

ASSESSMENT OF REGISTERED NURSES KNOWLEDGE REGARDING PRESSURE ULCER PREVENTION IN A PRIVATE TERTIARY HOSPITAL IN LAHORE, PAKISTAN

Ayesha Akram^{*1}, Mehak Arshad², Janni Waseem³, Mishal Liaqat⁴, Sharel Samson⁵

¹Al-Aleem Institute of Nursing, Gulab Devi, Educational Complex, Lahore, Pakistan

²Al-Aleem Institute of Nursing, Gulab Devi, Educational Complex, Lahore, Pakistan

³Al-Aleem Institute of Nursing, Gulab Devi, Educational Complex, Lahore, Pakistan

⁴Principal, Al-Aleem Institute of Nursing, Gulab Devi, Educational Complex, Lahore, Pakistan

⁵Vice Principal, Al-Aleem Institute of Nursing, Gulab Devi, Educational Complex, Lahore, Pakistan

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Corresponding Author: *

Ayesha Akram

Abstract

Background: Pressure ulcer is a serious health issue globally. It affects the patient and his family physically, emotionally and economically. The knowledge of registered nurse is crucial in the management of pressure ulcer. Registered nurses are front liners care provider to detect the early signs of pressure damages and our responsible for our prevention. Improvement in the knowledge of registered nurses can also be helpful in improving the quality care of the patient. Lack of training, inadequate knowledge and absence of pressure relieving equipment's results in insufficient knowledge of registered nurses regarding pressure ulcer prevention. Through training, educational programs and pressure relieving devices registered nurses knowledge towards pressure ulcer prevention can be improved. By improving registered nurses knowledge quality of care will also be improved.

Methods: Data was gathered from 160 randomly chosen registered nurses using a quantitative method in a descriptive cross-sectional study design. To assess registered nurses' knowledge, data was collected using two validated, structured, self-administered pressure ulcer knowledge tests. The knowledge levels of registered nurses were defined using mean, standard deviation, and frequencies.

Results: As far as the origin of education on pressure ulcer prevention is concerned, almost half of the participants (48.7%) stated that they received their education on the topic at the workplace, with 45.2% receiving it at university or college.

Conclusion: In order to encourage pressure ulcer prevention in public hospitals and enhance registered nurses' understanding of pressure ulcer prevention, this study focuses on areas where assessments can be done. According to the study's findings, registered nurses don't know enough about how to prevent pressure ulcers.

Introduction and Literature Review:

1.1 INTRODUCTION

Pressure ulcer is a serious health issue globally. The knowledge of registered nurse is crucial in prevention and management of pressure ulcer. Registered nurses are the front liners care

providers to detect the early signs of pressure damages and our responsible for our prevention. For better care quality registered nurses must have knowledge regarding pressure ulcer prevention. Pressure ulcer is defined as localised damage to the skin and/or underlying tissues, typically over a

bony prominence, caused by prolonged pressure or pressure combined with shear, leading to tissue damage and potentially death due to reduced blood flow (WHO).

Millions of people worldwide suffer from pressure ulcers, which differ in size and intensity. That impaired the muscles, underlying tissues, and skin.

(1)

The areas that are prone to pressure scores are occiput, trochanters, sacrum, malleoli and heel. The application of external force causes ischaemic damage to underlying tissues and muscles. In hospitalized patients, the global prevalence of pressure ulcer varies from 8.3% to 25.1% in Europe, Canada, United States and Australia. It demonstrate that healthcare professionals had low level of knowledge about pressure ulcer prevention. In Pakistan, the prevalence and management of pressure ulcer remain understand like in tertiary care setting e.g. Faisalabad (2)

The contributed factor in the development of pressure ulcer are external elements and intrinsic factors. External elements include raised pressure and friction and intrinsic factors include immobility, inadequate nutrition and spinal cord injuries. Nurses play a crucial role in prioritizing intervention and knowledge about pressure ulcer (3)

Pressure ulcers are painful and they effect people of all age groups. It causes discomfort, long stay in hospitals and pain. They can be life threatening as well. The problem of pressure ulcers is very complex. And need of proper treatment and preventive guidelines for improvement of quality life and also reduce its magnitude and severity. Regardless of progressive technologies and successful clinical researches in relation to prevention and treatment yet the incidence rate of pressure ulcers is still high. Pressure Ulcer is a term used globally in USA and other countries. It has been accepted by European. (4)

