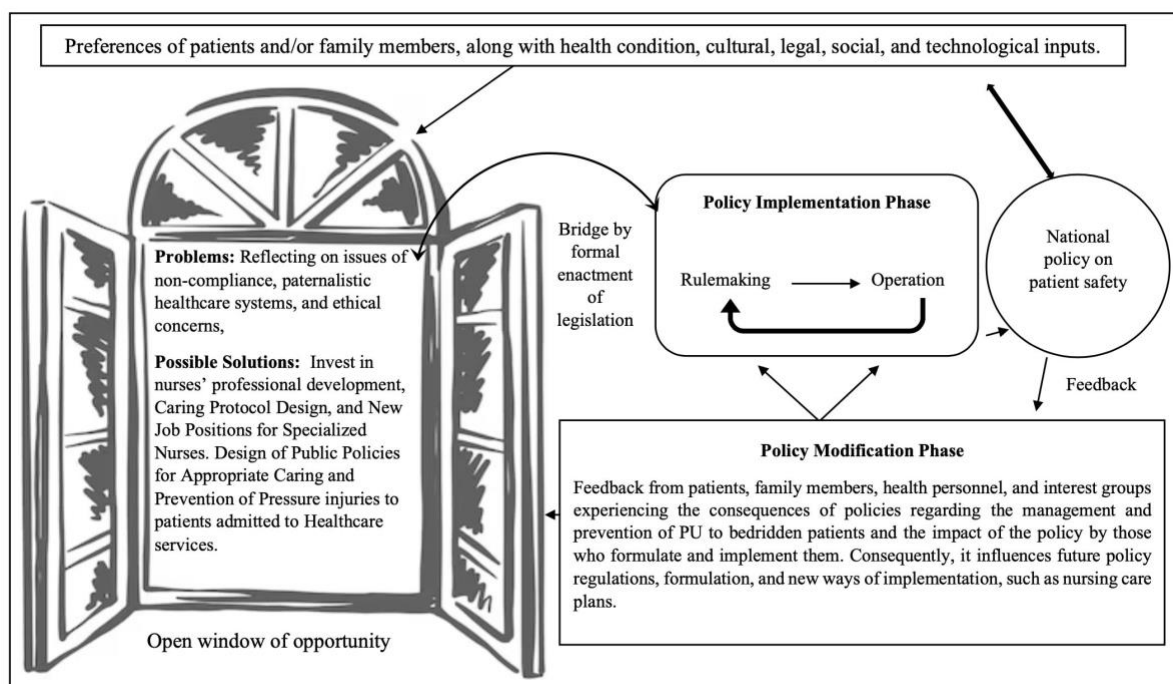


Figure 1 Model for Policymaking on Honduran Nursing Care to Pressure Ulcers on Patients with Invasive Mechanical Ventilation [Designed following the USA Model of Policy Making by applying the study's main findings]

By synthesizing the findings from this phenomenological research with Longest's Model of Policy Making, we developed a model to advance the prevention and management of pressure ulcers among patients undergoing invasive mechanical ventilation (see [Figure 1](#)). Although the implementation of such a model in developing countries may

not immediately yield equitable outcomes across the global health workforce, it has the potential to enhance nurses' accountability for their professional performance and development. Consequently, this approach may foster a more patient-centered care protocol design and elevate patient

satisfaction, particularly when applied within a patient-centered framework.

Discussion

This study explored the experiences of nurses in the prevention and management of pressure ulcers in patients with invasive mechanical ventilation in the ICU. The findings highlight strengths and areas of negligence within nursing practices in Honduras, emphasizing the need for systemic improvements in healthcare protocols and nurse education.

The study revealed that Honduran nurses exhibit commendable diligence in the initial assessment and ongoing monitoring of patients at risk for pressure ulcers. Conducting thorough physical examinations upon ICU admission and during routine care, as well as detailed documentation of diagnoses and characteristics of pressure injuries, demonstrates a strong foundation in clinical vigilance (E1, E2). This aligns with current best practices in nursing, which advocate for early identification and continuous monitoring as critical steps in pressure ulcer prevention and management (Osuagwu et al., 2023; Zuniga et al., 2024).

