

# Knowledge and Practices of Student Nurses towards Prevention and Management of Pressure ulcers in Allied Hospitals of Rawalpindi Medical University

Nimra Ghafoor<sup>1</sup>, Rabiya Munir<sup>2</sup>, Inayat Mumtaz Khan<sup>3</sup>, Faryal Azhar<sup>4</sup>

<sup>1,2,3</sup> Fourth Year MBBS student,  
Rawalpindi Medical University, Rawalpindi.

<sup>4</sup> Assistant Professor, Department of Surgery (Unit-II),  
Holy Family Hospital, Rawalpindi.

## Author's Contribution

<sup>1,3</sup> Conception of study  
<sup>2,4</sup> Experimentation/Study conduction  
<sup>2</sup> Analysis/Interpretation/Discussion  
<sup>2</sup> Manuscript Writing  
<sup>1,3,4</sup> Critical Review  
<sup>3,4</sup> Facilitation and Material analysis

## Corresponding Author

Ms. Nimra Ghafoor  
4<sup>th</sup> Year MBBS Student,  
Rawalpindi Medical University  
Rawalpindi  
Email: [nimraghafoor18@gmail.com](mailto:nimraghafoor18@gmail.com)

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## Abstract

**Introduction:** Pressure ulcer is a common preventable complication of prolonged hospitalization. Although debilitating, but preventable through timely assessment and proper management. This study was conducted to access student nurse's knowledge and practices towards the prevention and management of pressure ulcers.

**Materials and Methods:** A cross-sectional study was conducted at Nursing Schools of Holy Family Hospital and Benazir Bhutto Hospital Allied with Rawalpindi Medical University. A pre-tested self-designed questionnaire was filled by 264 students selected through the non-probability convenient sampling technique. Data were analyzed using SPSS 21. P-value <0.01 was considered significant.

**Results:** Mean percentage of Student nurse's knowledge and practices were 58.7% 69.62% respectively. 21.7% of first-year students, 34.1% of second-year students, and 60.2% of third-year students had good knowledge. Correspondingly, 10.89% of first-year students, 32.9% of second-year students, and 56.2% of third-year students had good practice. There was a significant correlation between knowledge and practices i.e. r value is 0.92, the p-value is <0.000.

**Conclusion:** Knowledge and Practices of Student Nurses towards the prevention and management of pressure ulcers was found to be average. The practices of students gradually improved as their knowledge improved throughout their years of education.

**Keywords:** Knowledge, Practices, Prevention, Pressure Ulcers.

## Introduction

A Pressure Ulcer (PU) also known as Bed Sore is a painful injury to a localized area of the skin and underlying tissues due to ischaemia.<sup>1</sup> It usually occurs over bony prominences because of shear, strain, friction, or pressure. Multiple factors play important roles in the development of PUs. Inadequate nutrition, reduced physical activity, impaired sensory perception, faecal and urinary incontinence, inadequate hydration, and immobility are by far considered the most important factors.<sup>2</sup> Advanced age and presence of multiple co-morbid like Diabetes, Hypertension, and Ischaemic heart diseases are considered secondary risk factors.

Although multiple disciplines are involved in Pressure Ulcer management, Nurses play a major role in it as they handle the patients primarily.<sup>3</sup> With better nursing care, this debilitating disease can be managed and prevented. Pressure ulcers are recognized worldwide as one of the most common preventable patient safety problems.<sup>4</sup> Also, pressure ulcers are responsible for 2% of preventable deaths in the world.<sup>5</sup> According to our knowledge, no significant data is available in Pakistan regarding the incidence of Pressure Ulcers. It has been estimated that the cost required for the treatment of Pressure Ulcers is almost thrice the cost of prevention.<sup>6</sup> Only in the United States, 2.5 million cases of Pressure Ulcers are reported annually.<sup>7</sup> The incidence of pressure ulcers in Asian countries is considered quite high, ranging from 2.1% to 31.3% in ICUs.<sup>8</sup>

In countries like Pakistan, where resources are limited, PUs significantly increase the hospital workload and financial burden. PUs can be prevented by taking simple, cost-effective, and time-saving measures if only one knows how to implement those measures. This research will provide essential information regarding Nurse's knowledge, practices, and the shortcomings in their curriculum and training program. This will lead to a better understanding and management of one of the grave issues we are currently facing. It will provide future guidance to make better strategies for the dissemination and adoption of preventive measures.

