

ASSESSMENT OF KNOWLEDGE AND PRATICE ABOUT PRESSURE
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Abstract**Background:**

Pressure ulcers are a significant concern in healthcare settings, causing increased morbidity, prolonged hospital stays, and additional costs. Nursing students play a critical role in patient care, and their knowledge and preventive practices are essential for reducing the incidence of pressure ulcers. Despite theoretical training, gaps in practical application may compromise patient safety.

Aim:

To assess the knowledge and preventive practices of nursing students regarding pressure ulcer risk factors, prevention, and care in clinical settings.

Methods:

A quantitative, descriptive cross-sectional study was conducted among 177 nursing students. Data were collected using a structured questionnaire comprising demographic characteristics, knowledge (20 items), and practice (20 items) regarding pressure ulcer prevention and management. Descriptive statistics were used to summarize the data, and findings were compared with existing literature to identify knowledge-practice gaps.

Results:

The majority of participants were female (50.8%), aged 20–25 years (78.0%), and unmarried (79.1%). Most demonstrated strong knowledge of major risk factors (88.7%) and daily skin inspection (88.1%). Moderate gaps were observed in recognizing early signs and certain nutritional aspects. Preventive practices were moderate; essential interventions such as pain management (73.4%) and cleansing pressure points (78.5%) were commonly performed, whereas documentation (33.3%), use of assessment scales (24.3%), air beds (24.9%), and participation in educational seminars (26.6%) were low.

Conclusion:

Nursing students showed good theoretical knowledge of pressure ulcer prevention but demonstrated inconsistent practical application. Targeted interventions, including simulation-based training, mentorship, and structured educational programs, are recommended to bridge the knowledge-practice gap and enhance

INTRODUCTION

Pressure ulcers are local injuries of the skin and the underlying tissues as a result of sustained pressure, friction or shear forces, particularly on bony prominence. Knowledge is a concept that indicates what nursing students know about the risk factors, stages, prevention and management of pressure ulcers on a theoretical basis whereas practice is a concept that shows how well the nursing students know the preventive measures like repositioning, inspection of the skin, and use of pressure-relieving devices in the process of attending to the patients. Nursing students are important in early prevention as they are directly engaged in bedside care during clinical placements, and their competence indicates the general standards of patient safety (Al- Khazali, 2023).

Pressure ulcers will always be a worldwide health issue as it is reported that 10-20 percent of all patients admitted in hospitals worldwide are affected by this health issue. Hospital-acquired pressure injuries occur between 4 and 15% within the developed health system and can be very high (above 25) in the low-resource environment because of staffing shortages and a lack of preventive tools (Alshahrani et al., 2021). The studies on local institutions in South Asia indicate that pressure injuries are on the rise in critical care and surgical units, with one reflection of the insufficient application of preventive guidelines, uneven training of healthcare trainees (Bui et al., 2023). The demand is great, therefore, indicating the necessity of good educational preparation among nursing students.

Preventing pressure ulcers is one of the main nursing tasks, which involves the early identification of risks and the promptness of the interventions. Nurse students usually work with immobile or postoperative and critically ill patients who are under strong risk of pressure injury development. To prevent the advanced stages, it is necessary to diagnose erythema, temperature changes, or local discomfort at the earliest possible stage (Blackburn et al., 2020).

Any knowledge gap or delay in diagnosis of ulcers at the initial stages may cause severe complications, prolonged stay, and high morbidity of the patient (Alshahrani et al., 2021). The educational quality of nursing has an impact on the competence of the students in the prevention of pressure ulcers. Simulation training, evidence-based curricula, and structured clinical supervision are effective in enhancing the knowledge and practice linked with pressure ulcer prevention (Atkin et al., 2019). Inadequate exposure to actual clinical situations and little mentorship when doing the ward duties decrease the student confidence in risk assessment and use of standard preventive measures. The differences between teaching approaches in different institutions lead to the difference in the preparation of students (Blackburn et al., 2020). The gaps in knowledge among nursing students have often been associated with the restrictions in the curriculum, the absence of standard training programs, and the insufficient access to the up-to-date prevention guidelines. Students tend to stick to theoretical lectures without proper chances to combine concepts in the course of the practice (Carter et al., 2021). Frequent assessments of students knowledge will enable the educators in determining the areas of weaknesses and re-creating the training strategies to cover cognitive and practical gaps. Educational resources can be improved to increase competence of students in early detection and prevention of pressure injuries.