Furthermore, strategically using repositioning techniques and comfort devices underscores the nurses' understanding of pressure ulcer prevention principles. Regular repositioning and the application of donut-shaped pillows to alleviate pressure points are effective interventions supported by other studies (Heo et al., 2022; Iblasi et al., 2022). However, donut-shaped pillows may also increase the risk of developing occipital pressure ulcers, which is not pointed out by the Honduran nurses (Katz & Gefen, 2023). Customizing care, such as selecting appropriate beds and mattresses based on patient characteristics, also reflects an adherence to evidence-based practices designed to mitigate pressure ulcer risks (Andayani et al., 2020; Hahnel et al., 2020; Huang et al., 2023). Similarly, there is a pressing need to conduct more high-quality research on prevention strategies, such as repositioning, to validate their effectiveness and provide solid justification for their implementation (Cortés & Vásquez, 2024).

Despite these strengths, the study identified significant gaps in the frequency and consistency of repositioning practices. The infrequent repositioning of patients, often limited to once or twice per shift or only upon a physician's order, indicates a deviation from recommended protocols, which suggest repositioning every two to four hours (Padula et al., 2024). This inconsistency can be attributed to several factors, including heavy workloads, lack of teamwork, insufficient personal motivation among nurses, and the need for protocol updating (E2, E4). These findings are consistent with other studies highlighting the impact of nurse staffing levels and workplace culture on the quality of patient care (Ghazanfari et al., 2022).

An experimental study in Colombia shows that it is necessary to reposition bedridden patients in critical conditions every two hours to prevent pressure ulcers and highlights the importance of standardizing the repositioning techniques in the ICU (Cortés et al., 2021). The repositioning positions are not established in the scientific publications, an innovation from the current study, which defines certain positions realized by Honduran nurses in critical care units

(Gillespie et al., 2021), and on the other hand, Asiri (2023) pointed out that the frequency and type of repositioning will be according to patients' special needs. The absence of standardized nursing care plans and the reliance on empirical practices rather than evidence-based interventions further exacerbate the issue. Participants reported acting based on personal experience and improvisation, which can lead to variability in care quality and outcomes (E1, E5). The literature emphasizes the importance of standardized protocols and continuous education to ensure consistent and high-quality care (Yilmazer & Tuzer, 2022; Yilmazer et al., 2020).

The study also highlighted challenges related to the continuing education and professional development of nurses. The reluctance of some nurses to engage in educational workshops and the reliance on hierarchical guidance rather than independent learning points to a need for a cultural shift towards lifelong learning and professional accountability (E1). This is crucial, as ongoing education and monitoring systems have been shown to significantly improve clinical skills and patient outcomes (Renganathan et al., 2019). Likewise, consider improving the nurses' and students' attitudes and commitment regarding pressure ulcer prevention in critical care patients, a phenomenon found in the participants (Rostamvand et al., 2022).

Moreover, the working conditions within the Honduran public health system, including inadequate resources and organizational support, contribute to the challenges faced by nurses. The lack of necessary supplies and an organizational framework to support advanced pressure ulcer prevention and management practices hinder the ability of nurses to implement effective care strategies (E1, E7). Addressing these systemic issues requires concerted efforts from healthcare policymakers to invest resources and infrastructure supporting best practices in nursing care (Gour-Provencal et al., 2021).

For practice and policy, several recommendations can be derived from this study to enhance the prevention and management of pressure ulcers in ICU patients. First, the implementation of standardized protocols and care plans tailored to the specific needs of mechanically ventilated patients is essential (Yilmazer et al., 2020). These protocols should be based on the latest evidence and integrated into the daily routines of nursing staff to ensure consistency and efficacy (European Pressure Ulcer Advisory Panel et al., 2019; Yilmazer & Tuzer, 2022; Yilmazer et al., 2020). Second, there is a need for ongoing education and training programs focused on pressure ulcer prevention and management. These programs should be designed to encourage active participation and address the specific knowledge gaps identified among health personnel (Alfadhalah et al., 2024; Dagnachew et al., 2023; Ghazanfari et al., 2022). Institutions should foster a culture of continuous learning and professional development to keep pace with evolving best practices (Alfadhalah et al., 2024).

Third, improving the working conditions and resource availability in ICUs is critical (Ghazanfari et al., 2022). Adequate staffing levels, access to specialized beds and mattresses, and the availability of necessary medical-surgical supplies are fundamental to the effective prevention and management of pressure ulcers. Policymakers should prioritize investments in these areas to support the delivery of high-quality care (Ghazanfari et al., 2022; McGraw, 2019).

Finally, fostering a collaborative and supportive work environment is vital. Encouraging teamwork and enhancing communication among healthcare providers can mitigate the challenges associated with workload and improve patient outcomes (Ghazanfari et al., 2022; Zhang et al., 2022). Leadership within healthcare institutions should promote policies and practices that facilitate collaboration and mutual support among staff (Duran et al., 2021; Zhang et al., 2022).

