

Gap Analysis in the Implementation of Standards of Care for Pressure Ulcers Prevention Utilizing Braden Scale

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Nor-Ain S. Panondi¹ & Maria Jocelyn B. Natividad²

King Abdulaziz University Hospital¹

Graduate School, Lyceum of the Philippines University^{1,2}

*norainpanondi@yahoo.com.ph*¹, *mariajocelynnatividad@gmail.com*²

Abstract – *Despite the advances in nursing care, pressure ulcer remains one of the major concerns among health care facilities in Saudi Arabia. This study investigated the barriers and challenges in the implementation of standards of care for pressure ulcer (PU) using Braden Scale. Convergent parallel mixed-method research was utilized to specifically assessed the nurses' knowledge, practices and attitude in risk assessment and management of pressure ulcer; and lastly determined the challenges and barriers in the implementation of care. Purposive sampling was used to recruit 108 participants for quantitative and 5 informants for the qualitative data. Preventing Ulcers in the Hospital using Braden Scale was the main instrument in quantitative part while interviews were conducted to gather qualitative data. Descriptive statistics were used to analyze the quantitative data, while thematic analysis was utilized for the qualitative.*

Results reveal that nurses are knowledgeable on Braden scale, and they apply it in clinical practice. While they perceived that heavy workload, understaffing, shortage of resources and uncooperative patients and family members are the barriers and challenges that they experienced the most in the implementation of risk assessment and management of pressure ulcer. It was supported by the emerging themes: awareness on risk assessment and pressure ulcer management, cooperative efforts among health care providers, patient involvement in pressure ulcer prevention and barrier to prevention and management. Regardless of how nurses exert effort, there are still barriers and challenges that hinder prevention and management like patient cooperation, disease condition, scarcity of resources, and understaffing.

Keywords: *Barriers, Challenges, Management, Pressure Ulcer, Prevention*

INTRODUCTION

A pressure ulcer is an injury to the skin and underlying tissues over bony prominences such as sacrum, buttocks, trochanters, scapula, shoulders, heels, and toes. It is developed when the skin breaks down due to constant pressure, or pressure combined with shear or friction. Pressure ulcer (bedsores) remains one of the problems among bedridden and immobile clients with long stay in the hospital due to paralysis, weakness, and pain. Although it is typically preventable but increasing old-age population, patients with chronic illness, decreased mobility, malnutrition, dehydration, and nurse-patient ratio may contribute to its prevalence. It may lead to serious health concern not only in terms of morbidity and mortality but also of increase in health resource consumption and prolonged hospitalization in an acute care facility.

Nurses are the primary responsible for risk assessment and care for patients with pressure ulcer. Research suggests that when the health care providers

are functioning as a team, there will be a decrease in incidence rates of pressure ulcers. However, nurses, being the frontline is commonly blame with the incidence of pressure ulcer among patients even though the whole member of the health care system has the accountability for it. Literature says that if a patient has bedsores, it is evidence of caregivers' negligence, which is associated with poor nursing care or non-existent of care [1]-[3].

Pressure ulcers may be associated with an increased length of hospital stay and despite of all the advances in medicine, surgery, and nursing care; pressure ulcers remain a major cause of mortality [4] and occurs not only to those at risks inpatients but also after discharge [5]. A systematic review by Tubaihat et al. [6], estimated a global prevalence in the acute care setting to be between 6 and 18.5%. While, in Saudi Arabia pressure ulcer prevalence rate of 44.4% and incidence rate of 38.6% in 2013 was reported by Tayibb [7], which seems to be paucity. In the tertiary hospital

where the research will be conducted, it was documented that there was an increased rate of pressure ulcer incidence from 2020 with a p-value of 0.48 to 1.01 in 2021 then eventually decreased to 0.94 in the year 2022 which is still high than the target of less than 0.7.

With this, Saudi Arabian hospital system, implemented the Pressure Ulcer Preventive Program (PUPP) in 2014. This program created a wound care team and focused on providing education to hospital staff inclusive of patients and their families in hospital. The PUPP included planning care needs with each patient and their family in preparation for discharge. The program then followed patients and their caregivers at their homes providing follow-up care, education, and support while tracking both pressure ulcer healing progress as well as the development of potential new pressure ulcer [5].

Utilizing Braden Scale, a standardized, evidence-based assessment tool commonly used in health care to assess and document a patient's risk for developing pressure ulcer could reduce the reduce if not totally eradicate the prevalence of such condition.

The last research conducted about pressure ulcer in the latter shows that Hospital Acquired Pressure Ulcer (HAPU) rate per 10,000 inpatients went slightly higher in year 2017 at 6 HAPUs per 10,000 inpatients and then dropped to about 2 HAPUs per 10,000 inpatients in year 2018.

Hence, an advancement in identifying the patient at risk for pressure ulcer including its treatment and prevention of further ulcers became one of the goals of wholistic patient care, but nonetheless, there are still reported incidences of the condition. Unavoidable pressure ulcers do occur in patients who are hemodynamically unstable, terminally ill, have certain medical devices, and are non-compliant with the care plan especially repositioning. On this note, the researcher became interested to investigate on further data about the implementation of care for pressure ulcer in a tertiary hospital in Saudi Arabia. Being skillful with the risk assessment, management, and prevention of re-occurrence of pressure ulcer is not only part of provision of quality nursing care but could lessen the burden of longer hospitalization brought about by painful condition which is one of the advocacies of the nursing service department. Furthermore, assessing the challenges and barriers in the implementation of care to patients at risk for and with current disease condition will pave way in the enhancement of program for prevention of pressure ulcer. Finally, the output of this

research may become the basis of evaluation of the current program for pressure ulcer prevention in the selected research setting.

OBJECTIVES OF THE STUDY

This study sought to investigate the gap in the implementation of standards of care among patients with pressure ulcer utilizing Braden Scale. Specifically, it assessed the nurses' practices on risk assessment and management of pressure ulcer; determined the challenges and barriers in the implementation of the standards of care for PU; and lastly, proposed strategies to address the gap.

MATERIALS AND METHODS

Research Design

This study used convergent parallel mixed-method design. This entails the researcher to concurrently conducts the quantitative and qualitative elements in the same phase of the research process, weighs the methods equally, analyzes the two components independently, and interprets the results together [8]. It is best suited to describe and analyze the participants' practices on risk assessment and management of pressure ulcer using Braden scale, as well as the challenges and barriers in the implementation of standards of care for patients with pressure ulcer. This allows both quantitative and qualitative data to be collected and analyzed, then compared both data to see if it confirms or disconfirms each other [9].