A Pressure ulcer is specific wound of skin that penetrate into the deep tissue, due to the continuous pressure on the skin. Across the world, the death rate of pressure ulcer was 60% due to prolonged stay in hospital. So, for the reduction in number of new patients of pressure ulcer, we can use preventive strategies, assessment, and

protection and frequently change the position that takes more time for the recovery of pressure ulcer. The reports show that 700,000 patients were affected by pressure ulcer and 186617 patients developed pressure ulcer and it justifies 2% of preventable mortality. So it is responsibility of all health care professionals to provide quality care to patients, especially, nurses because they are the first to observe pressure ulcer development. (5)

Pressure ulcer are the injury of skin that starts from surface and then tissue damage that ultimately cause bones prominence due to prolonged pressure on the skin. Pressure ulcer is not only a major problem for patients but also for all the health care systems in the world. However, it is determined that the specific area where high rate of pressure ulcer patients present like ICU, Medical and surgical wards. The patients who spend more time on wheel chair or bed, the spinal cord injury cause and patients develop pressure ulcer. According to NPUAP reported in 2017, it shows approximately 2.5 million patients developed pressure ulcer every year and 6000 patients die every year. (6)

Study was conducted by the commission on patient's protection in which approximately more than 2.5 million patients had pressure ulcers. It is noted that every year, 60,000 patients died due to pressure ulcer or related complications. It is observed that 10.3% patients in surgical ICUs and 12.1% in medical ICUs had pressure injuries and 3.3% patients in ICUs had pressure ulcers with severe complications. During hospitalization, 7.8% patients in ICU develop pressure ulcer. This study shows that the nurses who are more educated but their skills shows that they have insufficient knowledge than those with baccalaureate degree. (7)

The threat of pressure ulcer are in those patients who are not able to change their positions and requires wheelchair or stay on a bed for a long time. It is observed that when increased pressure exceeds the local capillary pressure. So, the capillary blood flow decrease and delivery of oxygen supply is insufficient for the tissue that cause pressure ulcer. The pressure ulcer develop within 2 to 6 hours. So, the lack of knowledge is the major hindrance in the improvement of

pressure ulcer control. If awareness of pressure ulcer prevention increases, then the patients of pressure ulcer decreases. According to a study conducted in Bahir Dar, Northwest Ethiopia, the occurrence of pressure ulcers was 16.8%. This has an effect on nurses' knowledge, attitudes, and training on pressure ulcer prevention..(8)

Chapter 2: Literature Review

Conducted a cross-sectional study include 129 nurses at Jinnah Hospital Lahore affiliated with Superior University, Pakistan. Investigating nurses' knowledge and the results demonstrate that nurses had basic awareness of pressure ulcer precautions in public hospitals. But there is more need for understanding pressure ulcer preventive measures. Mainly, ICU units are high risk of pressure ulcer patients was found. Majority of participant consisted of female (86.8%), in relation to ages of 26 to30 (55.0%). Most of the registered nurses have 1-3 year of proficiency (79.8%), plus 38% retained a Bachelor of Science in Nursing. Although, 62.8% registered nurses notice that pressure ulcer occur because of prolonged pressure of more than three hours, Just 42.6% Registered nurses conducted a risk assessment scale. Considerable gap is noticed in knowledge regarding pressure ulcer prevention (9) Conducted a cross-sectional study among 194 registered nurses at Eight Jordanian Hospitals. The patients suffered from pressure ulcer its treatment of is expensive that result in financial burden. In Jordan, the studies of pressure ulcer prevention, explore the knowledge resources but hindrance can cause unable to implement the guidance in the Jordanian nurses. The maximum 73%, of the total number of nurses 141 lack knowledge about pressure ulcer prevention. Out of 26 (SD=2.3, range = 5-17) 10.84 mean score resulted of the test for all the participants. (10)