The objective of our study is to assess the Knowledge and Practices of Nurses towards the prevention and management of Pressure Ulcers and to correlate their Knowledge with their Practices.

## Materials and Methods

A descriptive cross-sectional study was conducted among Student Nurses studying at Nursing Schools of Holy Family Hospital and Benazir Bhutto Hospital Allied with Rawalpindi Medical University. The study population comprised of first, second, and third-year Diploma Student nurses directly dealing with the patients and having at least 5 months of clinical experience.

264 students were included in the study. The sample size was calculated by the WHO calculator. Non-probability convenient sampling technique was used for data collection.

A self-designed pre-tested questionnaire (Annexure attached) was used, consisting of 10 knowledge-based and 10 practice-based questions. A questionnaire was appropriately modified according to the pretested result before actual data collection. In knowledge-based questions, there were 3 options: yes, no, don't know. 'Yes' was taken 'true'; 'No' and 'don't know' were taken 'false' for questions: 1, 2, 4, 9, 10. However, for the rest 5 questions, 'No' was taken 'true'; 'Yes' and 'Don't know' were taken 'false'. A score of '1' was given for 'true' and a score of '0' for 'false'. The maximum knowledge score was 10. In practice-based questions, a score of '1' is given for 'never', '2' for 'sometimes', and '3' for 'always'. The maximum practice score was 30.

The questionnaire was distributed among student Nurses in their respective classes after they were briefed about the study and taking informed verbal consent.

Data were analysed using SPSS 21. Frequency and percentages were calculated for categorical variables. Mean percentage scores for both total knowledge and practice were calculated. The Chi-square test was applied to find the relation between knowledge and practice of students with their academic year. A correlation was made between knowledge and practice (i.e.  $r \leq 0.5$  is weak,  $r = 0.5-0.7$  is moderate and  $r > 0.7$  is a strong correlation). For all purposes p-value  $< 0.01$  was considered to be significant at a 99% confidence interval.

## Results

Out of 264 students, 101 (38.3%) were from the first year, 85 (32.2%) from the second year, and 78 (29.5%) from the third year. 90% of the students were 19-21 years old.

10 questions were asked to assess the knowledge of students regarding pressure ulcer prevention. Students who got  $\leq 30\%$  score were considered to have 'poor knowledge', who got 40-60% score were considered to have 'average knowledge' and  $\geq 70\%$  score were considered to have 'good knowledge'. Mean knowledge score  $\pm$  Standard deviation was  $5.87 \pm 1.82$ . Mean percentage knowledge score was 58.78%.

**Table 1: Knowledge of student Nurse's towards prevention of Pressure Ulcers**

Questions	True		False	
	N	%	N	%
Pressure ulcers (PUs) develop in areas above bony prominences.	237	89.8	27	10.2
Primary prevention of PUs is the redistribution of pressure.	176	66.7	88	33.3
There are a total of 5 stages of PUs.	64	24.2	200	75.8
Lateral 30° turnings of body and 30° elevation of head can reduce the risks of PUs.	184	69.7	80	30.3
High-density foam mattress is not beneficial for PUs prevention.	148	56.1	116	43.9
Use of pillows and heel lift boots may contribute towards the development of pressure ulcers.	153	58.0	111	42
Keeping the skin moist can lower the risk of PUs.	107	40.5	157	59.5
Cervical collars may be helpful in patients having a high risk for PU development.	92	34.8	172	65.2
Wheelchair cushions play an important role in reducing the risk of PUs in paralyzed patients	232	87.9	32	12.1
Adequate hydration plays a significant role in PU prevention.	161	61	103	39