Informants of the Study

Purposive sampling was utilized to select the one hundred ten participants of the study. The participants were the nurses from ICU, Medical and Surgical units of the locale of the study who are assigned to care for patients with pressure ulcer and at risk for development of such condition in a tertiary hospital in Saudi Arabia and willing to participate. Those who did not give direct care and work in the nursing office were excluded in the study. Data saturation was the basis of determining the sample five informants for qualitative part. Data saturation was confirmed that the collected data yield similar results and established similar results to come up with emerging themes and conclusions.

Research Instrument

The study used a two-part instrument. The first part is the adapted instrument on Preventing Pressure Ulcers in the Hospital Utilizing Braden Scale which is downloadable from Agency for Healthcare Research

and Quality. The last part of the instrument was adapted from the study of Etafa et al. [10], about “Nurses’ attitude and perceived barriers to pressure ulcer prevention” and Batiha [11], “Critical Care Nurses’ Knowledge, Attitudes, and Perceived Barriers toward Pressure Injuries Prevention.”

Semi-structured interviews were conducted using an interview-guide questions that was formulated in identifying risk assessment and management of pressure ulcer and the challenges and barriers in implementation of standards of care for pressure ulcer. Interview guide questions undergo validation from experts in the field of qualitative study.

Data Analysis

In lieu of quantitative data analysis, this study utilized descriptive statistics to determine the nurses’ risk assessment and management of pressure ulcer and the challenges and barriers in the implementation of the standards of care for PU. Weighted mean represented the placement of the sample size when calculating a theoretically expected outcome where each outcome has a different probability of occurring. While thematic analysis was used to interpret the qualitative data through the following steps: becoming familiar with the data through reading and re-reading the transcripts; search for patterns or themes in the codes; develop and review preliminary themes; and lastly is refinement of themes [12].

Data Gathering Procedure

The request letter for the use of instrument was sent to the corresponding author. After its approval, it was partially enhanced and underwent validation from the five experts in mixed method research approach together with the formulated interview guide questions. Thereafter, a letter was forwarded to the director of the tertiary hospital where the data gathering was conducted. Once the go signal was sought, data collection started. The purpose of the study was explained to the target participants prior to the start of data collection during the month of July 2023.

Ethical Considerations

The study involved human participants and was reviewed and approved by the Ethical Committee of Research of the Lyceum of the Philippines and Institutional Review Board of the tertiary hospital where the research was conducted. Informed consent from the participants at the commencement of the study

for those who accepted to participate was secured. Participants were assured that they were free to withdraw from the study at any time. The researcher kept all the records and studied transcripts confidentially in a password protected file. The data was stored until the research is completed and deleted once the manuscript has been published. All issues related to ethical considerations were considered throughout the study to protect the participants’ privacy, confidentiality, and participants’ comfort.

RESULTS AND DISCUSSION

Table 1. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Sensory Perception

	Mean	Interpretation	Rank
1. Screen for pain related to pressure ulcer.	4.27	Often	5
2. Encourage patient to report pain over bony prominences.	4.50	Always	3
3. Assess and inspect skin pressure sites every shift.	4.68	Always	1
4. Evaluate skin sensation.	4.60	Always	2
5. Check temperature changes.	4.49	Often	4
Composite Mean	4.51	Always	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

As seen on Table 1, the respondents of this study always practice risk assessment and management of pressure ulcer in terms of sensory perception as proven by the composite mean of 4.51. Nurses possess the knowledge and good attitude to carry out measures in assessing clients who are at risk for the development of pressure ulcer.

It is further supported by one of the informants’ statements, “*We had lectures on risk assessment and management of pressure ulcer and yearly competency exam.*” The fact that it is part of the training plan of the nursing education unit, it is evident that nurses have the needed competency in risk assessment and management of pressure ulcer.

It can be noted that respondents know that assessing and inspecting skin pressure sites every shift should always be done which got the highest ranking ($x=4.68$).

The respondents have made it clear that they strongly believe in the importance of consistently assessing and inspecting skin pressure sites every shift. This means that the majority of those surveyed affirm that regular and thorough skin assessments should be a standard practice during every shift. By consistently checking for any changes in pressure sites, nurses can detect problems early, provide timely intervention, and ultimately improve patient outcomes.

Secondly, nurses always evaluate skin sensations and encourage patients to report pain over bony prominences (x=4.60; 4.50). It indicates a strong agreement with the statement that nurses consistently evaluate skin sensations and encourage patients to report pain over bony prominences. Thus, majority of those surveyed believed that nurses should routinely assess the sensation in a patient's skin, especially over areas where bones are close to the skin's surface and should actively encourage patients to report any pain or discomfort.

With this result, one of the informants told that “*It is mandatory for us nurses to have training to effectively use the protocols in skin risk assessment as part of pressure sores prevention.*” The high level of agreement with this statement suggests that the nurses place a strong emphasis on proactive measures to prevent pressure ulcers and prioritize the well-being and comfort of the patients they are caring for.

Coupled with the study of El Saidy et al. [13], on pressure ulcer development among patients in ICU and orthopedic units, wherein the observation highlights the importance of tailoring skin care efforts to address the distinct bony prominence areas that are prone in the development of pressure ulcer. Correspondingly, the study conducted on intensive care units in a tertiary hospital in Thailand revealed that Braden Scale was the best at predicting development of pressure ulcers [14].

This practice is essential because it can help identify areas at risk for pressure ulcers. When patients report pain or discomfort in these areas, it is a sign that there may be increased pressure on the skin, and prompt intervention can help prevent pressure ulcers from developing or worsening.

On the other hand, they often screen the patient for pressure ulcer pain (x=4.27) being the least among the items. This may suggest that respondents knew already that pressure ulcer is painful, thus, asking their patients frequently about the pain may further cause discomfort and irritability; however, this may also indicate an early sign of pressure development. An excerpt from one of

the informants correspond with this result that though pressure ulcer prevention is their priority “*there are bed ridden patients like those who have stroke with hemiplegia,*” wherein clients may be irritable with the health condition that is why frequent questioning with them might be misunderstood. On the contrary the feeling of discomfort could be a manifestation of early onset of pressure sores, by that means, nurses should be observant enough for any skin changes.

