Middle East Research Journal of Nursing
ISSN 2789-8679 (Print) & ISSN: 2958-2016 (Online)
Frequency: Bi-Monthly
DOI: https://doi.org/10.36348/merjn.2025.v05i03.001

KUWAIT SCHOLARS PUBLISHER
Website: http://www.kspublisher.com/
Email: office@kspublisher.com

Assess The Knowledge of Pressure Ulcer Prevention Among Nurses at A Selected Hospital in Barishal, Bangladesh

Israt Jahan Popy[1*], Halima Akter[2], Tumpa Gharami[2]
[1]Surgery Unit, Sher E Bangla Medical College and Hospital, Barishal, Bangladesh
[2]Lecturer, Department of Graduate Nursing, Bangladesh Medical University (BMU), Dhaka, Bangladesh

Abstract: ***Background:*** Pressure ulcers are a critical global health concern. Worldwide, the prevalence of pressure ulcers ranges from 3.4% to 32.4%. In Bangladesh, the prevalence rate is notably high, reaching 43% among bedridden patients. This study aimed to assess the level of nurses' knowledge regarding pressure ulcer prevention at a selected hospital in Barishal, Bangladesh. ***Methodology:*** A cross-sectional study was conducted among 103 nurses at Sher-e-Bangla Medical College Hospital, Barishal, using a convenient sampling technique. Data collection was carried out using a 25-item questionnaire, including the Pressure Ulcer Knowledge Assessment Tool 2.0, a revised and validated tool developed at Ghent University, Belgium. The data were analyzed using SPSS software, employing both descriptive and inferential statistics. ***Results:*** The average age of the nurses was 35.74 years (SD = 4.51), with more than half (54.4%) being younger than 36 years. Knowledge was assessed on a binary scale (Yes = 1, No = 0), and the mean knowledge score was M = 0.56 (SD = 0.14), indicating poor knowledge of pressure ulcer prevention. Analysis of independent variables revealed that monthly family income (p = 0.04), work experience (p = 0.04), marital status (p = 0.02), professional education level (p = 0.000), and job position (p = 0.02) were significantly associated with nurses' knowledge of pressure ulcer prevention. ***Conclusion:*** The study highlights significant knowledge gaps among nurses regarding pressure ulcer prevention in Barishal, Bangladesh. The findings emphasize the need for continuous education and retraining to improve nurses' competence and awareness in pressure ulcer prevention strategies.

Keywords: Knowledge, Pressure ulcer, Prevention, Nurses.

Research Paper

***Corresponding Author:**
Israt Jahan Popy
Surgery Unit, Sher E Bangla Medical College and Hospital, Barishal, Bangladesh

How to cite this paper:
Israt Jahan Popy *et al* (2025). Assess The Knowledge of Pressure Ulcer Prevention Among Nurses at A Selected Hospital in Barishal, Bangladesh. *Middle East Res J Nursing, 5*(3): 44-49.

Article History:
| Submit: 26.03.2025 |
| Accepted: 24.04.2025 |
| Published: 04.06.2025 |

INTRODUCTION

Pressure ulcers, also known as bedsores or decubitus ulcers, are localized injuries to the skin and underlying tissue, typically occurring over bony prominences due to prolonged pressure, friction, or shear forces. These ulcers are a significant healthcare concern, particularly among individuals with limited mobility, such as elderly patients or those confined to beds or wheelchairs. Pressure ulcers develop when continuous pressure disrupts blood flow to the skin, leading to tissue ischemia, cell death, and eventual ulceration. The sacrum, heels, and hips are the most commonly affected areas, although other regions like the elbows, knees, and back of the cranium can also be impacted (Pressure Ulcer, 2025). Despite advancements in prevention and treatment, pressure ulcers remain a prevalent issue in healthcare settings, contributing to increased patient morbidity, prolonged hospital stays, and substantial healthcare costs (Mathison, 2003). The National Pressure Ulcer Advisory Panel (NPUAP) and the European Pressure Ulcer Advisory Panel (EPUAP) have defined pressure ulcers as "localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction" ((Black *et al*., 2007)). This definition underscores the multifactorial nature of pressure ulcer development, which involves not only pressure but also factors like moisture, friction, and shear.

