

ASSESSING THE KNOWLEDGE GAP AMONG NURSING STUDENTS REGARDING PRESSURE ULCER AND EVIDENCE BASED PERSPECTIVE: A MULTICENTER CROSS-SECTIONAL STUDY

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Abstract

Keywords

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This research was conducted to determine knowledge gap among nursing students regarding pressure ulcer and to identify gaps in knowledge. This consider inspected the level of information among nursing understudies at four nursing schools in Islamabad, Pakistan, almost evidence-based proposals for avoiding pressure ulcers. Upgrading clinical practices and recognizing educational gaps were the destinations. A multicenter simple descriptive cross-sectional survey was carried. The Pressure Injury Prevention Knowledge (PIPK) survey was managed to 187 final-years Bachelor of Nursing. The overall mean knowledge score was 14.9/31 (48.1%). We also observed that nursing students of final year have average awareness on high correct response rates on repositioning (88.2%) and risk assessment (85.5%) but lower correct rates on skin protection by medical devices (56.5%) there were no significant differences found in knowledge scores between gender (p = 0.477) and age groups (p = 0.491). Nursing students' knowledge on pressure ulcer prevention was moderate. Gaps remain in skin protection with medical devices and significant risk factors. These finding indicate the need for specific educational interventions to improve knowledge and make sure better clinical practice in pressure ulcer prevention.

INTRODUCTION

The study conducted by (Murugiah, 2020) states that pressure ulcers (PUs) represent localized skin or tissue damage which occurs through pressure or shear forces or friction effects. Pressure ulcers present as a significant worldwide healthcare issue that continues to affect patients. People with disabilities or older age or presence of multiple health conditions tend to develop PUs because their limited mobility leads to increased hospital length of stay bringing higher healthcare costs and death risk (Yasir Abdulrazaq Abdullah Albuhayri, 2023) (Beáta Grešš Halász, 2021) . Moving forward in nursing practice demands complete familiarity with disease origins together with risk triggers and proven therapeutic approaches because nursing students are instrumental in disease prevention while directing care processes.

Additional pressure on your bones creates those painful pressure ulcers, or bedsores, that get worse if you slide around or rub against things, like bed sheets. Staying in one place, very ill, or requiring gear such as oxygen masks or catheters for some time doesn't aid it either (Jefferson Garcia Guerrero, 2023) (Linda Coventry, 2024) .Older individuals, diabetics, those who are overweight, and smokers are more prone to them, as are patients who may spend a long time in emergency intensive care units (UE AIMAN, 2024) (Gulsen Ulas Karaahmetoglu, 2023.).

These sores affect somewhere between 2 and 18 people in every hundred of us worldwide, except where people are very sick and need lots of care, especially in ICUs, where the figure is more like 1 in 5 (Özur Gürlek kisacik, 2020) (khalid O. Alyahyawi, 2024). It's a hard bargain for one and allsome places are always short of enough medical stuff, to include some localities in Pakistan. They not only hurt and take a while to heal, but they can also be very expensive to treat and make life pretty miserable (Hassan Al Gharash, 2024). Not everyone there is even aware of them or has the funds to properly address them (UE AIMAN, 2024).Nursing students are like the first line of defense when it comes to preventing pressure ulcers. They do this by checking skin often, moving patients around, and using a thing called the Braden Scale. But here's the kicker: turns out, a lot of these students (only 30%, y'all) don't fully get it. Governments and institutions play a huge role in this fight. Take Turkey, for instance, they got their PU rates down from 6.63% to 2.47% just by having everyone work together and teaching the right stuff (Özur Gürlek kisacik, 2020). We've got to pump up nursing education, especially in places like Namibia and Saudi Arabia where there's still a lot of room for improvement (Franco R. Abrahams, 2023).