This finding is linked with the study of Todd [15] concerning assessment of pain and its characteristics as it correlates with early development of pressure ulcer among patients who are mostly confined in bed. It is substantial that nurses should be able to discern the kind of pain and its associated factors when client raised this concern as it may be related to onset of pressure ulcer.

Table 2. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Moisture

	Mean	Interpretation	Rank
1. Assess and inspect skin every 2 hours including color changes/blanching.	4.49	Often	4
2. Check incontinence pads frequently (every 2-3 hours) and change as needed.	4.56	Always	2.5
3. Treat causes of incontinence by applying catheter and rectal tube if appropriate as ordered.	4.56	Always	2.5
4. Avoid warm water and use mild soap to prevent skin injury and dryness.	4.45	Often	5
5. Use moisturizing cream and skin protectants on the skin.	4.62	Always	1
Composite Mean	4.54	Always	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

Respondents assure that they always considered the skin moisture of their clients when performing risk assessment and management of pressure ulcer as evidenced by the composite mean of 4.54.

They see to it that the use of moisturizing cream and skin protectants on the skin is always practiced (x=4.54) as it ranked first among the items. Respondents

understand that the presence of dry skin can lead to a break in skin barrier that prompted the development of skin ulcer. This practice takes precedence over other items, emphasizing the recognition of the significance of skin hydration and protection in their care practices. They give a high priority on ensuring that patients regularly apply moisturizing cream and skin protectants, suggesting a proactive approach to maintaining skin health.

The vulnerability of the skin and the heightened risk of pressure injuries (PI) in the presence of skin damage necessitate the use of products capable of preventing, absorbing, or reducing additional damage. It is advisable to regularly utilize petroleum-based products or those containing zinc oxide for managing dermatitis. Additionally, employing "crusting" methods involving stoma powder in conjunction with a skin ointment barrier is recommended for effective dermatitis management [16].

Checking incontinence pads frequently and change as needed, and treating the causes of incontinence by applying catheter and rectal tube as per order were seconded among the items ($x=4.56$). The presence of moisture brought by excretion can cause irritation to patients' skin, hence pads should be used. This suggests a strong consensus among the respondents about the importance of diligent incontinence care as part of pressure ulcer prevention and management. They believed that regularly checking and changing incontinence pads, along with addressing the underlying causes of incontinence using catheters and rectal tubes, is a crucial aspect of patient care.

Nurses deliberate and urgent action helps with the prevention of pressure ulcer, as supported by significant statement from the informant, *"when we observed that our patient has incontinence, we reported it at once with the doctor so as to immediately manage this concern."* It further suggests that the nurses recognize the critical role in incontinence management as part of pressure ulcer prevention. By routinely checking and changing of incontinence pads and addressing the root causes of incontinence, healthcare providers demonstrate a comprehensive and patient-centered approach to care.

Further statements reveals that they follow hospital protocols in PU assessment and management, *"we are discussing how to easily visualize the pressure ulcer prone area especially if that part has a dressing/covering and always remind each other to assess & reassess according to protocol."*

According to Jakobsen et al. [17], the use of incontinence pads is identified as a potential risk factor that may affect the occurrence of pressure ulcers (PUs). Interestingly, the heightened attention and diligence in changing the pads regularly, lead to more careful monitoring of patients during their daily care routines. However, it is crucial to distinguish whether a patient has both a urinary catheter and an incontinence pad or only the incontinence pad. When a patient solely uses a urinary catheter, the incontinence pad remains dry. Conversely, when a patient relies solely on the incontinence pad, it is presumed that the pad is frequently exposed to moisture.

While using warm water and mild soap to prevent skin injury and dryness ranked the least ($x=4.45$). There are relatives that are assisting patients in the hospital units specifically during bathing, that is somehow the reason why this nursing care was the least performed by the respondents, but they reminded relatives to use warm water and mild soap.

Peele et al. [18] suggest that individuals facing conditions such as pressure sores are typically cautioned against taking baths over them. This precaution is due to the potential for skin irritation caused by the buildup of soap residues on the skin's surface. Furthermore, the accumulation of uremic granules on the skin following perspiration can lead to intense itching which should be given an emphasis during skin care.

The qualitative results augment the findings on prevention of skin ulcer specifically in terms of moisture. A statement of the informant that *"it is always checked by the QA Nurse, and as far as I know, we still have no concerns in regards with any pressure ulcer incidents within our patients,"* validate the quantitative results. It is part of holistic approach to patient care, emphasizing the importance of maintaining skin health as an integral part of PU prevention.

Congruent with these findings is the assertion of Gaspar et al. [19], that maintaining skin integrity through preventive skin care such as keeping skin dry and applying silicone based dermal cream to bony prominences could decrease the risk of developing pressure ulcer.

Table 3 presents the respondents' frequent practice of risk assessment and management of pressure ulcers, particularly concerning activity, as reflected in the composite mean of 4.20, suggests that they place significant emphasis on evaluating and addressing the impact of physical activity on the development and progression of pressure ulcers.

Table 3. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Activity

	Mean	Interpretation	Rank
1. Encourage ambulation outside the room.	3.84	Often	4
2. Assist patient to sit on bed and chair.	4.45	Often	2
3. Provide support surfaces on bed and chair.	4.60	Always	1
4. Facilitate physical therapy consultation, as ordered.	3.93	Often	3
Composite Mean	4.20	Often	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

Nurses always provide support surfaces on bed and chair (X=4.60) as they knew that it would help for client’s ease of movement. Supporting client bed environment is part of providing comfort and safety whenever the client moves. This practice is rooted in the understanding that appropriate support surfaces play a crucial role in preventing pressure ulcers and promoting ease of movement for clients. In simpler terms, the majority of those surveyed recognize the importance of offering supportive surfaces on beds and chairs to create a safe and comfortable environment for clients, especially when considering their movements.

Serraes et al. [20], suggested that there is a need to evaluate the efficacy of mattress as part of the prevention of pressure ulcers (PUs). It was noted that the use of bed air mattress exhibits a higher level of effectiveness in PU prevention when compared to standard mattresses or pressure reducing foam mattresses, particularly in intensive care environments.