The prevalence of pressure ulcers varies widely across different healthcare settings and populations. In hospital-based studies, prevalence rates range from 4.7% to 32.1%, with higher rates observed in intensive care units and long-term care facilities (Vanderwee *et al*., 2007). In the United States, pressure ulcers affect approximately 3 million people annually, with incidence rates ranging from 0.4% to 38% in acute care settings and up to 23.9% in long-term care (Black *et al.,* 2007). Similarly, in Europe, prevalence rates range from 8.3%

to 25.1% (Haalboom, 2000). In Asia, the prevalence of pressure ulcers in intensive care units was reported to be between 2.1% and 31.3% (Suriadi *et al*., 2007). In Bangladesh, limited data exists on the prevalence of pressure ulcers, but studies have shown that 38% of paralyzed patients develop pressure ulcers, highlighting the need for improved prevention and management strategies (Hoque *et al*., 1999). The high prevalence of pressure ulcers in healthcare settings emphasizes the importance of effective prevention practices, particularly among nurses who play a critical role in patient care.

Nurses' knowledge and practices regarding pressure ulcer prevention are crucial in reducing the incidence of these injuries. However, studies have shown that many nurses lack adequate knowledge and skills in pressure ulcer prevention, leading to suboptimal care practices (Gunningberg *et al*., 2001). Factors such as high workload, inadequate staffing, and lack of resources further hinder the implementation of effective prevention strategies (Mwebaza *et al*., 2014). Evidence-based practices, including regular skin assessments, proper nutrition management, and frequent repositioning of patients, are essential for preventing pressure ulcers (Australian Wound Management Association, 2001). Despite the availability of guidelines, the translation of these recommendations into clinical practice remains a challenge, particularly in resource-limited settings like Bangladesh. Therefore, assessing nurses' knowledge and practices regarding pressure ulcer prevention is critical for identifying gaps and improving patient outcomes.

This study aimed to assess the knowledge of pressure ulcer prevention among nurses at a selected hospital in Barisal, Bangladesh. By evaluating nurses' understanding of pressure ulcer risk factors, prevention strategies, and current guidelines, this study sought to identify areas for improvement and inform targeted interventions. Given the significant impact of pressure ulcers on patient morbidity, healthcare costs, and quality of life, enhancing nurses' knowledge and practices in this area is essential for improving patient care and reducing the burden of pressure ulcers in healthcare settings. The findings of this study are expected to contribute to the growing body of literature on pressure ulcer prevention and provide valuable insights for healthcare policymakers and practitioners in Bangladesh.

METHODOLOGY

This study employed a cross-sectional design to assess the level of knowledge regarding pressure ulcer prevention among nurses at Sher-E-Bangla Medical College Hospital (SBMCH) in Barishal, Bangladesh. SBMCH, a tertiary-level hospital located in the divisional city of Barishal, was chosen as the study setting due to its comprehensive medical services and the high volume of patients requiring prolonged and critical nursing care. The study population included registered nurses working in seven selected units: surgical, medical, orthopedic, neurology, coronary care, and intensive care units, as these units often admit patients at high risk for pressure ulcer development. Participants were selected using a convenient sampling technique, and inclusion criteria included being a registered nurse with at least one year of full-time work experience in the selected units and willingness to participate. The sample size was determined using G*Power software, with a significance level (α) of 0.05, a power of 0.80, and a medium effect size of 0.30, resulting in a calculated sample size of 82. To account for potential non-responses or missing data, an additional 20% was added, bringing the final sample size to 103. Data collection took place from March to May 2024.

Data were collected using a self-administered questionnaire divided into two sections. Section I included a Socio-Demographic Questionnaire (SDQ) developed by the researcher, which assessed participants' age, religion, height, weight, marital status, working position, working area, experience, professional education, and pressure ulcer prevention training. Section II utilized the Pressure Ulcer Knowledge Assessment Tool (PUKAT) 2.0, a validated 25-item questionnaire developed at Ghent University, Belgium. The PUKAT 2.0 tool, which has demonstrated good content validity and moderate difficulty levels, assesses knowledge across six critical themes: etiology, classification and observation, nutrition, risk assessment, prevention, and specific patient groups. Each correct answer was scored as "1," and incorrect answers as "0," with a maximum score of 25. A mean knowledge score of ≥60% (15 or higher) was considered satisfactory. The tool's reliability was supported by an Intraclass Correlation Coefficient of 0.69, and it has been widely used in nursing education, research, and practice globally.