Conducted a cross-sectional study within 212 registered nurses in public hospital in WOLLEGA. Pressure ulcer affects both family and individual psychologically, economically and socially. The conclusion of this study is that nurses need furthermore training and knowledge regarding pressure ulcer prevention. And the findings of the study shows 91.5% nurses have

insufficient understanding towards pressure ulcer prevention. 11.31(SD= 5.97) and 0.43(SD=0.22) this shows the mean of nurses knowledge in all themes and per item. In nutrition theme (2.65± 0.87) was the highest mean item score. The study also shows notable read the articles (0.000) and certified training (p=0.003). Lack of staff, lack of training, shortage of pressure relieving devices are the most commonly occurring obstacles for pressure ulcer prevention (11)

Conducted a cross-sectional investigation among 460 nurses in SLOYAK Hospital. The amount of old and new cases of pressure ulcer is consistently increasing. The conclusion of this study is to explore more information because nurses' have unsatisfied knowledge that is not suitable for preventing pressure ulcers. Results showed inadequate knowledge (45.5%) of nurses towards pressure ulcer prevention. The expertise of nurses change significantly by job department (p=0.048) and educational level (p=0.031). (12)

Conducted a descriptive study among 394 nurses in Saudi Arabia hospital. The treatment of pressure ulcer is very expensive for both family and society. The conclusion of this study was to enhance the knowledge of nurses and their attitudes to reduce the gap between what they know and what they perform their skills in Saudi Arabia. The results shows that 82% participants noticing its importance, 66% participants trusted that topical cream is only preventive management,74.1% continuously examined the skin,20.3%presented high knowledge. Although ,nurses show insufficient understanding towards preventing pressure ulcers and need to improve practices.(7)

Conducted a cross-sectional study among 422 nurses in public hospitals of Ethiopia. Pressure ulcers are the injuries to the skin and ultimately cause bony prominence. 45.2% nurses were exercises complete activities of pressure ulcer prevention. The practices of nurses regarding statistically with bachelor degree (AOR=1.7, 95% CI: 11.02, 283), accessibility of pressure relieving gadgets (AOR=2.2 ,95% CI:1.34, 3.63),being happy with their duty (AOR=1.65, 95% CI:1.09, 2.52) and good knowledge (AOR=2.3, 95% CI:1.48, 3.55) (6)

Conducted a descriptive cross-sectional study among 372 nurses in Gurage Zone hospitals. So, the globally birth and death rates were 60% related pressure ulcer patients, who were admitted in hospitals at least 1year. It is reported by coloplast pressure ulcer that shows 60% people expire due to pressure ulcer. 700000 patients affected and 186617 patients formed new pressure ulcer with 2% of the preventable death. The conclusion of this study is nurse's knowledge and skills related pressure ulcer prevention were acceptable. The results of this study is 49% nurses have excellent knowledge and 58.5% nurses have good skills. So, the 62.1% and 53.2% of them nurses do not using pressure ulcer prevention skills.(13)

Conducted a cross-sectional study among 217 nurses in Addis Ababa hospital at Black Lion, Ras Desla, Damtew, and Saint Paul's hospitals. The risk of pressure ulcer in those people who are unable to change their position or on the bed from a long time. The result of this study is 61.2% had sufficient knowledge on pressure ulcer prevention practices 68.4% had positive attitude related prevention practices 67.3% participants had sufficient pressure ulcer prevention practices.(8)

Conducted a cross sectional study among nurses to assess the behaviour or knowledge regarding pressure ulcer prevention in Nigeria, within 2months of duration. Nurses use paper/pencil survey to collect demographic data. The conclusion of this study is 90 nurses know the factors that are responsible for pressure ulcer and their prevention. The result of this study was 66.7%female,50% married,88.3% had experience ,74%have positive attitude,62.2% nurses oppose risk of developing pressure ulcer.(14)

A correlational cross-sectional study was conducted for providing long term care in private and public care facilities. Pressure ulcer treatment is assessed in the long-term care. The conclusion of this study is pressure ulcer treatment is not regular and need to more focus or research on education for the treatment. The result is 112 patients with 158 patients have pressure ulcer were recognized. Pressure ulcer were located on the heel(13%),buttocks(10%),lateral malleolus (9.5%).(15)