Meanwhile, respondents often encourage ambulation outside the room (x=3.84) being the least among the indicators, suggesting that this aspect of care may not be as commonly practiced or prioritized compared to other indicators in the survey. There are patients who are advised to have complete bed rest, specifically those clients who have cardiac problems, that could be the reason why this item ranked the least. There may be a need for increased attention to promoting ambulation as part of pressure ulcer prevention strategies.

Encouraging patients to get out from bed and wheelchairs can help lessen the development of PU, “We usually encourage post operative clients to walk as long as they can tolerate. In this way, circulation will be enhanced, and PU will be prevented.” When the patients are ambulating, they are like to relieve the pressure caused by prolonged stay on bed. Educating them with the benefits of ambulation enhances motivation and cooperation.

Prevention of pressure ulcer formation is directed at alleviating the risk factors for the individual patient and is primarily focused on minimizing episodes of prolonged pressure by frequent patient repositioning and encouraging ambulation. It is important to make routine positional changes as even relatively low pressures can cause a pressure ulcer with prolonged exposure [21].

On this note, healthcare providers could further explore ways to integrate and prioritize ambulation into care plans, considering the individual needs and capabilities of patients. This aligns with a holistic approach to patient care, emphasizing both physical and psychosocial aspects of well-being.

Table 4. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Mobility

	Mean	Interpretation	Rank
1. Assist with turning, sitting, and moving up on bed.	4.68	Always	1
2. Reposition at least every 2 hours or as needed.	4.32	Often	6
3. Apply foam dressing to bony prominences.	4.62	Always	3
4. Position with pillows to elevate pressure points off the bed.	4.55	Always	4
5. Position to side-lying or elevate head of bed no more than 30 degrees.	4.66	Always	2
6. Perform passive or active exercises.	4.49	Often	5
Composite Mean	4.55	Always	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

It can be depicted on the table that respondents always practice risk assessment and management of pressure ulcer in terms of mobility (X=4.55). Nurses are

knowledgeable that mobility is an essential factor in preventing pressure ulcers, specifically to patients who are confined to bed most of the time. Despite the bulk of nursing activities, they assure that they will be able to assist client to move or even position if they cannot do so.

Respondents always assist the patient to turn, sit and move up on bed rank first among the indicators in preventing and managing pressure ulcer ($x=4.68$). This activity is part of the routine bedside care of nurses. When they give medication and feeding, etc., they need to assist their patients to move in bed. Most of those surveyed consistently prioritize and actively engage in assisting patients with repositioning on the bed, recognizing its significance in preventing pressure ulcers and promoting mobility.

One of the significant statements of the informant affirmed the above findings, “*We make see to it that our patients were regularly assessed for any signs of pressure ulcer... we assess their skin as we help them to reposition every 2 hours or as the client tolerate.*” This is manifestation of one of the standards of care that nurses provide to their patients to help prevent development of pressure ulcer especially to those who are at risk and immunocompromised. Considering that the large percentage of hospital admission in Saudi Arabia is Road Traffic Accident, Diabetes Mellitus, Kidney Disease and Cardiovascular Diseases [22], because of these health conditions circulation is compromised. It is paramount for nurses and other health care providers to employ strategies that enhances circulation like positioning, ambulation and performing range of motion exercises.

Hence, often repositioning the patient every two hours or as needed ranked the list among the items ($x=4.32$). Repositioning overweight Saudi patients requires assistants and assistive devices. Respondents who are quite small, faced difficulty when doing this nursing care, consequently, this is least performed by them. Thereby prior implementation, assistance from other members of the health care team should be sought to effectively perform this nursing activity.

Meanwhile, the health care members exhibit teamwork, “*assisting other staff to help client move and ambulate specially those who are obese*” as evidenced in the previous statement is a manifestation of cooperation and collaboration in the care of clients who are at risk for development of pressure ulcer. This finding complements the quantitative results that nurses frequently assisted their clients whenever physical assistance is needed.

Considering the recent updates in patient care, Sikka [23] advised that nurses must be aware that the use of standard hospital mattress with an interface pressure of 100 mmHg which can result in pressure ulcers unless repositioning occurs at regular intervals. This simple but effective intervention can significantly reduce the risk of pressure ulcer development, improve patient comfort, and ultimately contribute to better overall healthcare outcomes.

Table 5. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Nutrition

	Mean	Interpretation	Rank
1. Assist during feeding.	4.29	Often	5.5
2. Give nutrition supplements, as ordered.	4.64	Always	2
3. Encourage adequate fluid intake as appropriate.	4.67	Always	1
4. Record dietary intake and I&O if appropriate.	4.37	Often	4
5. Discuss a plan with the physician if the patient is NPO for more than 24 hours.	4.29	Often	5.5
6. Facilitate consultation with nutritionist & dietician.	4.59	Always	3
Composite Mean	4.48	Often	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

The data from Table 5 indicate that the respondents always engage in risk assessment and management of pressure ulcers with a focus on nutrition, as evidenced by a composite mean of 4.48. This implies that healthcare providers place a significant emphasis on evaluating and addressing nutritional factors as part of their approach to preventing and managing pressure ulcers. In simpler terms, the majority of those surveyed prioritize assessing and managing the nutritional aspects of care, recognizing their impact on pressure ulcer development and healing. The high composite mean in nutrition-related risk assessment and management indicates that healthcare providers recognize the multifaceted nature of pressure ulcer development and are actively integrating nutritional considerations into their care practices.

Respondents always encourage the patients to increase fluid intake as appropriate (x=4.67). It highlights the significance placed on promoting adequate hydration in the context of pressure ulcer prevention and management. This practice reflects a proactive approach to addressing a key aspect of patient care that can impact skin health. Thus, recognizing the role of hydration in preventing pressure ulcers and supporting patients' general health. By consistently promoting adequate fluid intake, healthcare providers contribute to a holistic approach to patient care not only for preventing pressure ulcer.

Assisting patients during feeding and discussing a plan with the physician if the patient is NPO (nothing per orem / nothing by mouth) for more than 24 hours was often practiced by the respondents (x=4.29). Assisting patients during meals and understanding the significance of communication with physicians when patients are on extended NPO status indicate that respondents recognize the integral role of nutrition in pressure ulcer prevention and patient care. By actively assisting patients during feeding and collaborating with physicians to address nutritional concerns, healthcare providers contribute to a comprehensive approach to the prevention of pressure ulcer.