Data collection procedures were conducted after obtaining ethical approval from the Institutional Review Board (IRB) and permission from the hospital administration. Written informed consent was obtained from all participants, and confidentiality and anonymity were strictly maintained using code numbers. Participants were informed of their right to withdraw at any time without consequence. Data were collected through face-to-face interviews using the structured questionnaire, and all collected information was securely stored and accessible only to the researcher. Data analysis was performed using SPSS version 23, with descriptive statistics (frequency, percentage, mean, and standard deviation) used to summarize participants' characteristics and inferential statistics (two-sample t-tests, ANOVA, and correlation) employed to examine relationships between socio-demographic variables and nurses' knowledge of pressure ulcer prevention.

RESULTS

The table presents the socio-demographic characteristics of the 103 nurses who participated in the study. The majority of the nurses were aged 34.81 years or younger (54.4%), with a mean age of 35.74 ± 4.51 years. In terms of Body Mass Index (BMI), 62.1% of the nurses fell within the normal range (18.5–24.9), while 37.9% were classified as obese (25–39.9), with a mean BMI of 25.02 ± 2.89. The total family income of the participants ranged from a minimum of 30,000 to a maximum of 100,000, with a mean income of 51,300.97 ± 15,785.22. The gender distribution showed that the majority of the nurses were female (91.3%), with only 8.7% being male. Regarding work experience, 66% of the nurses had 9.30 years or less of experience, while 34% had more than 9.31 years, with a mean work experience of 9.30 ± 5.75 years. Religiously, the majority of the nurses identified as Muslim (66%), followed by Hinduism (32%), and a small percentage as Christian (1.9%). In terms of marital status, 93.2% of the nurses were married, while only 6.8% were single. The professional education level of the participants varied, with the majority holding a Diploma in Nursing (55.3%), followed by a B.Sc. in Nursing (38.8%), and a small percentage holding an M.Sc. in Nursing (3.9%) or an MPH (1.9%). Job positions were predominantly Senior Staff Nurse (90.3%), with only 9.7% serving as Nursing In charge. Additionally, 78.6% of the nurses worked in general units, while 21.4% were employed in special units.

Table 1: Distribution of Socio-Demographic Characteristics of the Nurses (N = 103)

Variables	Categories	n	%	Mean±SD
Age (Years)	≤ 34.81	56	54.4	35.74±4.51
	> 34.81	47	45.6	
BMI (Body Mass Index)	18.5 – 24.9 (Normal)	64	62.1	25.02±2.89
	25 – 39.9 (Obese)	39	37.9	
Total Family Income	Mini- 30000 And Max - 100000			51300.97±15785.22
Gender	Male	9	8.7	
	Female	94	91.3	
Working Experience	≤9.30	68	66	9.30±5.75
	>9.31	35	34	
Religion	Muslim	68	66	
	Hinduism	33	32	
	Christian	2	1.9	
Marital Status	Single	7	6.8	
	Married	96	93.2	
Professional Education Level	Diploma In Nursing	57	55.3	
	B.Sc. In Nursing	40	38.8	
	M.Sc. In Nursing	4	3.9	
	MPH	2	1.9	
Job Position	Senior Staff Nurse	93	90.3	
	Nursing In charge	10	9.7	
Working Area	General Unit Nurse	81	78.6	
	Special Unit Nurse	22	21.4	

Table 2 presents the level of nurses' knowledge about pressure ulcer prevention across different themes. The overall mean knowledge score was 11.42±3.52, with an average percentage of 45.68%, indicating a poor understanding of the topic. Among the different themes, risk assessment had the highest knowledge level (1.29±0.799, 64.5%), suggesting that nurses were relatively more aware of identifying patients at risk for pressure ulcers. Conversely, knowledge about specific patient groups was the lowest (0.51±0.56, 25.5%), highlighting a significant gap in understanding pressure ulcer prevention in vulnerable populations. Other themes such as aetiology (2.54±1.18, 42.33%), classification and observation (1.96±0.97, 49%), nutrition (1.41±0.63, 47%), and prevention strategies (3.68±1.39, 46%) reflected poor to moderate levels of knowledge.