A correlational, cross sectional study was conducted among 544 nurses in two hospitals in Finland. Need to concentrate on nurses who are at lowest post and their knowledge is insufficient. The result of this study was 24.40 Observing average participants ($P < 0.00001$), present position ($P = 0.0042$), prevalence of patient care ($P < 0.00001$), and self-evaluation training needs ($P < 0.00001$) separately shows the difference in information scores..(16)

Cross-sectional study was conducted in European side of Istanbul during May and June 2015. The pressure ulcer is a ischemic tissue loss and bony prominence due to increased friction, analytical study in Brazil. According to the study's results, women (257,83.5%) with 19.56 years of experience had 7.3+7.8 (span 1-36) years. The sample group in general mean knowledge score was 29.7+6.7 (vary 8-42).(17)

Prevalence study was conducted within 102 nurses in a major Government hospital Cyprus. The conclusion of this study was insufficient knowledge and nurses have not positive attitude and need to improve educational level. The maximum percentage of participants (44.1%) = 45 worked in the intensive care unit (ICU), were women (61.8%) = 63 RNs (93.1%) = 95, had five years of experience (59.4%) = 32, and had a postgraduate degree (10.8%) = 11. Pearson's $R = 0.223$, $p = 0.019$, and the median value was 41.82, with an IQR of 43 (40-46). (18)

A cross-sectional study was conducted among nurses in a 14 Belgian hospitals, related 207 wards. 94 wards were randomly selected, observe the pressure ulcer prevention and prevalence. The result of this study was pressure ulcer prevalence was 13.5%, 30% patients were at risk 13.9% patients received sufficient protection. Awareness and attitudes scores were 49.7% and 71.3%. (19)

Conducted a cross-sectional study 100 nurses in Chitwan Medical College. Nurses are the first responder of pressure sores. The conclusion of this study was half of nurses have less awareness related pressure ulcer. The findings of this study was (48%) of the respondents have insufficient knowledge, 52% respondents are majority and their age 18-27 years, 76% had significant knowledge and 96% have awareness about clinical

manifestation, 73% had awareness of normal usage is first-rate solution for the clean the area of pressure ulcer. The satisfactory association of respondents level of awareness related pressure ulcer is ($P=0.001$). (20)

A cross-sectional study was conducted among nurses in two foundation hospitals in turkey to evaluate the awareness about pressure and its management. The conclusion of this study is nurses have insufficient knowledge and need to make plans of nutrition. The result of this study was (73.5%) have bachelor's degree with practice experience (7.27 ± 7.00 years), 69.4% nurses have not training of pressure ulcers, 55.6% did not take lectures. 59.7% nurses have adequate knowledge in interventions. Mean score of awareness was $11.1 \pm 2.659\%$ (range: 1-18) out of 26 questions. (21)

A Prevalence study was conducted within 328 nurses in Educational Health Centres in Iran University of Medical Sciences. The conclusion of this study was level of awareness is not satisfied and need to increase the protective strategies to enhance the strategies regarding pressure ulcer in the ICU. The result shows that nurse's awareness is high by 0.051 units, with one year increase in ICU. Women's awareness and behaviour were increases than men as 3.132 and 1.65 units. (22)

A cross-sectional study was conducted among 1806 nurses of Tertiary General Hospitals in Human province China. This study conclude that nurse's knowledge and attitude are inadequate, but the behaviour is tolerable. The result of this study was 41.7% have inadequate pressure injury prevention knowledge, 46.6% have bad attitude, 21.8% had destitute behaviour, but the nurses who have bachelor's degree were more aware about pressure injury prevention. (23)

Conducted a descriptive study among 2236 nurses in a tertiary hospital of china that were working in 164 nursing units. The conclusion of this study found that there is need to improve safety and quality of health by improving knowledge regarding prevention. Median total score for knowledge dimension is 54 (quartile range 45-60). Score rate of 70.67%, attitude dimension is 37 (quartile range 36-44) score rate 85.06%. (24)

A cross-sectional study was performed among 220 nurses in public Hospital in Selangor. Overall

knowledge and training were adequate. There is more knowledge and practice is required for pressure ulcer prevention. The findings shows the participants have (95.0%) awareness and have adequate practice (96.8%) related pressure ulcer. (25)