Respondents know that providing proper nutrition is important to prevent pressure ulcer, hence, advising family members to consider foods that are high in protein, but low fat and low sugar is one of their priorities. It observed that 'poor nutrition has been recognized as one of the risk factors in the development of pressure ulcers. Improving nutritional intake of patients is thus paramount in reducing patient harm and unnecessary cost' [24].

Good food and proper nutrients are paramount in PU prevention as reported in this qualitative excerpt, "I believed that good food could help them strengthen their immunity and pressure sores can be prevented, so we encouraged them to consume foods rich in protein and vitamins." Nurses knew that ensuring balanced and regular meals boosts immunity, thus reducing the risk of developing pressure ulcer. However, Saudi people loves sweet foods, for this reason, further motivation from nurses is needed for their patients to comply with the prescribed diet.

Nutritional supplementation could benefit patients with limited oral intake and enteral or parenteral feeding can become necessary in patients who are not able to safely ingest enough oral nutrients [21]. Additionally, protein intake is especially important to

maintain a positive nitrogen balance, and vitamin and mineral supplements are recommended in patients lacking a balanced diet.

Therefore, balanced nutrition and adequate hydration are essential to the prevention of PU and even in the management of existing one. Prompt nutritional interventions can reduce the impact of PU risk among hospitalized and bedridden patients. It is therefore the duty of the health care team to assess and treat the poor nutritional status of their patients. 'Early referral, along with collaboration, communication, and continuity of nutrition care with the interprofessional team, are essential for the prevention and healing of PU' [25].

Table 6. Nurses Practices on Risk Assessment and Management of Pressure Ulcer in terms of Friction and Shear

	Mean	Interpretation	Rank
1. Keep bed linens clean, dry, and wrinkle free.	4.77	Always	1
2. Avoid massaging pressure points.	4.65	Always	2
3. Use pillows between knees when on side-lying position to prevent skin-to-skin contact.	4.62	Always	5
4. Use a minimum of two people assisting and a draw sheet in moving the patient up in bed.	4.64	Always	3.5
5. Avoid scrub with the use a soft sponge or cloth when cleaning the skin.	4.64	Always	3.5
Composite Mean	4.66	Always	

Legend: 1.00 – 1.49 (Never), 1.50 – 2.49 (Rarely), 2.50 – 3.49 (Seldom), 3.50 – 4.49 (Often), 4.50 – 5.00 (Always)

Respondents always practice risk assessment and management of pressure by applying measures to prevent friction and shear with a composite mean of 4.66. This indicates a strong commitment among the surveyed nurses to implement preventive strategies that address these specific factors known to contribute to pressure ulcer development.

They always keep the bed linens clean, dry and wrinkle free (x=4.77). A bed that is soiled and wrinkled could cause friction and shear on the skin that later may

lead to development of pressure ulcer. From this understanding, respondents assure that they always check the patients' linens and change it once needed.

A study conducted in Yale New Haven Hospital in United States revealed that 'volatility of the friction and shear component of Braden scores appears to be the most significant factor preceding HAPU (Hospital Acquired Pressure Ulcer) development.' Since continuously compressed and irritated skin could alter circulation of blood to the tissues and eventually lead to onset of pressures sores, providing wrinkled free bed is one of the utmost priorities [26].

Apparently, having a minimum of two assistants and use of draw sheet when moving the patient up on bed and avoid scrubbing the skin by using soft sponge or cloth is always practice by the respondents ranked the least among the items ($x=4.64$). There are patients that are extremely obese, in which moving them is quite hard for the health care providers. As much as possible the respondents ask help from co-workers and use draw sheet whenever they move the patient up on bed. They also prevent dragging the patient so as not to cause skin shear. It also suggests that these specific practices are relatively less common compared to other preventive measures in the respondents' care routines.

One informant narrates "Yes, whenever we move our client, we need to plan prior doing so, specifically to those clients who are overweight and obese... we need assistance, so that we will not drag them." This proves that nurses are trained in preventive measures needed by patients who are at risk for PU.

The risk for having friction and shear should be evaluated to determine the amount of assistance needed when positioning and moving obese and extremely big clients [27]. As the person aged, the skin slowly declined its barrier against pressure and lost its elasticity, particularly aged clients are more susceptible to PU development. They are prone to developed friction and shear specifically during movement and transfer. Unplanned movement could lead to development of this condition [28]. Henceforth, the need for assistance and synchronized movement during patient offloading could decrease the risk of friction and shear.

Lastly, incorporating evidence-based practices into their care routines by consistently preventing friction and shear demonstrates commitment to proactive pressure ulcer prevention, contributing to improved patient outcomes and overall quality of care.

Table 7. Challenges and Barriers in Implementation of Standards of Care

	Mean	Interpretation	Rank
1. Poor access to literature and reading facilities such as designated library.	2.75	Agree	5.5
2. Heavy workload and inadequate staff	3.35	Agree	1
3. Lack of awareness on the universal guidelines and policies on prevention of pressure ulcer.	2.34	Disagree	15
4. Failure to use risk assessment scale. e.g. Braden scale	2.33	Disagree	16
5. Inadequate training coverage and education of pressure ulcer prevention	2.39	Disagree	14
6. Uncooperative patients.	2.75	Agree	5.5
7. Lack of support from hospital administration in preventing pressure injury.	2.49	Disagree	10.5
8. Lack of job satisfaction due to low salary, limited career growth, or inadequate life-work balance.	2.68	Agree	7
9. Lack of time	2.76	Agree	4
10. Lack of continuity of care	2.62	Agree	8
11. Presence of other priorities than those with pressure ulcer like caring for more severely ill patients.	2.85	Agree	3
12. Shortage of resources such as pressure relieving materials/equipment.	2.95	Agree	2
13. Inadequate knowledge about pressure ulcer etiology and care.	2.41	Disagree	13
14. Lack of multidisciplinary cooperation among other health care providers.	2.56	Agree	9
15. Unable to assess and re-assess presence of pressure ulcer.	2.48	Disagree	12
16. Inadequate documentation of Pressure Ulcer.	2.49	Disagree	10.5
Composite Mean	2.64	Agree	

Legend: 1.00 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree)

The data in table 7 indicates that respondents generally prioritize and frequently practice risk assessment and management of pressure ulcers. The overall composite mean of 4.41 suggests a consistent commitment to addressing pressure ulcer risks.