Table 2: Level of Nurses knowledge about pressure ulcer prevention (N=103)

Theme	Mean±SD	%
Aetiology	2.54±1.18	42.33
Classification and Observation	1.96 ± 0.97	49%
Risk Assessment	1.29±0.799	64.5%
Nutrition	1.41±0.63	47%
Prevention of Pressure Ulcers	3.68±1.39	46%
Specific Patient Groups	0.51±0.56	25.5%
Mean	11.42±3.52	45.68%

Table 3 examines the relationship between socio-demographic characteristics and nurses' knowledge of pressure ulcer prevention. Several variables showed statistically significant associations. Age was a significant factor, with nurses older than 34.81 years demonstrating a higher knowledge score (12.19±3.92) than younger nurses (10.77±3.03, p = 0.04). Monthly family income also influenced knowledge, as those earning more than 51,301 had higher scores (12.10±3.61) compared to those earning less (10.77±3.35, p = 0.04). Work experience was another important factor, with nurses having more than 9.31 years of experience scoring significantly higher (12.43±4.13) than their less experienced counterparts (10.89±3.08**,** p = 0.04). Marital status also played a role, as married nurses had significantly higher knowledge (11.61±3.56) than single nurses (9.57±1.62, p = 0.02).

Education level had the strongest association with knowledge (p < 0.001), as M.Sc. in Nursing graduates had the highest mean score (17.25±1.89), followed by B.Sc. in Nursing (12.55±3.98), while Diploma in Nursing holders scored the lowest (10.26±2.55). Job position was another significant factor, with nursing in-charge personnel demonstrating higher knowledge **(**13.80±5.16**)** than senior staff nurses (11.16±3.24**,** p = 0.02).

However, gender, BMI, religion, and working area did not show significant associations with nurses' knowledge. These findings suggest that targeted educational programs should focus on younger, less experienced, and diploma-level nurses to enhance their knowledge of pressure ulcer prevention.

Table 3: Describe the Relationship between socio-demographic characteristics with nurse's knowledge of pressure ulcer prevention (N = 103)

Variables	Categories	Mean±SD	t/F/r(P)
Age (Years)	≤ 34.81	10.77±3.03	-2.029 (0.04)*
	> 34.81	12.19±3.92	
BMI (Body Mass Index)	18.5 – 24.9 (Normal)	11.08±3.15	-1.182(0.24)
	25 – 39.9 (Obese)	11.97±4.05	
Monthly Family Income	≤51300	10.77±3.35	-1.93 (0.04)*
	>51301	12.10±3.61	
Gender	Male	11.11±3.01	
	Female	11.45±3.58	-0.27 (0.79)
Working Experience	≤9.30	10.89±3.08	-1.94 (0.04)*
	>9.31	12.43±4.13	
Religion	Muslim	11.21±3.58	0.39 (0.68)
	Hinduism	11.79±3.51	
	Christian	12.50±2.12	
Marital Status	Single	9.57±1.62	-2.86 (0.02)*
	Married	11.61±3.56	
Professional Education Level	Diploma In Nursing	10.26±2.55	8.83 (0.000)*
	B.Sc. In Nursing	12.55±3.98	
	M.Sc. In Nursing	17.25±1.89	
	MPH	10.00±2.83	
Job Position	Senior Staff Nurse	11.16±3.24	-2.29 (0.02)*
	Nursing In charge	13.80±5.16	
Working Area	General Unit Nurse	11.44±3.47	0.15 (0.88)
	Special Unit Nurse	11.32±3.78	

DISCUSSION

The study aimed to assess the level of nurses' knowledge regarding pressure ulcer prevention at a selected hospital in Barishal, Bangladesh, involving 103 registered nurses. The findings revealed critical insights into the socio-demographic characteristics of the participants, their knowledge levels, and the relationship between socio-demographic factors and their knowledge of pressure ulcer prevention. The socio-demographic analysis indicated that the majority of nurses were female (91.3%), with an average age of 35.74 years, and most were married (93.2%). A significant proportion held a diploma in nursing (55.3%), while only 5.8% had completed a master's degree. The mean working experience was 9.30 years, and the average family income was 51,300.97 BDT. These findings align with similar studies conducted in Bangladesh and Saudi Arabia, which also reported a predominantly female nursing workforce with comparable age ranges and educational backgrounds (Nahar *et al*., 2021; Sallam *et al*., 2020). However, the current study highlighted a lower percentage of nurses with bachelor's degrees (38.8%) compared to other studies, suggesting potential variations in educational attainment across regions.