A prevalence study was carried out among 356 nurses in a hospital Hawassa, Ethiopia. The conclusion of this study was pay of the nurses was less and their working hours less or equal to eight hours and also have insufficient knowledge and practices related pressure ulcer. According to the study's findings, nurses' mean knowledge score was 25.22 out of 41 questions. 52.5% of nurses scored higher than the average. Poor understanding was strongly correlated with males [AOR=0.44, 95%CI (0.26-0.73)], working more than eight hours [AOR=3.57, 95%CI (1.48-8.61)], short of practices [(AOR=2.31, 95%) (1.14-4.61)], and less salary [AOR=3.47, 95% CI (1.03-11.67)]. (26)

Pressure ulcer is a global healthcare issue that need to be focused. The provided data on pressure ulcer is insufficient therefore, there is need to gather more information to explore awareness of registered nurses regarding pressure ulcer prevention. Registered nurses are the first to notice the early signs of pressure sore development. Registered nurses perform an curcial role in preventing bed sore by maintaining their hygiene and mobility and they are also responsible for medication. According to previous research, the data showed insufficient understanding regarding pressure ulcer prevention among registered nurses. The aim of this study is to explore more knowledge of registered nurses regarding pressure ulcer prevention.

Chapter 3

3.1 Problem Statement

Pressure ulcer is a wide spread healthcare issue that disrupt the patient well-being, and overall functioning of body. They generally appear due to prolonged immobility, pressure, friction, moisture, inadequate care among immobilize, advance age. The registered nurses require proper knowledge of patient education, diet plan, early risk assessment.

Due to insufficient knowledge or evidence-based practice among nurses can cause poor prevention against pressure ulcers. Due to large number of patients of private hospitals in Pakistan, nurses do not give proper care to the patients that influence the pressure ulcer.

3.2 Hypothesis

Null Hypothesis (H_0)

Registered nurse have no knowledge regarding pressure ulcer prevention.

Alternative Hypothesis (H_1)

Registered nurses have sufficient knowledge related to pressure ulcer prevention.

3.3 Justification of Study

The study's goal is to assess registered nurses' knowledge of pressure ulcer prevention as they work in a private hospital in Lahore, Pakistan. because there is limited information about pressure ulcer prevention in the earlier studies. Thus, further research into pressure ulcer prevention is mandatory. The purpose of this study is to evaluate registered nurses' understanding of pressure ulcer prevention in a private hospital in Lahore, Pakistan.

3.4 Objectives

The objective of the study will be to analyse the relationship between nurse's knowledge and selected demographic variables (such as age, education, level, years of experience, and working unit).

4.5 Sample Size and Calculation

$$n = \frac{Z_{\alpha/2}^2 \cdot p(1-p)}{d^2} \quad (\text{Cochran's formula})$$

Considering the expected proportion (adequate awareness) 50% ($p=0.5$), a confidence interval of 95% ($Z_{\alpha/2} = 1.96$) and margin of error 5% ($d=0.05$), the estimated size for the sample is 384 nurses, which is not possible in a single hospital, as in the hospital the registered nurses are limited so using the finite population correction factor:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

3.5 Research Question

Primary Question

1) Are registered nurses have sufficient knowledge about pressure ulcer prevention?

Secondary Question

1) How much do registered nurses know about the initial signs of pressure ulcer formation?

Chapter 4: Materials and Methods

4.1 Study Design:

A descriptive cross-sectional study design.

4.2 Study Duration:

The duration of study was January to April.

4.3 Study Settings

The study will be take place in private tertiary hospital in Lahore, Pakistan. In private tertiary hospital there are many departments working for the improvement of public health. Like Medical ICU, Cardiac ICU, Dermatology, Respiratory department etc.

4.4 Sampling:

4.4.1 Target Population:

Registered Nurses was be the target population in private tertiary hospital in Lahore.

4.4.2 Study Population

Registered nurses currently working in private tertiary hospital during the data collection procedure in all relevant departments like wards, ICU.

The admin department of private tertiary hospital Lahore shows that there are 160 registered nurses are on duty in Jan 2026, so $N=160$, after substituting the values in the formulas and calculation we get a total sample size of 115 nurses approximately. So finally, the minimum sample size for the study is 115 registered nurses. $n = 115$ (approximately)

4.6 Sampling Technique:

Participant were selected applying the Non-Probability Convenience sampling technique.