Respondents agreed that they encountered challenges and barriers in the implementation of standards of care in the risk assessment and management of patients with pressure ulcer as it obtained a composite mean of 2.64. The perceived barriers and challenges that hinder the comprehensive implementation of the standards of care for PU prevention includes heavy workloads, understaffing, inadequate resources, severity of patients' illness, lack of time and uncooperative patients, poor access to literature, lack of continuity of care and multidisciplinary cooperation. Addressing these barriers and challenges will empower nurses to be more dedicated in performing nursing activities that will prevent the incidence of HAPU and will be able to properly manage admitted patients with pressure ulcers.

Heavy workload and inadequate staff are the most perceived challenge and barrier ($x=3.35$). The ideal nurse patient ratio was not being implemented because of the inadequacy of nurses working in the hospital. Understaffing resulted in heavy workload, thus risk assessment and management of patients with pressure ulcer was not fully implemented. Shortage of resources such as pressure relieving materials/equipment ranked second ($x=2.95$). Materials and supplies for health care were also affected by the economic crisis brought about by the recent pandemic.

Based on the experiences of the participants, they show a little disappointment on what is happening in the area, *"Yes, if understaffed, such as, 10:1, with more bedridden patient and critical patients, and no watchers,"* other participants also state, *"when understaffed, it is hard to find assistance in mobilizing patients which needs more than 1 person to move."* These qualitative excerpts conform with the findings above and are further validated by literature.

Berihu et al. [29], Etafa et al. [10] and Mishekari [30] support the recent findings that the heavy workloads, understaffing and lack of resources for care were the common challenges perceived by nurses in implementing risk assessment and management of PU. The recent pandemic also influences understaffing which limit the working time for every patient, while the hospital management is trying to resolve this

problem through continuous recruitment, but shortage of nurses is experienced worldwide.

Both manpower and materials resources are important components of implementation of safe and quality care among clients who are at risk for pressure ulcer and for those who had already developed this health condition. Inadequacy of these resources could impede carrying out of nursing activities needed for patient care.

In addition, the presence of other priorities than those with pressure ulcer like caring for more severely ill patients ($x=2.85$) is also a challenge and barrier among the respondents. Although respondents carried out measures to patients at risk for development of prevent pressure ulcer, there are still other critically ill patients that need constant and urgent care. Nurses divide their time to cater for all patients requiring quality care.

This finding is confirmed by the statement of one participant, *"If the patient is not stable or just had procedures that contraindicates turning or positioning a patient, even if we want to turn or move the patient we cannot do so."* The severity of the patient's illness also influences the implementation of PU preventive measures, *"One of the hardest things to do was change position every 2 hours in an unstable patient with high ventilator settings and maximum inotrope infusions."* The presence of a lot of contraptions makes nurses difficult to do their bedside tasks specifically turning and positioning patients.

Correspondingly, the presence of uncooperative patients ($x=2.75$) was a barrier at the same time a challenge for respondents to implement measures in PU prevention. Patients are considered to be a co-partner in health care, however there are other patients who resists interventions PU prevention and management perhaps due to discomfort that they are experiencing.

It is worth noting that participants do their best in convincing their clients to participate in the care regimen for PU prevention and management as one participant stated, *"It is also difficult if the patient refuses to be mobilized. Though we tried to convince them, but if they are in pain they do not want to be moved."* Further statement supports the above findings, *"It is quite hard to let the patient cooperate when they are not stable, most of them are not cooperative. But still, we do our best in educating them to know the importance of preventing PU."* Despite the challenges, nurses continue to do their tasks and responsibilities in

preventing PU, especially to those patients who are immobile.

The above findings are also parallel with the studies of Berihu et al. [29] and Njau et al. [31] as they claimed that one of the challenges in implementing PU prevention and management is patients who are uncooperative during course of treatment.

However, respondents disagree that failure to use Braden scale for pressure ulcer risk assessment ($x=2.33$) was a challenge and barrier. Having knowledge on risk assessment using Braden scale enables them to identify factors that may contribute to the development of pressure ulcer. However, there are factors like understaffing and inadequacy of resources that hinder the implementation of total quality care among at risk patients.

Lack of awareness on the universal guidelines and policies on prevention of pressure ulcer ($x=2.34$) is not a perceived challenge and barrier. Respondents' earned knowledge on pressure ulcer prevention and management during their undergraduate studies helps them to practice such nursing care measures to their patients to prevent such condition.

Respondents also disagreed that they have inadequate training coverage and education of pressure ulcer prevention ($x=2.39$). In addition to respondents' prior knowledge, they also had orientation and regular competency assessment, in which one of the skills that is regularly evaluated is ulcer prevention and management.

These findings were justified by the participant statement; "We are using the Braden Scale for prevention and management of pressure ulcers," other participant also stated, "*We had lectures on risk assessment and management of pressure ulcer, and we have yearly competency exam on it.*" It is evident that the institution where the participants are working has invested in educating and training their nurses in the standards of care for PU prevention and management utilizing the Braden scale.

Conforming to the above findings, most nurses are knowledgeable with the use of Braden scale in PU risk assessment. They believed that it is a good tool that provides a good indicator of data for patients who are at risk for pressure ulcer incidence [32] – [33].

While the study of Ebi et al. [34] contradicts the present finding as they asserted that most of the nurses lacked awareness about pressure ulcer prevention. Though they had a good knowledge of the nutrition issue, but scored poorly in the etiology and

development, as well as preventative methods to shorten the duration of pressure sores.

Using thematic analysis, the researcher analyzed the transcripts of the interview from five participants. From the 23 significant statements of the participants, ten clustered themes / subthemes were derived that give rise to four emergent themes.

Table 9. Emergent Themes and Clustered Themes

Emergent Themes	Clustered Themes/Subthemes
1. Awareness on Risk Assessment and Pressure Ulcer Management	<ul style="list-style-type: none"> • Pressure ulcer prevention as an utmost priority • Pressure Ulcer Guidelines • Competency in pressure ulcer assessment
2. Cooperative Effort among Health Care Providers	<ul style="list-style-type: none"> • Coordination and collaboration • Open communication
3. Patient Involvement in Pressure Ulcer Prevention	<ul style="list-style-type: none"> • Patient Participation • Patient understanding on PU Prevention
4. Barrier to Prevention and Management	<ul style="list-style-type: none"> • Lack of support from patient & family members • Patient Stability as a factor in mobilization • Understaffing

Theme 1: Awareness on risk assessment and pressure ulcer management

The risk of pressure ulcers and the proper management when it occurs is information that a nurse must have. This theme explores the awareness that nurses have regarding pressure ulcer risk assessment and management.