The assessment of nurses' knowledge about pressure ulcer prevention revealed an overall mean score of 11.42 ± 3.52, translating to 45.68%, indicating poor knowledge levels. Only 17.5% of nurses demonstrated satisfactory knowledge, while 82.5% had unsatisfactory knowledge. The highest knowledge score was observed in the "Risk Assessment" theme (64.5%), indicating a relative strength in identifying at-risk patients. However, knowledge gaps were evident in other critical areas, such as "Specific Patient Groups" (25.5%) and "Prevention of Pressure Ulcers" (46%). Notably, no nurses correctly answered questions related to necrotic tissue in Category III and IV pressure ulcers or the need for nutritional supplementation in immobile patients. These findings are consistent with studies from Saudi Arabia and Nigeria, which also reported low overall knowledge scores and significant gaps in specific areas of pressure ulcer prevention (Gbadamosi *et al.*, 2023; Sallam *et al*., 2020). The poor knowledge levels underscore the need for targeted educational interventions to enhance nurses' competency in pressure ulcer prevention, particularly in underperforming areas.

The study also explored the relationship between socio-demographic characteristics and nurses' knowledge of pressure ulcer prevention. Significant associations were found between knowledge levels and monthly family income ($p = 0.04$), working experience ($p = 0.04$), marital status ($p = 0.02$), professional education level ($p = 0.000$), and job position ($p = 0.02$). Nurses with higher family incomes, more work experience, and advanced professional education demonstrated better knowledge scores. Married nurses and those in higher job positions, such as nursing in-charge, also exhibited superior knowledge compared to their counterparts. These findings contrast with some studies that found no significant associations between knowledge levels and factors like age, education, or work experience (Sallam et al., 2020). However, the current study highlights the importance of socio-economic and professional factors in shaping nurses' knowledge, suggesting that targeted training programs should consider these variables to improve knowledge dissemination and application in clinical practice. Overall, the study underscores the need for comprehensive educational initiatives and policy interventions to address knowledge gaps and enhance pressure ulcer prevention practices among nurses in Bangladesh.

Conclusion

The study aimed to assess the level of nurses' knowledge regarding pressure ulcer prevention at a selected hospital in Barishal, Bangladesh, and revealed critical insights into the socio-demographic characteristics, knowledge levels, and factors influencing nurses' competency in this area. The findings indicate that the majority of nurses had poor overall knowledge of pressure ulcer prevention, with an average score of 45.68%. While nurses demonstrated relatively better understanding in areas such as risk assessment, significant gaps were identified in critical themes like specific patient groups, prevention strategies, and nutritional management. These knowledge gaps highlight the urgent need for targeted educational interventions and training programs to enhance nurses' competency in pressure ulcer prevention, particularly in underperforming areas.

The socio-demographic analysis revealed that the nursing workforce was predominantly female, married, and with moderate work experience, but only a small percentage held advanced degrees. Factors such as higher family income, greater work experience, advanced professional education, and higher job positions were significantly associated with better knowledge scores. These findings suggest that socio-economic and professional factors play a crucial role in shaping nurses' knowledge and underscore the importance of addressing these variables in training programs. Additionally, the study highlights the need for institutional support, such as access to continuing education and resources, to improve knowledge dissemination and application in clinical practice.

In a nutshell, the study underscores the critical need for comprehensive educational initiatives and policy interventions to address the knowledge gaps in pressure ulcer prevention among nurses in Bangladesh. By enhancing nurses' knowledge and skills, healthcare institutions can improve patient outcomes, reduce the incidence of pressure ulcers, and alleviate the associated healthcare burden. Future research should focus on developing and evaluating targeted training programs, as well as exploring the long-term impact of such interventions on clinical practice and patient care. Addressing these challenges will contribute to the overall improvement of nursing care quality and patient safety in healthcare settings.