Background

Pressure Ulcers (PUs) are a noteworthy health problem (Mark Collier, 2023) brought out a critical issue that, PUs may turn into economic, psychological, and social struggles. PU is a lingering problem due to the deficiency of knowledge, understanding, and skill among students and nursing experts (Franco R. Abrahams, Students' knowledge, attitude and practices towards pressure



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ulcer prevention and management, 2023). The U.S. invests more than \$26.8 billion in the support and care of seriously ill people and about £511 million are spent by the U.K. and the EU on the same issues (Lisa J. Gould, 2023) . Even if they are mostly uneducated, student nurses have a great role in PU prevention (Murugiah S. C., 2020) . It has been found that the Saudi Arabian intensive care unit nurses are only less than 60% capable in the PU prevention (Jefferson Garcia Guerrero, 2023) and the situation is even more difficult in Pakistan and other places without the proper equipment (AIMAN UE, 2024) . The prevention of PU through ongoing supervisory care and reinforcement training, standardization of assessment tools, and updating the curriculum is the right approach to this problem.

Rationale to conduct study

There are a lot of studies but they're single centered and, mostly on registered nurses. Such an investigation is important to determine nursing students' understanding of PU prevention, identify knowledge deficits and propose evidence informed pedagogical modifications. The findings will enhance patient safety and the quality of care by strengthening nursing education and making sure future nurses are trained to prevent pressure ulcers

Research objectives:

To assess knowledge among nursing students on Pressure Ulcer Prevention Evidence-Based Guidelines.

Examine their viewpoints regarding the importance of preventing pressure ulcers in patient care.

Research Question:

How well-informed are nursing students about evidence-based recommendations for preventing pressure ulcers?

2. Materials and Methods

2.1. Study design:

A Simple Descriptive Cross-sectional study was performed in four nursing school in Islamabad Pakistan (Nursing students of Rawal College of nursing, PAK Institute of health sciences, and College of nursing and NOVA institute of modern studies) within six months from the approval of IRB.



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All nursing student of 4th year who are not willing to participate.

1st year, 2nd year and 3rd year students

2.4. Data Analysis:

Data analyses were performed using the Statistical Package for Social Sciences (SPSS) version 27 software. The mean age of the sample was 22.4 ± 2.25 years (range: 18–27 years). Most participants attended male (68.3%).

Results:

The mean knowledge score was 14.9/31 (48.1%). The mean age of the sample was 22.4 ± 2.25 years (range: 18–27 years). Most participants attended male (68.3%) (Table 1). Multiple-choice questions, response possibilities, and respective answers are shown in Table 2 among the questionnaire options; none achieved a 100% correct response rate.

Table01:Demographicsandparticipants'characteristics (n=187)

Variable	Frequency /values
Gender	
Female	59(31.6%)
Male	127(68.4%)
Age	
18-20	18(9.6%)
21-23	126(67.4%)
24-27	42(22.5 %)
Mean age ± S.D	22.4 ± 2.25years
Year of study	
4 th	187(99)

We have sample size of 187 nursing students out of which we received only 186 responses. The rate of correct responses were 75% while the incorrect responses were of 20% and only 5% were not known as shown in(Table 2). Nursing students showed that they've really got the basics down when it comes to preventing pressure ulcers. They scored pretty high on the key stuff like using gizmos that cut down on friction when moving patients (about 88.2% got that right, Q1) and checking out folks who might be at a higher risk (83.9% hit the nail on the head, Q26). They're also pretty good at keeping an eye on parts of the body that are more likely to get these pesky sores (83.3% knew that, Q31). But here's the thing, there are some not-so-cool things they still need to learn. More than half of them thought it's