4.7 Sample Selection:

4.7.1 Inclusion Criteria:

The study include those:

- Participant who willing participate and provide informed consent.
- At least 1 year of clinical experience.
- Nurses having age between 25 to 60

4.7.2 Exclusion Criteria:

The study exclude those:

- Registered Nurses who were on leave during this study period.
- Registered Nurses on administration level were be excluded.
- Registered nurses with any training on management of pressure ulcers.
- Nursing Student were be excluded from this study

4.8 Experimental Work:

4.8.1 Study Variables

The study contains two variables dependent and independent variables.

Dependent Variable

The dependent variable is knowledge.

Independent Variable

The independent variable is pressure ulcer prevention.

4.8.2 Data Collection Tool

The tool used in this study will be Pressure Ulcer Knowledge Assessment Tool (PUKAT) adopted by the (11) with permission granted. Before distribution, participants will be explained about

study purpose. They will be given guarantee about their privacy. The questionnaire will be given to nurses during their regular working hours to make sure availability and suitability. Enough time will be given to the nurses to complete the survey without disturbing patient care schedule.

It has two segments:

Section 1: Demographic Data

This segment collected background data about the participants that include:

Age group, gender, Martial status, Clinical experience, Ward

Section 2: Knowledge Assessment

This tool consist of 15 multiple choice questions and have 4 options:

Each question have 4 option (A,B,C,D) and the participants mandatory to select the most suitable answer. The questionnaire is made in English and given in printed form. And a consent form is attached to make sure moral engagement of participants, about their privacy who will be participate (11)

4.8.3 Ethical Consideration:

- Each participant provided written, informed consent.
- All data collecting and information were kept anonymous.
- Participants were informed that there is no risk related to the study.
- Participant's identities were confidential throughout the study.
- The participants were informed of their free will to leave the study whenever they want.
- There was no physical, psychological, or social harm to the participants.

4.8.4 Timeline

Activities / Month	November (2025)	December (2025)	January (2026)	February (2026)	March (2026)	April (2026)
Topic selection and approval						
Introduction and Literature Review and methodology						
Synopsis submission and IRB approval						
Data collection						
Data analysis						
Result						
Final Submission						

4.9 Data Analysis

- The mean ± SD was used to describe continuous data.
- Frequencies and percentages were used to demonstrate categorical variables.

- The normality of the data was verified through Shapiro-Wilk test + histogram/Q-Q plot.
- Chi-square test was checked associations among the normal variables (if any).
- Pearson's correlation was used to check the association with continuous predictors.

Chapter 5: Results

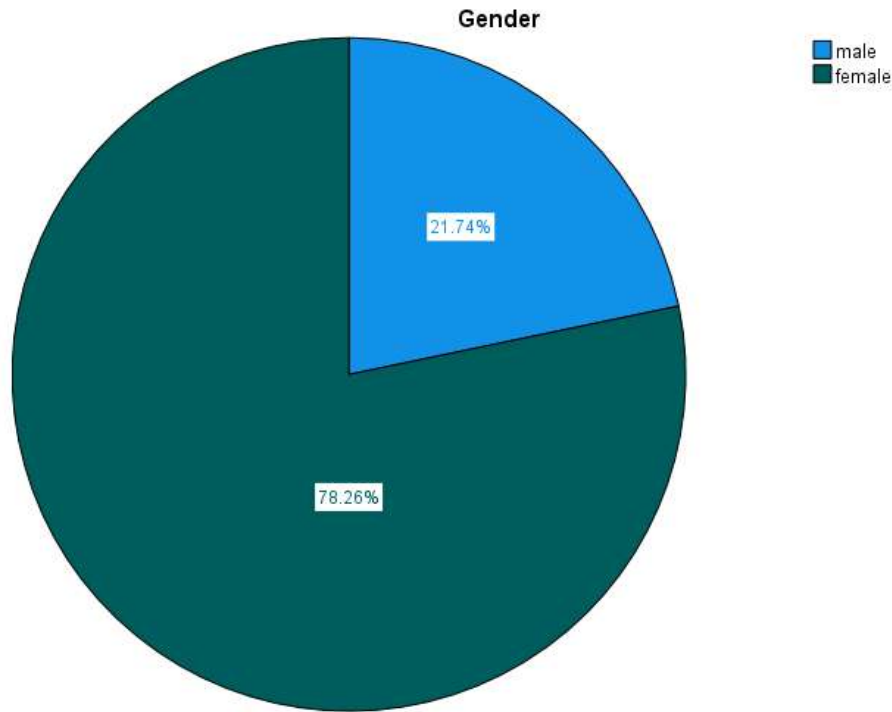
5.1 Demographic Characteristics of the participants.