Acknowledgment

Authors are grateful towards the authority and employees of Rajdhani Nursing College, Barishal, United Nursing College, Dhaka and Sher E Bangla Medical College and Hospital, Barishal, for their strenuous and cordial effort in completing this study on time.

References

1. Australian Wound Management Association. (2001). *Clinical practice guidelines for the prediction and prevention of pressure ulcers.* Http://Www.Awma.Com.Au/Publications/Publications.Php.
2. Black, J., Baharestani, M. M., Cuddigan, J., Dorner, B., Edsberg, L., Langemo, D., Posthauer, M. E., Ratliff, C., & Taler, G. (2007). National Pressure

Ulcer Advisory Panel's Updated Pressure Ulcer Staging System. *Advances in Skin & Wound Care*, *20*(5), 269–274. https://doi.org/10.1097/01.ASW.0000269314.23015.e9

3. Gbadamosi, I. A., KOLADE, O., & AMOO, P. (2023). Nurses' Knowledge of Pressure Ulcer Risk Assessment and Prevention Strategies: A Cross-Sectional Study in Nigeria. *Nursing and Health Sciences Journal (NHSJ)*, *3*(2), 131–143. https://doi.org/10.53713/nhsj.v3i2.236
4. Gunningberg, L., Lindholm, C., Carlsson, M., & Sjödén, P. (2001). Risk, prevention and treatment of pressure ulcers – nursing staff knowledge and documentation. *Scandinavian Journal of Caring Sciences*, *15*(3), 257–263. https://doi.org/10.1046/j.1471-6712.2001.00034.x
5. Haalboom, J. R. E. (2000). The Dutch experience of pressure ulcers — a personal view. *Journal of Wound Care*, *9*(3), 121–122. https://doi.org/10.12968/jowc.2000.9.3.26268
6. Hoque, M. F., Grangeon, C., & Reed, K. (1999). Spinal cord lesions in Bangladesh: an epidemiological study 1994–1995. *Spinal Cord*, *37*(12), 858–861. https://doi.org/10.1038/sj.sc.3100938
7. Mathison, C. (2003). Skin and wound care challenges in the hospitalized morbidly obese patient. *Journal of WOCN*, *30*(2), 78–83. https://doi.org/10.1067/mjw.2003.22
8. Mwebaza, I., Katende, G., Groves, S., & Nankumbi, J. (2014). Nurses' Knowledge, Practices, and Barriers in Care of Patients with Pressure Ulcers in a Ugandan Teaching Hospital. *Nursing Research and Practice*, *2014*, 1–6. https://doi.org/10.1155/2014/973602
9. Nahar, K., Khatun, M., Begum, M. B., Lily, S. A., & Saha, A. K. (2021). *International Journal of Medical Science and Clinical Research Studies Nurses' Knowledge and Practice on Pressure Ulcer Prevention and Management for Hospitalized Patients at Tertiary Level Hospital*. https://doi.org/10.47191/ijmscrs/v1
10. *Pressure ulcer*. (2025). https://en.wikipedia.org/wiki/Pressure_ulcer.
11. Sallam, S. A. E. G., Dando, L. L., Velitario, A. M., Pardinas, A. L. A., Dizon, M. L., & Alcantara, J. C. (2020). Nurses' knowledge to pressure ulcer prevention at Hail hospitals in Saudi Arabia: A cross-sectional study. *Medical Science*, 24(106), 4040–4052. https://discoveryjournals.org/medicalscience/current_issue/v24/n106/A28.htm
12. Suriadi, Sanada, H., Sugama, J., Kitagawa, A., Thigpen, B., Kinosita, S., & Murayama, S. (2007). Risk factors in the development of pressure ulcers in an intensive care unit in Pontianak, Indonesia. *International Wound Journal*, *4*(3), 208–215. https://doi.org/10.1111/j.1742-481X.2007.00315.x
13. Vanderwee, K., Clark, M., Dealey, C., Gunningberg, L., & Defloor, T. (2007). Pressure ulcer prevalence in Europe: a pilot study. *Journal of Evaluation in Clinical Practice*, *13*(2), 227–235. https://doi.org/10.1111/j.1365-2753.2006.00684.x