2.2. Tool:

Two sections were involved in the structured questioning. (i) Basic Facts. Knowledge about socio demographics was gathered name of Nursing colleges, age, gender, and year of Students of BSN Generic 4th year. Give information regarding pressure ulcer prevention. (ii) Knowledge judgment Instrument. The Knowledge determination of (María Dolores López-Franco, Development and Psychometric Properties of the Pressure Injury Prevention Knowledge Questionnaire in Spanish Nurses, 2020) is a substantiated questionnaire to evaluate the Knowledge of pressure ulcer Prevention. It contains of 31 multiple choice particulars. The Mean knowledge score was 14.9/ 31(48.1). Sample Size the Pressure injury prevention knowledge (PIPK) questionnaire has reliability of 0.98 on the Cronbach's alpha scale which is available in open access (María Dolores López-Franco, 2020). In which 187 nursing students enrolled out of 350 Targeted populations will be taken from four different nursing colleges at Islamabad by using simple random sampling. Our outcomes have the rate of correct answers among the three possible in each item of the questionnaire; given the literature data, we assumed (75%) to give the correct answers.

2.3. Ethical consideration

All participants will receive details about study purpose, benefits and its method. We will be transparent about our study purpose and practices. Students may withdraw the study. Anonymization.

Independent variables

- 1. Age
- 2. Gender
- 3. Year of study

Dependent variables

Understanding and knowledge of nursing student regarding pressure ulcer prevention.

Inclusion criteria

Nursing students of 4^{th} year, who are willing to participate.

Exclusion criteria



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okay to rub alcohol on the skin, which is a no-no (only 56.5% knew better, Q11). And don't get me started on those donut-shaped doodads – over half of them (55.9%) thought they were helpful when really, they're not the best (Q22). Plus, a bunch of them didn't quite grasp the risks from all the medical gear (only 32.3% had it right, Q6). And when it comes to head elevation, nearly half didn't get the safety limits (44.1% weren't quite there, Q25).

Table 2: Nursing Student's answers table on multiple-choice questions regarding prevention of pressure ulcer.

	Question	True (%) n = 187	False (%) n = 187	Don't Know (%) n = 187
1	When repositioning the individual in bed, use some device or fabric to reduce friction and shear forces and avoid dragging on the bed surface.	164 (88.2%)	17 (9.1%)	5 (2.7%)
2	Offer high-protein, high-calorie nutritional supplements to adults at risk for pressure injuries if dietary intake does not meet nutritional requirements.	116 (62.4%)	49 (26.3%)	21 (11.3%)
3	When repositioning in bed, patients can be placed over reddened skin areas.	50 (26.9%)	119 (64.0%)	17 (9.1%)
4	Reassess the risk of pressure injuries when a significant change in patient health status or clinical situation happens.	159 (85.5%)	20 (10.8%)	7 (3.8%)
5	Assess and monitor nutrition using some validated assessment tools, in a way appropriate to the population and clinical context.	146 (78.5%)	25 (13.4%)	15 (8.1%)
6	Skin areas in contact with medical devices (such as masks or tubes) do not have a higher risk for developing pressure injuries.	60 (32.3%)	110 (59.1%)	16 (8.6%)
7	Describe all pressure injuries using a standardized classification system.	125 (67.2%)	26 (14.0%)	35 (18.8%)
8	A cotton and elastic bandage on the heels allows redistributing the pressure and preventing pressure injuries.	119 (64.0%)	43 (23.1%)	24 (12.9%)
9	In bedridden patients at risk of pressure injuries, a mattress with pressure- relieving properties should be used instead of a standard mattress.	138 (74.2%)	34 (18.3%)	14 (7.5%)
10	The skin in contact with medical devices (such as drains or tubes) should be protected by using hyper-oxygenated fatty acids and/or foam dressings.	105 (56.5%)	39 (21.0%)	42 (22.6%)
11	Rubbing the skin with alcohol and massaging over bony prominences is	105 (56.5%)	58 (31.2%)	23 (12.4%)



