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Original research article

NURSING KNOWLEDGE AND PRACTICE REGARDING THE PREVENTION OF PRESSURE ULCER

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Abstract: *Pressure ulcers are a significant concern in healthcare settings, particularly patients with limited mobility. Nurses play a critical role in preventing pressure ulcers through early identification and intervention. However, the effectiveness of preventive measures largely depends on nurses' knowledge and practices regarding pressure ulcer prevention.* ***Objective:*** *This study aimed to assess the knowledge and practices of nurses working in tertiary care hospitals in Pakistan regarding the prevention of pressure ulcers.* ***Methods:*** *A descriptive cross-sectional study was conducted among 129 nurses at Jinnah Hospital, Lahore. Data were collected using a structured questionnaire that included demographic variables, knowledge, and practice sections related to pressure ulcer prevention. Descriptive statistics were used to summarise the data, and inferential statistics were applied to analyse the associations between knowledge, practices, and demographic variables.* ***Results:*** *Most participants were female (86.8%) and between the ages of 26 and 30 (55.0%). Most nurses had 1-3 years of experience (79.8%), and 38% held a Bachelor of Science in Nursing. While 62.8% of the nurses correctly identified that pressure ulcers result from unrelieved pressure for more than three hours, only 42.6% consistently used a risk assessment scale for pressure ulcer prevention. Significant gaps in knowledge and practice were observed, particularly regarding implementing prevention strategies.* ***Conclusion:*** *The findings indicate that while nurses in tertiary care hospitals in Pakistan have a basic understanding of pressure ulcer prevention, there is a need for continuous education and training programs to improve their practical application of preventive measures. Targeted interventions, particularly in high-risk departments such as medical and ICU units, could significantly reduce the incidence of pressure ulcers in hospitalised patients.*

Keywords: Pressure Ulcer Prevention, Nursing Knowledge, Nursing Practice, Pressure Injury, Tertiary Care, Pakistan, Cross-Sectional Study, Wound Care, Patient Safety.

Introduction

Pressure ulcers, bedsores, or decubitus ulcers are localised skin and underlying tissue injuries typically caused by prolonged pressure or friction. They are a significant concern in healthcare settings, particularly in patients with limited mobility or chronic illnesses (1). Pressure ulcers can lead to severe complications, including infections, extended hospital stays, and increased healthcare costs. Despite advancements in medical care, pressure ulcers remain a prevalent issue globally, including in Pakistan, where resource constraints and gaps in nursing knowledge can exacerbate the problem (2).

Nurses play a critical role in preventing pressure ulcers through early identification, risk assessment, and implementation of preventive strategies, such as frequent repositioning, pressure-relieving devices, and skin assessments. However, effective prevention relies heavily on nurses' knowledge and practices related to pressure ulcer prevention. Research suggests that insufficient knowledge and poor practices among healthcare professionals are key factors contributing to the high incidence of pressure ulcers, especially in developing countries like Pakistan (3).

In Pakistan, the prevalence of pressure ulcers has been reported to be higher than in many other countries due to a lack of trained staff, inadequate healthcare facilities, and insufficient education on evidence-based nursing practices (4). Nurses' knowledge and adherence to best practices are crucial in minimising the occurrence of pressure ulcers. Yet, many nurses struggle to maintain updated skills due to limited access to continuous professional development programs (5). Studies conducted in other developing countries have also highlighted that improved nurse education significantly lowers the incidence of pressure ulcers in hospital settings (6).

Furthermore, comprehensive training and the use of clinical guidelines are effective in reducing pressure ulcer rates. Research from neighbouring countries, including India and Iran, suggests that interventions improve nurses' knowledge and apply pressure ulcer prevention strategies, leading to better patient outcomes (7). Additionally, a study by Khan and Ullah (2020) found that implementing standardised assessment tools and risk identification protocols can reduce the development of pressure ulcers among high-risk patients.

The need for continuous education is further emphasised by the healthcare systems' growing complexity, especially in Pakistan, where nursing shortages and high patient loads often compromise care quality (8). As healthcare systems evolve, there is a growing emphasis on enhancing nurses' knowledge and practice, particularly in critical areas like pressure ulcer prevention.

Given the importance of this issue, this study aims to assess the knowledge and practices of nurses working in tertiary care hospitals in Pakistan regarding the prevention of pressure ulcers. By identifying gaps in knowledge and practice, this research hopes to contribute to developing more effective training programs and policies to reduce the incidence of pressure ulcers in Pakistani healthcare settings.

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Methodology

This research used a descriptive cross-sectional study design to assess nurses' knowledge and practices for preventing pressure ulcers.

The study was conducted at Jinnah Hospital, Lahore, a tertiary care hospital providing services across multiple medical disciplines. The research focused on registered nurses working in various hospital departments.