Subtheme 1: Pressure ulcer prevention as an utmost priority

Pressure ulcer prevention is critical because these wounds develop quickly and become difficult to manage once they form. As healthcare providers, we must carefully assess at-risk patients, use evidence-based prevention methods, and closely monitor for early signs of skin damage.

"Part of our patient care plan includes comprehensive assessment of the skin sensory perception, skin moisture, activity, mobility, friction, and shear, and

nutritional status... These are all based on Braden Scale.” (Participant C)

“It is important to assess clients who are at risk of having pressure ulcer so it will be prevented through provision of proper nursing care. Risk assessment should always be part of the nursing assessment throughout the delivery of care.” (Participant D)

The classification of clients with low risk for the development of pressure ulcer may misguide the early identification of patients with individual risk factors. Increasing the awareness of health care professionals for the importance of risk assessment of each Braden subscale is necessary for pressure ulcer prevention [19].
Subtheme 2: Pressure Ulcer Guidelines

This theme shows that nurses are using Braden Scale to assess patients at risk for development of pressure ulcer. Braden Scale serves as comprehensive frameworks that outline best practices and standardized approaches to effectively prevent and manage pressure ulcers.

“We are using the Braden Scale for prevention and managing PU. We have a wound care team in our hospital who are specialized in managing pressure sores and we follow their suggestions and recommendations.” (Participant A)

“We do assess our patients using Braden scale and with the help of the wound care team for the treatment of patients with pressure sores.” (Participant B)

“We are using Braden Scale in the hospital I am currently working, which is consist of six subscales that reflect sensory perception, skin moisture, activity, mobility, friction, and shear, and nutritional status. All patients are assessed every eight hours at the start of the shift.” (Participant D)

The above excerpts were supported by the study of Wei et al. [35], wherein they asserted that the performance of the Braden Scale showed a balance between sensitivity and specificity, confirming it as a better predictive risk assessment instrument, specifically in group of patients with hemorrhagic CVA and ischemic CVA.

Subtheme 3: Competency in performing pressure ulcer assessment

A competent pressure ulcer assessment requires healthcare professionals to have knowledge of risk factors for pressure ulcer development, identify

different stages of pressure ulcers, and evaluate factors affecting healing.

“We had lectures for the 1st one month upon employment, including the risk assessment and management of pressure ulcer. Then, it is followed by the 2nd three months on-the-job training, and finally, yearly actual competency exam.” (Participant C)

“It is mandatory for us nurses to have training to effectively use the protocols in skin risk assessment as part of pressure sores prevention. In our unit, it is always checked by the QA Nurse, and as far as I know, we still have no concerns in regards with any pressure ulcer incidents within our patients.” (Participant D)

Nurses’ perceived competence was acceptable, but room for improvement remains. Knowledge, attitude, and self-efficacy were positively associated with perceived competence in PI care. In addition, being a wound specialist, having attended a PI lecture, having read an article or book about PI, and having read PI practice guidelines were also significantly associated with nurses’ perceived competence in PI care [36].

Theme 2: Cooperative effort among health care providers

A cooperative approach to pressure ulcer prevention recognizes the interconnectedness of various healthcare disciplines. It involves seamless communication, shared knowledge, and joint decision-making to identify at-risk patients, implement preventive measures, and respond promptly to any signs of skin breakdown.

Subtheme 1: Coordination and collaboration

The importance of coordination and collaboration in pressure ulcer management cannot be overstated. It not only ensures that patients receive comprehensive and individualized care but also contributes to better outcomes, reduced complications, and improved patient satisfaction. Healthcare providers, patients, and caregivers should work together to address the multifaceted nature of pressure ulcer management effectively.

“Collaboration among healthcare professionals such as nurses, wound care specialists, physical therapists, dietitians, and physicians ensures that the patient receives the most appropriate and effective

interventions. It is a mandate in our hospital” (Participant C)

“We are discussing how to easily visualize the pressure ulcer prone area especially if that part has a dressing/covering and always remind each other to assess & reassess according to hospital protocol.” (Participant E)

An interprofessional approach that utilizes the knowledge and skills in pressure ulcer prevention and management is considered the main domain of care among members of the health care team. Positive attitude toward implementation enhances positive outcomes [37].

Subtheme 2: Open communication

Open communication is integral to successful pressure ulcer management. It fosters collaboration, ensures comprehensive care, empowers patients, and supports the overall well-being of individuals affected by pressure ulcers. Healthcare professionals, patients, and caregivers should work together to create an environment of trust and open dialogue throughout the entire management process.

“We also include our multidisciplinary team regarding any PU issues. The wound care team headed the management of pressure ulcer among our patients.” (Participant A)

“Team members need to talk to each other to make sure they all know what’s happening to our patients and to avoid mistakes in patient care. Sharing information and giving updates helps the patient get better.” (Participant B)

Orientation prior to the start of work is necessary for ease of flow of execution of nursing activities. The new staff learning from more experienced colleagues through a proper channel of communication enhances belongingness. The use of uniform language and terminology when managing patients with pressure ulcers promotes better understanding, thereby enhancing the level of care provided. Finally, creating a harmonious working climate where everybody’s opinion is respected deepens teamwork and advocates quality patient care [38].

Theme 3: Patient involvement in Pressure Ulcer Prevention

By actively engaging patients in their care and empowering them with knowledge and responsibilities, nurses can foster a collaborative approach to prevent the development of pressure ulcers.

Subtheme 1: Patient participation

Patient participation is critical in pressure ulcer management because it promotes patient autonomy, improves treatment adherence, and ensures that care plans are tailored to individual needs. It also enhances the overall quality of care, patient satisfaction, and the well-being of individuals affected by pressure ulcers. Healthcare providers should actively involve patients in their care and provide education and support to encourage their participation in the management process.