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	useful to enhance capillary circulation.			
12	It is not necessary to periodically mobilize medical devices (such as masks or tubes) to prevent pressure injuries.	62 (33.3%)	108 (58.1%)	15 (8.1%)
13	A comprehensive skin assessment (head to toe) of all patients admitted to a facility (hospital or nursing home) may be done within the first 48 hours after admission.	134 (72.0%)	35 (18.8%)	16 (8.6%)
14	Repositioning is not necessary in bedridden patients using a pressure-relief mattress.	52 (28.0%)	125 (67.2%)	9 (4.8%)
15	The seat tilt should be adequate to reduce pressure and shear forces on the skin in at-risk patients while sitting.	112 (60.2%)	41 (22.0%)	33 (17.7%)
16	In dark-skinned patients, skin assessment should prioritize skin temperature, presence of oedema, and change in tissue consistency instead of the appearance of non-blanchable redness.	143 (76.9%)	25 (13.4%)	18 (9.7%)
17	Protect the skin from moisture by	98 (52.7%)	50 (26.9%)	38 (20.4%)
18	In at-risk bedridden patients, keep semi- incorporated with head elevated between 30° and 45°.	115 (61.8%)	37 (19.9%)	34 (18.3%)
19	All risk assessments performed must be registered in the patient's medical record.	158 (84.9%)	22 (11.8%)	6 (3.2%)
20	Nutritional status should be assessed when the patient is admitted to a health facility or a major change in his/her health status happens.	148 (79.6%)	22 (11.8%)	16 (8.6%)
21	Length of the surgery is not a risk factor for the development of pressure injuries.	66 (35.5%)	102 (54.8%)	18 (9.7%)
22	Use a donut-shaped device to relieve the pressure in at-risk patients with reduced mobility.	104 (55.9%)	39 (21.0%)	43 (23.1%)
23	Use the most appropriate pressure relief mattress based on the patient's characteristics, scheduling repositioning accordingly.	146 (78.5%)	26 (14.0%)	14 (7.5%)
24	In patients with incontinence, profuse sweating, wound exudation, or drainage, consider the use of appropriate management devices (such	134 (72.0%)	36 (19.4%)	16 (8.6%)



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	as urinary catheters, diapers, or dressings).			
25	In bedridden patients, do not exceed 30° in the elevation of the head.	82 (44.1%)	69 (37.1%)	35 (18.8%)
26	Perform a comprehensive assessment in every patient to identify risk factors for pressure injuries.	156 (83.9%)	14 (7.5%)	16 (8.6%)
27	Examine the skin for signs of redness, areas of non-blanchable erythema, localized heat, indurations, or skin breakdown in individuals at risk for pressure injuries.	149 (80.1%)	28 (15.1%)	9 (4.8%)
28	The amount of time an individual spends sitting still does not influence the development of pressure injuries.	71 (38.2%)	104 (55.9%)	11 (5.9%)
29	In patients in bed in the prone position, the face, nose, chin, forehead, cheekbones, chest, knees, fingers, genitals, clavicles, iliac crest, symphysis, and back of both feet should be assessed.	138 (74.2%)	34 (18.3%)	14 (7.5%)
30	Systematically use a validated risk assessment scale (Braden, Norton, or EMINA).	115 (61.8%)	32 (17.2%)	39 (21.0%)
31	In bedridden patients, monitor the skin in high-risk areas for pressure injuries (such as the heels, sacrum, occipital, nose, and hips).	155 (83.3%)	17 (9.1%)	14 (7.5%)

There were no statistically significant differences in scores between genders (p = 0.477). However,

differences in scores were statistically significant when related to the age of student (p=0.491) (Table 3).

Table 3 Mean knowledge scores of the participating nurse students.