Table 5.1: Frequency Distribution of Gender

Gender	Frequency	Percent
Male	25	21.7%
Female	90	78.3%
Total	115	100%

The demographic factors of the sample population showed that most of the sample was female (78.3) and only 21.7 was a male. This implies that the nursing staff of the chosen hospital consists of a

majority of female staff which is also in line with the overall trend witnessed in the nursing profession.



As far as the origin of the education on pressure sore protection is concerned, almost half of the participants (48.7%) stated that they received their

education on the topic at the workplace, with 45.2% receiving it at university or college.

Table 5.2: Education Source of Participants

Education Source	Frequency	Percent
University/College	52	45.2%
Workplace	56	48.7%
Conference/Workshop	1	0.9%
Reading Articles	5	4.3%
Never	1	0.9%

Only a very small percentage of nurses said they learned via conferences, workshops, or reading articles and this indicates that they were not

participating in continuing professional education activities.

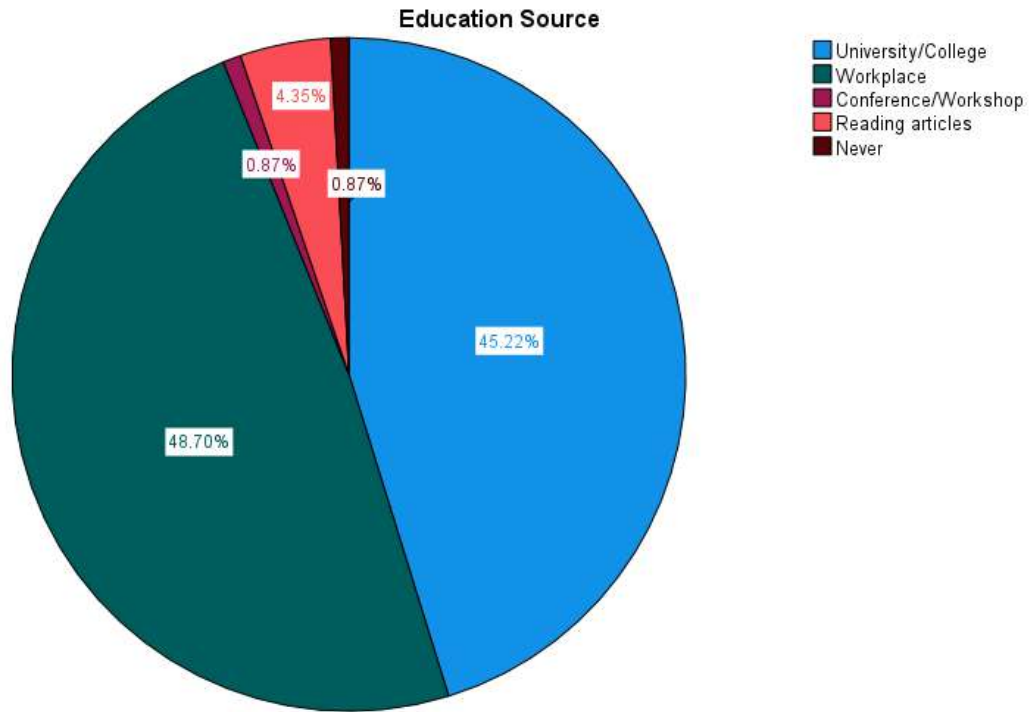
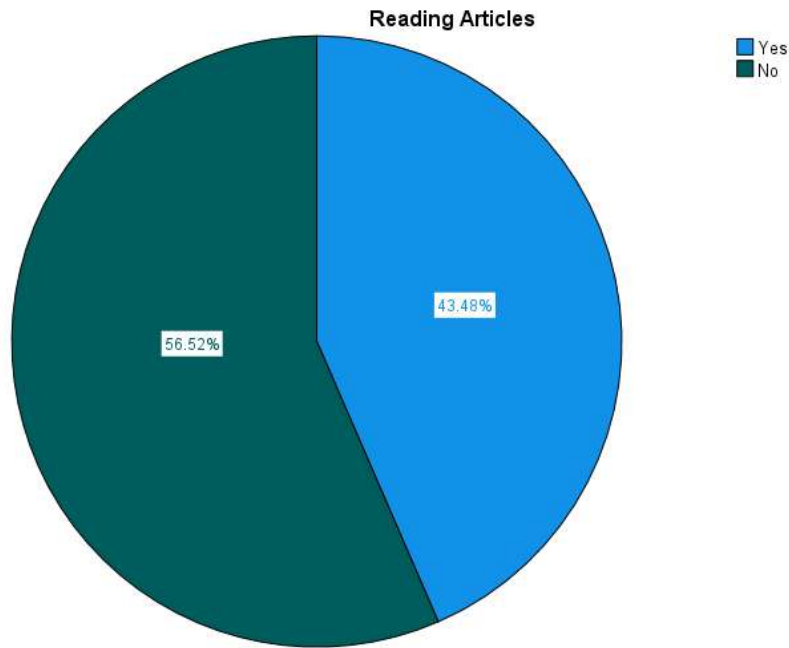