Preventive measures should be implemented well such as scheduling of repositioning, skin care, nutritional support, and the proper use of pressure-relieving devices to ensure that practice is effective. A lack of time, heavy workloads, and inconsistent supervision are the barriers that nursing students face, and these issues negatively influence their capability to utilize preventive strategy implementation on a consistent basis (Elgawesh et al., 2023). Students can have a wrong perception of the complexity of preventing pressure ulcers because it requires constant

monitoring of patients and multidisciplinary cooperation. Enhancing student practice behaviors enhances quality of care and prevents complications that can be avoided (Carter et al., 2021).

Evaluating the knowledge and practice levels of nursing students in terms of preventing pressure ulcers can help to understand the level of clinical preparedness of this group and define the areas that should be improved. The awareness of current gaps assists in the revision of the curriculum, improvement of clinical teaching, and compliance with evidence-based standards (Parker et al., 2023). One of the high-quality patient care indicators is pressure ulcer prevention, and thus, student competency is crucial to preventing pressure ulcers. Knowledge and practice assessment allows institutions to create specific measures that better prepare students and increase patient outcomes (Elgawesh et al., 2023).

Methods

A descriptive cross-sectional study design was employed to assess the knowledge and practice regarding pressure ulcers among nursing students at the Department of Nursing, Superior University. This design was selected because it allows the measurement of variables at a single point in time and is appropriate for identifying existing knowledge gaps and practice patterns in a defined population. The study population consisted of undergraduate nursing students enrolled in different academic years, and a total sample of 177 participants was included. The sample size was determined using a standard sample size calculation formula to ensure adequate statistical reliability and representation. Participants were selected through a simple random sampling technique to minimize selection bias and ensure equal opportunity for participation. Inclusion criteria consisted of nursing students currently enrolled in the undergraduate program and present during the data collection period, whereas students absent during data collection or unwilling to participate were excluded. Ethical approval was obtained from the institutional review board of Superior

University, and informed consent was secured from all participants.

Data Collection

Data were collected using a structured, self-administered questionnaire developed based on established literature and international pressure ulcer prevention guidelines. The instrument comprised sections assessing demographic characteristics, knowledge regarding pressure ulcer risk factors and prevention, and self-reported clinical practices. The questionnaire was pretested on a small group of nursing students not included in the final sample to ensure clarity, relevance, and reliability. The final tool was distributed to participants in classroom settings with the assistance of faculty supervisors. Students completed the questionnaire anonymously to encourage honest responses and reduce social desirability bias. The estimated time for filling out the questionnaire was 15–20 minutes. All collected forms were checked for completeness before inclusion in the final dataset.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics—including frequencies, percentages, means, and standard deviations—were computed to summarize demographic variables and assess levels of knowledge and practice. Inferential statistics, such as chi-square tests, were applied to determine associations between demographic variables and knowledge or practice scores. Data cleaning was performed to ensure accuracy by checking for missing values and inconsistencies. The findings were presented through tables and graphs to enhance clarity and interpretation. Statistical significance was set at $p < 0.05$.

Results and Analysis

Table 1 presents the demographic profile of 177 nursing students who participated in the study. The gender distribution shows a nearly equal representation of males (49.2%) and females (50.8%). Most participants were unmarried

(79.1%) and fell within the 20–25 years age group (78%). Academic levels varied, with the majority enrolled in the 3rd year (58.2%), followed by 2nd year (31.6%). Clinical

experience levels also varied, with 46.3% having more than one year of experience and 20.3% having none.

Table 1: Demographic Characteristics of Participants (N = 177)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	87	49.2
	Female	90	50.8
Marital Status	Married	37	20.9
	Unmarried	140	79.1
Age (Years)	20–25	138	78.0
	26–30	26	14.7
	31–35	13	7.3
	36–40	0	0
Qualification	1st Year	16	9.0
	2nd Year	56	31.6
	3rd Year	103	58.2
	4th Year	2	1.1
Clinical Experience	None	36	20.3
	1 year	59	33.3
	More than 1 year	82	46.3
Area of Working	Adult Medical Ward	23	13.0
	Adult Surgical Ward	91	51.4
	Neuro Surgical Ward	15	8.5
	Neuro ICU	20	11.3
	Medical ICU	25	14.1
	Others	3	1.7

Table 2 summarizes participants' knowledge across 20 items related to pressure ulcer risk factors, prevention, and care. Most participants demonstrated strong knowledge in key areas, such as identifying risk factors (88.7%) and the importance of daily skin inspection (88.1%). Areas such as recognizing early signs and

understanding harmful practices showed moderate gaps. Knowledge about nutritional aspects and use of assessment tools was relatively high. The data indicate overall good knowledge but with noticeable deficits in specific domains requiring reinforcement.