Characteristics	Knowledge
	n\31 (%)
Total cohort	14.9\31 (48.1%)
Gender	
Female	14.6\31 (47.0%)
Male	15.2/31(49.0%)
	P=0.477
Total cohort	14.8\31 (47.7%)
Age	
18-20	14.7\31 (47.4%)
21-23	14.8\31 (47.7%)
24-27	14.6\31 (47.0%)
	P=0.491

Discussion

This multicenter study shows that nursing students in low-resource areas, like Pakistan, when it comes to knowing how to stop pressure sores, or PUs for short. Even though they're okay with the basic stuff like moving patients around (88.2% got it right) and checking who's at risk (85.5% correct), they're clueless about more complex things.

This study reports nursing students in Pakistan averaged 48.1% correct answers, which was quite close to the 51.1% Simonetti et al. (2015) reported among Italian students. Repositioning and risk assessment were competencies in both studies (88.2% correct answers vs. 76.7% correct answers in Simonetti's research). However, there were still large gaps in advanced preventions, especially in controlling equipment (32.3% correct answer vs. 37% for shear reduction in Simonetti's group). The impact of limited resources in low-income settings is seen in this study, as limited clinical exposure probably increased gaps in equipment-related preventions, although Simonetti et al. (2015) reported a low relationship between knowledge and attitude (rho = 0.13).

This isn't just a Pakistan problem; it's happening in places like Saudi Arabia, Turkey, and Europe too. According to other research conducted in Pakistan and throughout the world, nurses generally have low levels of expertise, especially when it comes to pressure ulcer prevention. These findings are not consistent with those findings because their findings are mostly poor but our findings are moderate.

Some places, like Turkey, have started mixing things up with more hands-on learning and teamwork between different medical techniques, and it's working. It's important because even though this is just a study in Islamabad, it's pointing out a big problem everywhere.

Our study revealed that nursing students have solid foundation of knowledge and concept regarding pressure injury (75%students give correct answer 20% percent mark wrong and 5 % mark don't know). However more higher level of knowledge recommend to future nursing students to apply the evidence based practice .Our execution give great result according to previous studies .

In the evidence based practice preventive strategies to reduce the amount of pressure/shear, which are clearly described in the European Pressure Ulcer



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Advisory Panel (EPUAP) guidelines (2024).We suppose that, in everyday clinical practice according to study 20% nursing students have lack of knowledge could be related to a poor adherence to the guidelines with regard to the following points:(1)decide the right position the patient should assume to prevent PUs,(2)teach patient who is able to change position which is the best way to mobilize, (3)understand which prevention should be applied, and (4)discriminate between disadvantages and advantages of PU prevention.

By analyzing the relationship between nursing students 'characteristics and knowledge, we observed the mean score values were influenced by year of education.

Limitations

Cross-Sectional Design, the study's data collection at a single point makes it challenging to assess causation or track the evolution of knowledge over time. Participants were susceptible to exaggerating or misunderstanding the questions because knowledge was assessed through self-reported surveys. Despite achieving a high response rate (99%), the research might not be representative of all nursing students due to its focus on just one academic year (4th-year BSN). The total sample size is 187 and responses are 186.

Conclusion

Struggled with questions related to the etiology of PUs, preventive measures, and the proper use of the study revealed significant knowledge gaps among nursing students, particularly in areas like medical preventive measures, risk assessment, and the proper use of pressure-relieving devices. For instance, many students erroneously believed that repositioning is unnecessary for bedridden patients using pressurerelief mattresses (67.2% incorrect) or that skin areas in contact with medical devices do not have a higher risk for pressure injuries (59.1% incorrect). These findings highlight the urgent need for improved education and training for nursing students regarding the prevention and management of pressure ulcers. The results highlight how nursing students' lack of understanding can result in negative patient outcomes, such as higher rates of pressure ulcers, longer hospital stays, and higher medical

expenses. Therefore, increasing nursing education in this field is essential to raising the standard of care and patient safety.

In order to better prepare aspiring nurses for providing quality patient care, the study recommends a greater emphasis on evidence-based PU prevention techniques in nursing education, including as practical training and the use of validated risk assessment instruments.

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Conflict of interest

The authors declare no conflict of interest.

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