Allocating resources toward nursing care and their professional growth is an investment in providing humane treatment and ensuring the prevention and management of pressure ulcers in hospitalized patients. This investment may lead to a decrease in complications and hospitalization stays. Additionally, it has the potential to enhance nurses' ability to integrate innovative care plans, thereby promoting patient recovery. Thus, nurses ought to be involved in the formulation of public policies, ensuring the development of theoretical frameworks that enable their autonomy and critical decision-making skills.

This study explored the experiences of nurses in the prevention and management of pressure ulcers in patients with invasive mechanical ventilation in the ICU. The findings highlight strengths and areas of negligence within nursing practices in Honduras, emphasizing the need for systemic improvements in healthcare protocols and nurse education. Honduran nurses demonstrated commendable diligence in the initial assessment and ongoing monitoring of ICU patients at risk for pressure ulcers, conducting thorough physical exams and documenting their findings, aligning with global best practices (Osuagwu et al., 2023; Zuniga et al., 2024). However, gaps were identified in the consistency of repositioning practices, often limited by high workloads and inadequate resources (Padula et al., 2024).

Globally, the study's findings have significant implications, as they echo challenges faced in other resource-limited healthcare settings. The variation in the implementation of evidence-based practices, such as repositioning frequency and the use of comfort devices, emphasizes the need for standardized care plans adaptable to the realities of ICU settings (Cortés & Vásquez, 2024). Additionally, the study stresses the importance of continuous education and training for nursing staff to ensure the integration of up-to-date knowledge into daily practice, a need reflected in both developed and developing healthcare systems (Alfadhlah et al., 2024; Ghazanfari et al., 2022).

This research contributes to the global body of knowledge on pressure ulcer prevention, highlighting the essential role of tailored interventions and systemic support to improve patient outcomes. The insights gained from Honduran nurses' experiences underscore the urgency of investing in human and material resources, a challenge echoed in international efforts to enhance ICU care (McGraw, 2019; Zhang et al., 2022). Hence, the study advocates for a collaborative approach, where healthcare institutions, policymakers, and nursing professionals work together to improve care standards for critically ill patients worldwide.

Limitations

The study promotes a broad understanding of the nurses' experiences with the care provided in preventing and managing pressure ulcers in patients with invasive mechanical

ventilation from a developing country. Likewise, it offers a comprehensive framework for understanding the phenomenon, strategies for health management, and a model for policymaking to improve the quality and autonomy of nursing care by considering the latest evidence. Even though a small sample of participants was taken, adopting a qualitative approach in this study offered nuanced insights centered on the participants' experiences. However, the phenomenon in a study is a dynamic issue. Therefore, some of the insights shared by our participants may not reflect the current realities in multiple Latin American contexts.

Further studies considering a qualitative approach regarding other health personnel perceptions, patients, and their family members are also needed to understand the phenomenon in-depth. Likewise, to understand how developing countries' governance, human rights norms (and other societal norms), and public health systems are linked to the lack of a humanized approach from health personnel and compliance with the prevention and management of pressure ulcers. Therefore, a quantitative approach to designing an appropriate intervention that considers the development of nurses' competencies as an approach that measures their quality of caring.

Contributions to Practice

This study offers a model that contributes to nursing and health sciences practice by providing a structured approach to improving the prevention and management of pressure ulcers among patients on invasive mechanical ventilation. By following Longest's Model of Policy Making, this study also provides a practical framework that, while particularly relevant to developing countries, has the potential to foster greater accountability among nurses for their performance and professional development. This, in turn, could lead to more compassionate and humanized healthcare practices and enhanced patient satisfaction, especially when integrated into a patient-centered and holistic care model.

Conclusion

This study underscores the dual nature of nursing care in preventing and managing pressure ulcers in mechanically ventilated ICU patients in Honduras, highlighting exemplary practices and areas needing improvement. By addressing the identified gaps through standardized protocols, continuous education, improved working conditions, and fostering a collaborative environment, healthcare providers can enhance the quality of care and outcomes for patients at risk of pressure injuries. Future research should continue to explore these areas, focusing on the implementation and impact of targeted interventions to support nurses in their critical role in pressure ulcer prevention and management.

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Authors' Contributions

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Data collection: YIVB.

Data analysis: OFAM.

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Data Availability

Supporting data for this study are available on request from the corresponding author.

Declaration of Use of AI in Scientific Writing

The authors partly used LLM to improve the readability of the writing of this article.

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