**Table 2: Comparison of Student Nurse's level of knowledge and practice regarding prevention and management of pressure ulcers with their year of practice**

Year of practice	Knowledge						Practice									
	Good		Average		Poor		p-value		Good		Average		Poor		p-value	
	N	%	N	%	N	%	<0.000*		N	%	N	%	N	%	<0.000*	
First year	22	21.7	67	66.3	12	11.8			11	10.8	77	76.2	10	9.9		
Second year	29	34.1	55	64.7	8	9.4			28	32.9	54	63.5	3	3.5		
Third year	47	60.2	29	37.1	2	2.5			44	56.2	33	42.3	1	1.2		

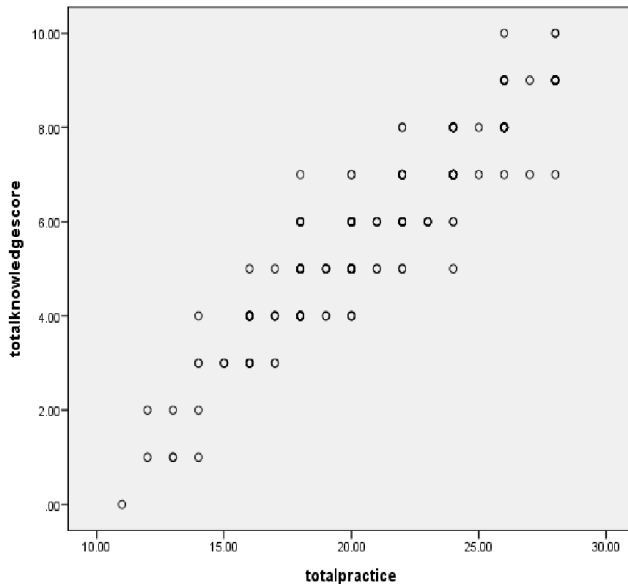
\*statistically significant p-value

10 questions were asked for practice assessment. Students who got score  $\leq 15$  were considered to have 'poor practice', who got score 16-23 were considered to have 'average practice' and who got score  $\geq 24$  were considered to have 'good practice'. The mean practice score  $\pm$  Standard deviation was  $20.88 \pm 3.76$ . The mean percentage practice score was 69.62%.

**Table 3: Practice of Student Nurse's towards prevention and management of PUs**

Practice questions	Always		Sometimes		Never	
	N	%	N	%	N	%
I ensure that patient bedding is dry.	106	40.2	3	1.1	155	58.7
I turn the immobile patients every 2 hours.	176	66.7	5	1.9	83	31.4
I put pillows under the legs of paralyzed patients.	154	58.3	7	2.7	103	39
I ensure that patients are getting adequate nutrition and are well hydrated.	161	61	5	1.9	98	37.1
I advise the high-risk patients and their attendants regarding the prevention of PUs.	135	51.1	0	0	129	48.9
I use pressure ulcer assessment tools i.e. charts and scales for determining the stage of PUs.	65	24.6	12	4.5	187	70.8
I check for redness and swelling of the skin in high-risk patients.	142	53.8	0	0	122	46.2
I attend seminars and conferences regarding patient care.	148	56.1	0	0	116	43.9
I provide cushions on pressure ulcer-sensitive areas like sacrum and heels.	231	87.5	5	1.9	28	10.6
I believe that PUs can be prevented by better nursing care.	99	37.5	8	3	15	59.5

The correlation coefficient( $r$ ) between knowledge and practice of student nurses was 0.92 i.e. strong correlation a  $p$ -value was  $<0.000$  i.e. statistically significant.