Table 2: Knowledge of Participants Regarding Pressure Ulcers (N = 177)

No.	Knowledge Statement	Yes (%)	No (%)	Don't Know (%)
1	Risk factors include immobility, incontinence, poor nutrition	88.7	0	11.3
2	Daily skin inspection for hospitalized patients	88.1	0.6	11.3
3	First sign of pressure ulcer is open sore	67.2	26.6	6.2
4	Hot water and soap increase ulcer risk	64.4	18.1	17.5
5	Massage over bony prominence is helpful	35.0	44.6	20.3
6	All patients should be assessed on admission	78.0	13.6	8.5
7	Skin should be clean and dry	69.5	30.5	0
8	Adequate protein & calories prevent ulcers	80.8	18.1	1.1

9	Vitamin C & E maintain skin integrity	58.8	35.6	5.6
10	Serum albumin is appropriate for nutritional assessment	77.4	10.2	12.4
11	Repositioning every 3 hours	71.2	28.2	0.6
12	Turning schedule should be at bedside	74.0	13.6	12.4
13	Bed elevation ≤ 30 degrees	80.2	19.8	0
14	Reposition every 2 hours while sitting	57.1	31.1	11.9
15	Heel ulcer prevented with pillow under leg	78.0	16.4	5.6
16	Friction may occur when moving patient	68.9	25.4	5.6
17	Braden scale is a risk assessment tool	77.4	11.3	11.3
18	Low humidity increases ulcer risk	72.9	16.4	10.7
19	Incontinent patients should be cleaned timely	59.3	20.9	19.8
20	Educational programs reduce ulcer incidence	80.8	13.0	6.2

Table 3 highlights the preventive practices of nursing students concerning pressure ulcer management. While many participants regularly performed essential tasks such as pain management (73.4%) and cleansing pressure points (78.5%), fewer consistently used assessment scales (24.3%) or documented findings (33.3%). Practices related to

repositioning, using pillows, and skin protection were moderately followed. Use of air beds and special mattresses showed lower compliance. Overall, the table reflects moderate adherence to recommended practices with room for improvement.

Table 3: Practices of Participants Regarding Pressure Ulcer Prevention (N = 177)

No.	Practice Statement	Always (%)	Sometimes (%)	Never (%)
1	Observe nurses assessing risk factors	36.2	63.8	0
2	Identify contributing factors via skin assessment	43.5	56.5	0
3	Skin assessment guided by standard care	67.2	27.1	5.6
4	Use of assessment scale	24.3	40.7	35.0
5	Document assessment data	33.3	55.4	11.3
6	Provide pain management	73.4	26.6	0
7	Routine skin care	32.2	67.2	0.6
8	Use pillow under legs to prevent heel ulcers	34.5	59.3	6.2
9	Use protective creams/oils	57.1	42.9	0
10	Pay attention to pressure points during cleansing	78.5	20.3	1.1
11	Perform nutritional lab tests	37.3	53.1	9.6
12	Provide vitamins/food to malnourished patients	62.1	22.6	15.3
13	Monitor protein & calorie intake	48.6	44.6	6.8
14	Avoid dragging patients	49.7	49.7	0.6
15	Use special mattress	30.5	40.1	29.4
16	Avoid massaging bony prominences	23.7	46.9	29.4
17	Reposition every two hours	49.7	44.1	6.2
18	Use air bed for high-risk patients	24.9	62.7	12.4
19	Attend seminars	26.6	26.6	46.9
20	Provide discharge advice to patients/caregivers	68.4	20.3	11.3

Discussion

The current research evaluated the knowledge and practice levels of nursing students on the prevention and management of pressure ulcers demonstrating both competencies gaps and strengths. The demographic information revealed that the sample was mostly comprised of females and was mostly unmarried with the majority of the ages ranging between 20 and 25 years old and had different amounts of clinical experience with the majority having more than one year of experience. The characteristics can affect their exposure to clinical experiences and the ability to practically implement the theoretical knowledge, which corresponds to the findings of Gefen et al (2022), who found that less experienced and younger nursing students tend to experience difficulties in knowledge translation into practice. The spread of the clinical areas also implies that there is a difference in the opportunities to have practical learning, where surgical wards offer more exposure to patients at risk of developing pressure ulcers.

The participants had a significant amount of knowledge about the main risk factors and preventive approaches to pressure ulcers. The key risk factors identified properly by high percentages included immobility, incontinence, and poor nutrition as critical risk factors and the significance of daily skin inspection. It agrees with the article by Greshsh Halasz et al. (2021), which discovered that nursing students demonstrated high levels of theoretical knowledge about the main risk factors and low levels of understanding early symptoms and subtle signs. Indeed, with generally high levels of knowledge, participants had moderate gaps in skills like the ability to identify early signs, the ability to adequately assess nutrition, and the comprehension of questionable practices such as massaging bony prominences, which are consistent with previous studies by Getie et al. (2020) in which nursing staff was proven to have lapses in the ability to recognize subtle clinical signs.