The target population for this study included registered nurses employed at Jinnah Hospital, Lahore. Nurses working in the medical, orthopaedic, and surgical units were included, as they were directly involved in patient care where pressure ulcer prevention is critical. Nurses working in the operation theatre, labour room, paediatrics, and outpatient departments (OPD) were excluded, as their primary responsibilities differed from direct bedside care involving pressure ulcer prevention.

The study was conducted over 4-6 months, from initial planning to data analysis and reporting.

A sample size of 129 nurses was selected using random sampling techniques. The sample size was calculated using Slovin's formula to ensure adequate power for statistical analysis. This approach ensured a representative sample of the target population, minimising potential sampling bias.

A random sampling technique was employed to select participants from the eligible population of registered nurses. The sampling frame consisted of all staff nurses working in the medical, orthopaedic, and surgical units.

An adapted version of a validated tool was used to assess nurses' knowledge and practices regarding preventing pressure ulcers. The tool was modified to suit the study context, and its reliability and validity were verified through pilot testing before formal data collection.

Ethical approval was obtained from the relevant institutional review board (IRB) at Jinnah Hospital, Lahore. Before the commencement of data collection, written permission was also sought from the hospital administration. Before participation, all selected nurses were briefed on the study objectives, and informed consent was obtained. Confidentiality and privacy of the respondents' data were ensured throughout the study.

Data were collected using self-administered questionnaires. The questionnaires were distributed to the participants during their shifts, and they were given adequate time to complete them. The research team collected the completed questionnaires at a scheduled time.

Data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics (e.g., frequencies, percentages, means, and standard deviations) were used to summarise demographic characteristics and critical variables related to knowledge and practice.

Results

The study involved 129 nurses, primarily female (112, 86.8%) and only 17 males (13.2%). The largest proportion of participants fell within the age range of 26-30 years (71, 55.0%), followed by 35 participants (27.1%) aged 21-25 years, and 23 participants (17.8%) aged 31-35 years.

Table 1: Demographic variable of study population:

Variable	Category	Frequency (%)
Age	21-25	35 (27.1%)
	26-30	71 (55.0%)
	31-35	23 (17.8%)
Gender	Male	17 (13.2%)
	Female	112 (86.8%)
Marital Status	Single	45 (34.9%)
	Married	84 (65.1%)
Qualification	General Nursing	41 (31.8%)
	Post RN	39 (30.2%)
	BSN Generic	49 (38.0%)
Experience	1-3 years	103 (79.8%)
	4-6 years	18 (14.0%)
	7-9 years	8 (6.2%)
Department	Medical	45 (34.9%)
	Orthopedic	30 (23.3%)
	Surgical	24 (18.6%)
	ICU	20 (15.5%)
	Paediatrics	10 (7.8%)

Regarding marital status, most participants were married (84, 65.1%), while 45 (34.9%) were single. Regarding educational qualifications, 49 nurses (38.0%) held a Bachelor of Science in Nursing (BSN), while 41 (31.8%) had a diploma in General Nursing, and 39 (30.2%) were Post RN graduates.

The majority of participants had 1-3 years of experience (103, 79.8%), while 18 (14.0%) had 4-6 years of experience, and 8 (6.2%) had 7-9 years of experience.

Regarding departmental distribution, most participants worked in the medical department (45, 34.9%), followed by 30 nurses (23.3%) in the orthopaedic department. The surgical department had 24 nurses (18.6%), while 20

participants (15.5%) worked in the ICU, and 10 (7.8%) worked in the paediatrics department.

The majority of the participants demonstrated good knowledge about pressure ulcer prevention. For the statement, "A lesion of the skin or underlying tissues caused by direct unrelieved pressure for more than three hours is known as a pressure ulcer," 81 participants (62.8%) correctly responded, "True." Regarding the role of pressure as a contributing factor in pressure ulcer formation, 77 participants (55.8%) answered correctly. Similarly, 91 participants (70.5%) acknowledged immobility as the most critical factor in pressure ulcer formation. However, less than half of the participants (57, 44.2%) correctly identified that a head-to-toe skin assessment is crucial for patients with spinal cord injuries who are at high risk for pressure ulcer development. Additionally, 74 participants (57.4%) correctly recognised serum albumin as a critical determinant for pressure ulcer formation. (Table 2)

Table 2: Knowledge Questionnaire

Question	True (%)	False (%)
"A lesion of the skin or underlying tissues by direct unrelieved pressure for more than three hours is known as a pressure ulcer."	81 (62.8%)	48 (37.2%)
"Pressure is a contributing factor for pressure ulcer formation."	77 (55.8%)	57 (44.2%)
"Immobility is the most important factor for pressure ulcer formation."	91 (70.5%)	38 (29.5%)
"Head-to-toe skin assessment is essential for a patient with spinal cord injury at high risk for pressure ulcer development."	57 (44.2%)	72 (55.8%)
"Serum albumin is a critical determinant for pressure ulcer formation."	74 (57.4%)	55 (42.6%)