**Figure 1: Scattered diagram showing a strong correlation between overall knowledge and practice of student nurses towards prevention and management of PUs.**

## Discussion

The main purpose of the study was to assess nurse's knowledge and practices regarding pressure ulcer prevention and management and to find the relation between the two variables if any. Although there are multiple types of research done on this topic internationally, little data is present in Pakistan about this grave condition according to our knowledge.

The average age of nurses included in the study was between 19-21 years. The study demonstrated that there is a strong relationship between the knowledge of students and their years of practice. Results showed that 60.2% of 3rd year nursing students had good knowledge while 34.1% students of 2nd year and only 21.7% students of the first year could fall in this category.

Similarly, the practice of student nurses was also impacted by their years of study. 56.2% of student nurses of third-year had good practice i.e. average score above 80% while 32.9% students of the second-year and only 10.89% student nurses of first-year had good practice scores. These results are evidence that one's practice is strongly impacted by one's

knowledge of an issue. These findings are similar to a previous study conducted in General Hospital Lahore in which Nurses showed a low level of knowledge ( $M=35.2\%$ ) and correspondingly poor practices ( $M=36\%$ ) regarding pressure ulcer prevention and management.<sup>9</sup> Another study conducted in Belgium showed that the mean knowledge score of the senior nurses was 29.3% while that of assistant nurses was 28.7%; Attitude scores were significantly different between senior nurses and nursing assistants, Senior Nurses showed to have a more positive attitude towards pressure ulcer prevention than nursing assistants.<sup>10</sup> Another study conducted in Northwest Ethiopia showed that 45.6% of nurses had inadequate knowledge and correspondingly 51.6% had unsatisfactory practices regarding pressure ulcer prevention.<sup>11</sup> A study conducted in Korea in 2015 demonstrated that nurses had a moderate level of knowledge of Pressure Ulcer prevention i.e., 60%.<sup>12</sup> These studies demonstrated a close and strong relationship between years of practice, level of knowledge, and practices about PUs prevention and management.

In contrast, A study conducted in Bangladesh demonstrated that although mean knowledge score was poor ( $M = 57.79\%$ ,  $SD = 9.2\%$ ), mean practice score was average ( $M = 77.55\%$ ,  $SD = 11.00\%$ ) among nurses. However, significant data regarding discrepancies like these is not present elsewhere, according to our knowledge.

The mean knowledge score of nurses was different in the above-mentioned researches. Knowledge is influenced by different factors i.e. quality of education, years of practice, and type of education system. Also, different hospitals around the globe have different curriculum for nursing students. Furthermore, analysis and evaluation methods may also have a role.

Despite these discrepancies, most of the research data points toward a strong correlation between knowledge and practice of nurses regarding pressure ulcers.

Every research has its limitation. In this study, a sample was taken from diploma students and not the whole nursing staff, and Practice was not assessed based on observations. Furthermore, the study may have been subjected to response set bias from the respondents.

A pressure ulcer is a fulminant but preventable complication of prolonged bed rest, immobility, incontinence, and sensory deprivation. For adequate prevention, we must educate our nursing staff and equip them with significant skills. For this, Workshops and awareness seminars should be arranged for them.

The difference in knowledge and practice of students should be assessed before and sometimes after the sessions in order to evaluate the efficiency of these sessions. Knowledge of attendants of high-risk patients regarding the prevention of pressure ulcers should also be assessed.

This study will pave a path for future researches about pressure ulcer prevention and its management. Similar studies should be conducted including the whole nursing staff working in the different hospitals across the country.

## Conclusion

Knowledge and practice of Student Nurses towards the prevention and management of PUs were found to be average i.e. in between good and poor. There was a statistically significant correlation between knowledge and practices i.e. better the knowledge, better was the practice of Students. In addition to the topic as part of their routine educational course; arranging seminars, workshops, and awareness sessions regarding the prevention of PUs can have a positive impact on the practice of students by the improvement of their knowledge.

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