The research indicated inconsistency in compliance to best practices. Although such important procedures as pain management and

cleansing of pressure points were regularly carried out, the standardized assessment tools and documentation were underutilized. These results align with Armstrong et al. (2022), who stated that knowledge is not necessarily converted into a consistent clinical practice, especially in the fields that need formal evaluation and systematic documentation. The average adherence to repositioning, the use of pillows, and skin protection also indicates that the factors of behavior and systems might affect best practice implementation.

The fact that there is low utilization of air beds, special mattresses and attending educational seminars is a big gap between what is known and what is applied practically. The same trends were found by Fruhstorfer et al. (2024), who were able to mention that students and nurses tend to use specialized equipment underutilized because of the limited number of resources, lack of training, or lack of confidence in their usage. The gap between knowledge and practice in the current study highlights the necessity of specific interventions that seem to strengthen the process of translating theoretical knowledge to practice with patients. The gap can be addressed with the help of clinical mentorship and training via simulation as Hajhosseini et al (2020) find.

The adherence to nutrition practices was moderate and many students were able to offer nutritional support but less of them were able to monitor their intake of protein and calorie by taking formal assessments. To some extent, it coincides with the research conducted by Han et al. (2022) that has shown that the nutritional management in the prevention of pressure ulcers is a relatively underexplored topic in clinical practice, even though its importance in theoretical education is acknowledged. This is where the critical nature of incorporating thorough nutritional evaluation and interventions into nursing education and clinical placements lies in order to improve patient outcomes.

The results show that knowledge and practice may be affected by educational programs but there was poor attendance at seminars voluntarily. The same trends have been reported

in the works of Gueshveli et al. (2024), who present a correlation between continuing education and the better patient care, but students and staff did not attend it on a regular basis. Organized and compulsory educational practices could be encouraging in competence among students, especially in such fields as early detection, documentation, and the use of special equipment. These can also look at the inconsistencies seen in the delivery of care and strengthen evidence-based practices.

In general, the research highlights the need to strengthen the knowledge and practice on pressure ulcer prevention in nursing students. Although the participants exhibited a good level of understanding of the essential risk factors and preventive mechanisms, there were weaknesses in the early detection, the use of assessment tools, documentation and advanced preventive strategies that can be improved. Such conclusions echo previous studies that point out that the knowledge-practice gap is only bridged through integrated learning interventions, facilitating clinical setting conditions, and organized mentoring (Gyasi and Gokova, 2021). The strategies can be implemented to improve the clinical competence of the students who will ultimately increase the level of patient safety and quality care in the hospitals.

Conclusion

The study revealed that nursing students possess a generally good level of knowledge regarding pressure ulcer risk factors, prevention, and care, particularly in identifying major risks and understanding basic preventive strategies. However, gaps were observed in recognizing early signs, understanding the role of nutrition, and avoiding harmful practices such as massaging bony prominences. Participants' preventive practices were moderate, with consistent performance in essential tasks like pain management and cleansing pressure points but lower adherence to documentation, use of assessment scales, and advanced interventions such as air beds or special mattresses. The findings indicate a clear knowledge-practice gap, suggesting that while theoretical understanding is

adequate, translating this knowledge into consistent clinical practice requires further support and reinforcement. Overall, the study highlights the need for targeted educational and practical interventions to improve the competency of nursing students in pressure ulcer prevention and management.

Recommendations

1. Integrate structured, hands-on training programs and simulation sessions focused on early detection, use of risk assessment tools, and preventive strategies to bridge the knowledge-practice gap.
2. Encourage regular participation in workshops, seminars, and continuing education programs to reinforce evidence-based practices for pressure ulcer prevention.
3. Emphasize the importance of documentation and the consistent use of standardized assessment scales during clinical rotations to improve accountability and patient safety.
4. Incorporate nutritional assessment and management as a core component of pressure ulcer prevention training within the nursing curriculum.
5. Provide mentorship and supervision in clinical settings to guide students in implementing advanced preventive measures, including proper repositioning techniques, use of pillows, and specialized support surfaces.
6. Hospital and nursing faculty should ensure the availability of necessary resources, such as air beds and pressure-relieving mattresses, to facilitate adherence to best practices.
7. Conduct periodic evaluations of students' knowledge and practice to identify gaps and implement corrective interventions promptly, ensuring continuous improvement in patient care quality.

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