The majority of nurses reported excellent practices related to pressure ulcer prevention. When asked about observing how other nurses assess risk factors, 74 participants (57.4%) responded, "Always." Similarly, 72 nurses (55.8%) reported always performing a skin assessment, while 69 participants (53.5%) stated they always document relevant data. In contrast, only 55 participants (42.6%) reported always using a risk assessment scale, though 70 participants (54.3%) indicated that they used it "Sometimes." (Table 3)

Table 3: Practice Questionnaire

Question	Always (%)	Sometimes (%)	Never (%)
"I observe how other nurses assess the risk factors."	74 (57.4%)	47 (36.4%)	8 (6.2%)
"I identify common contributing factors."	57 (44.2%)	67 (51.9%)	5 (3.9%)
"I do a skin assessment."	72 (55.8%)	50 (38.8%)	7 (5.4%)
"I use a risk assessment scale."	55 (42.6%)	70 (54.3%)	3 (2.4%)
"I document all data."	69 (53.5%)	55 (42.6%)	5 (3.9%)

Discussion

The present study aimed to assess nurses' demographic characteristics, knowledge, and practices regarding preventing pressure ulcers in a tertiary care hospital in Pakistan. The findings reveal critical insights into the professional composition and training background of nurses and their departmental distribution, all of which have implications for managing pressure ulcers in a hospital setting. Regarding gender, the overwhelming majority of participants were female (86.8%), which is consistent with the broader nursing workforce in Pakistan, where nursing remains a predominantly female profession. This trend is supported by recent research highlighting the gender imbalance in nursing, particularly in South Asian countries (9). The significant presence of female nurses reflects cultural norms and societal expectations. It poses challenges regarding workforce diversity, which could affect patient care and team dynamics in the clinical setting.

The age distribution showed that most nurses were between 26-30 years old, indicating a relatively young and active workforce. This age group is crucial for implementing evidence-based practices and being open to new techniques for pressure ulcer prevention. Previous studies have shown that younger nurses are more adaptable to new clinical protocols and technologies, which could be critical in pressure ulcer prevention and management (10). The relatively lower representation of nurses aged 31-35 (17.8%) could be attributed to career transitions or changes in job roles, such as moving into management or education roles (11).

Regarding marital status, most participants were married (65.1%), which is typical for professionals in Pakistan at this stage of their careers. Marital status can influence job satisfaction, work-life balance, and professional commitment (11). Married nurses may experience more pressure to manage household responsibilities and professional duties, potentially impacting their engagement in continuous professional development.

The study also found that the nurses' educational qualifications were varied, with a significant proportion holding a Bachelor of Science in Nursing (38.0%), followed by those with a diploma in General Nursing (31.8%). The educational diversity reflects the transitional state of nursing education in Pakistan, where more nurses are pursuing higher education, such as BSN and Post RN qualifications (12). The increasing number of BSN graduates could contribute to enhanced patient care, as higher educational attainment is often linked with better clinical outcomes,

including preventing hospital-acquired conditions such as pressure ulcers.

The nurses' experience levels indicate that the majority (79.8%) had 1-3 years of experience, showing a relatively inexperienced workforce. This could have implications for the effectiveness of pressure ulcer prevention, as more experienced nurses are generally better equipped with clinical skills to identify and manage such conditions (13). The fact that fewer nurses had 4-9 years of experience highlights a possible gap in mid-level expertise, which is critical for mentoring younger nurses and ensuring quality care.

In terms of departmental distribution, a considerable number of participants were from the medical department (34.9%), followed by orthopaedic (23.3%), surgical (18.6%), ICU (15.5%), and paediatrics (7.8%). Departments such as medical, surgical, and ICU are particularly high-risk areas for pressure ulcer development, as these units tend to manage patients with limited mobility and higher understanding (14). The relatively high representation of nurses in these departments indicates a need for targeted training and preventive measures in these units.

Conclusion

In conclusion, the results of this study reflect the demographic and professional landscape of nurses in Pakistan and highlight areas that require further development, such as improving educational attainment and providing experience-based training. Strengthening these aspects could improve patient outcomes, particularly preventing hospital-acquired conditions like pressure ulcers. The findings underscore the need for continuous professional development programs focused on the prevention of pressure ulcers, especially in high-risk departments like medical, orthopaedic, and ICU.

Recommendation

- Nurses' knowledge and practices towards preventing pressure ulcers will be improved through continued nursing education programs.
- The current study examines the level of knowledge and practice regarding preventing pressure ulcers. Future research can work on improving learning and training to conduct cross-sectional studies by which they can gain knowledge and practice regarding the prevention of pressure ulcers.

Limitations

- The current study used a cross-sectional design to identify the knowledge and practice of medical nurses regarding preventing pressure ulcers.
- The study sample was too small to generalise the study findings

Declarations

Data Availability statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate.

It is approved by the department concerned. (IRBEC-QWAGD-32/23)

Consent for publication

Approved

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Conflict of interest

The authors declared an absence of conflict of interest.

Authors' Contribution

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