“The strategies and guidelines do not need to be changed. However, I think that patient participation is a big help. Patients should actively participate in their care; it can significantly improve their outcomes.” (Participant B)

“When patients actively participate in their care, they have a better understanding of pressure ulcers, their causes, and prevention measures. They are more likely to be aware of the risk factors and the importance of early intervention.” (Participant C)

There are several factors that influence patient adherence to treatment of pressure such as individuals’ lifestyle, level of discomfort and attitude towards care. Patient involvement in decision making plays a key role in the success of treatment, thus, nurses should consider the interdependency among these factors because it may create conditions that facilitate or hinders patient adherence to prevention and treatment activities [39].

Subtheme 2: Patient understanding on PU Prevention

Patient understanding plays a vital role in pressure ulcer prevention. It not only raises awareness about the risks and consequences but also empowers patients to take control of their health and well-being. Healthcare providers should prioritize patient education and communication to ensure that patients have a clear understanding of the importance of pressure ulcer prevention and the steps they can take to reduce their risk.

“I just want to recommend that there should be a teaching regarding prevention of PU not just to nurses but even to patients and their family members.” (Participant A)
“Patient understanding and education can lead to better adherence to prevention of pressure ulcer. Patients are more likely to follow instructions and adopt preventive behaviors when they understand the rationale behind them.” (Participant D)

If the patient participates with nurses, PU can be prevented. Floyd et al. [40], affirms that ‘pressure ulcer prevention programs have three important strategies that includes evidence-based care bundles with risk assessments upon admission, unit-based skincare expertise, and staff education with auditing feedback. Common clinical management processes included in the care bundles were frequent risk reassessments, daily skin inspections, moisture removal treatments, nutritional and hydration support, offloading pressure techniques, and protective surface protocols.’ These subscales of Braden scale were also found out to be effective risk assessment specifically for patients in the ICU. Through early risk identification and preventative strategies, hospital-acquired pressure ulcer (HAPU) resulted in prevalence reduction, less severe ulcers, and reduced care costs.

Theme 4: Barrier to prevention and management

Healthcare providers continue to face various obstacles in effectively preventing pressure ulcers. These challenges can arise from multifaceted factors, encompassing patient-related issues, healthcare system limitations, and external barriers.

Subtheme 1: Lack of cooperation from patient and family members

Healthcare professionals encounter challenges due to a lack of support from patients in the treatment of pressure ulcers. Patient engagement and compliance with treatment regimens are vital for achieving positive outcomes, but factors such as communication barriers, psychological factors, and limited understanding can hinder their active involvement in the healing process.

“It is quite hard to let the patient cooperate when they are not stable, most of them are not cooperative. But still, we do our best in educating them to know the importance of preventing PU.” (Participant B)

“It is also difficult if the patient refuses to be mobilized. Though we tried to convince them, but if they are in pain they do not want to be moved.” (Participant E)

Patients should be taught about pressure ulcer prevention and management. Health care providers must disseminate information about pressure ulcer definitions, risk factors, preventive strategies, referral, visual tools, consumer endorsement, information for family/carers, and translation on community languages so as to help them understand care [41].

Subtheme 2: Patient Stability as a factor in mobilization

Patient mobility is a critical component of pressure ulcer management, as it aids in preventing further skin breakdown and promotes healing. However, when a patient has a pressure ulcer, their stability becomes a pivotal consideration in determining the appropriateness and approach to mobilization.

“If the patient is not stable or just had procedures that contraindicates turning or positioning a patient, even if we want to turn or move the patient we cannot do so.” (Participant A)

“One of the hardest things to do was change position every two hours in an unstable patient with high ventilator settings and maximum inotrope infusions.” (Participant B)

“Yes, when the patient is not allowed or has limited mobilization due to recent procedures.” (Participant E)

The pressure injury preventive practices for reducing and relieving mechanical load were repositioning, mobilization, supporting the body parts, measures for medical devices and applying massage. However, these measures did not entirely conform to evidence-based recommendations in actual practice. The nurses attributed the divergences to factors affecting their practice. In this respect, the factors affecting preventive practices were the availability of support materials and skincare products, patient/nurse ratios, the clinical condition of the patient, individual skin characteristics, and interdependent nurse roles [42].

Subtheme 3: Understaffing

In the face of understaffing, healthcare providers may struggle to dedicate the necessary time, attention, and resources to effectively address pressure ulcer prevention and care.

“It’s difficult if the unit is understaffed, like 10:1 is the ratio of patients to nurse, and with more bedridden and critically ill patients, and sometimes no watchers. Positioning every 2 hours is unlikely to be done.” (Participant B)

Understaffing causes difficulties because I must ask for pull out to assist in the positioning, or ask the watcher, as well as fractures, because I must obtain clearance from the respective physician.” (Participant C)

“When understaffed, it is hard to find assistance in mobilizing patients which needs more than 1 person to move.” (Participant E)

Sasso et al. [43] reveal that nurses intended to leave their current job, and of the nursing profession. The reasons for this included understaffing, emotional

exhaustion, poor patient safety, and performing non-nursing care. The hospital management must look on the predictive factors of nurses' intention to leave their job and consequently to turnover, which is one of today's major issues contributing to the shortage of nurses that may affect the provision of quality patient care.

CONCLUSION AND RECOMMENDATION

Nurses are knowledgeable with risk assessment and management of pressure ulcer using Braden scale as they often practice it in patient care routines, yet the areas of nutrition and mobility require further enhancement. Regardless of how nurses exert effort in the prevention and management of pressure ulcers, there are still challenges and barriers that hinder implementation of standards of care like nurses' heavy workloads, understaffing, shortage of material resources, patient poor disease condition, and uncooperative patients and family members. There are no identified gaps in the implementation of standards of care; however, challenges and barriers must be addressed for better patients care outcomes.

Nurses may empower patients at risk for PU to mobilize and participate in the care regimen. Likewise, the Nursing Service Department may continuously evaluate the implementation of risk assessment for clients with pressure ulcer through formulating checklist monitoring form. Hospital management can revisit staffing and scheduling and may hire more nurses to fill in the understaffing. Nursing education units may assign intern students with the supervision of staff nurses to perform assessment among patients at risk for PU. Finally, other variables for future research may be considered like comparison of usefulness and effectiveness of Braden Scale, Waterlow score, and Norton risk assessment for pressure ulcer.

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