Table 5.3: Reading Articles about Pressure Ulcers

Response	Frequency	Percent
Yes	50	43.5%
No	65	56.5%

In addition, over half of the respondents (56.5%) stated that they never read articles on pressure ulcer prevention, which underscored a deficiency

in self-directed learning/evidence-based practice among nurses.



The age distribution of the participants was such that most (51.3%), participants fell within the age group.

group of 21-30 years, therefore, showing that most nurses were of a relatively young

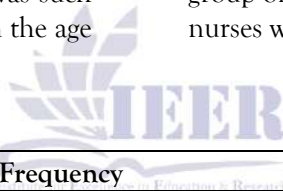


Table 5.4: Age Group Distribution

Age Group	Frequency	Percent
21-30 years	59	51.3%
31-40 years	31	27.0%
41-50 years	20	17.4%
51-60 years	5	4.3%

The number of those who were in the 51-60 age group was a very small percentage (4.3), indicating

that there are few older and possibly more experienced employees.

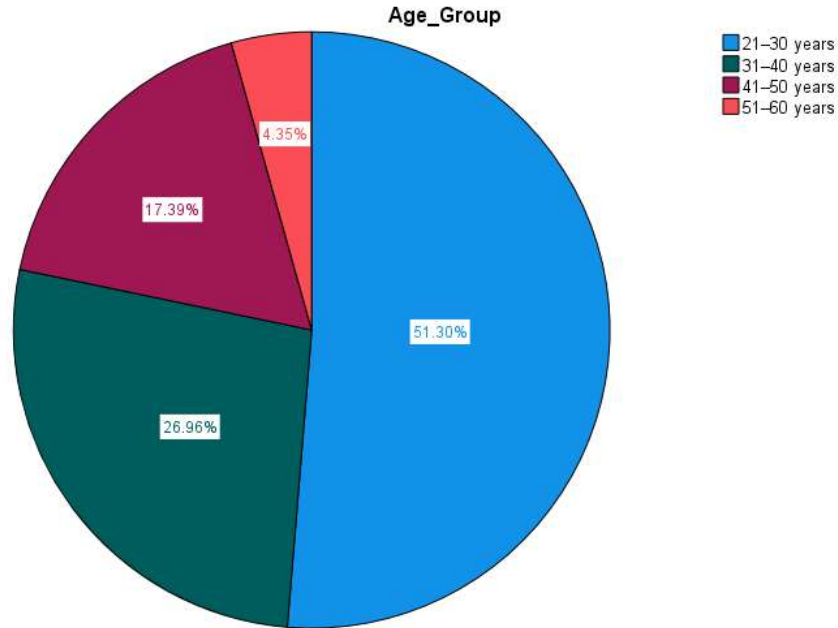
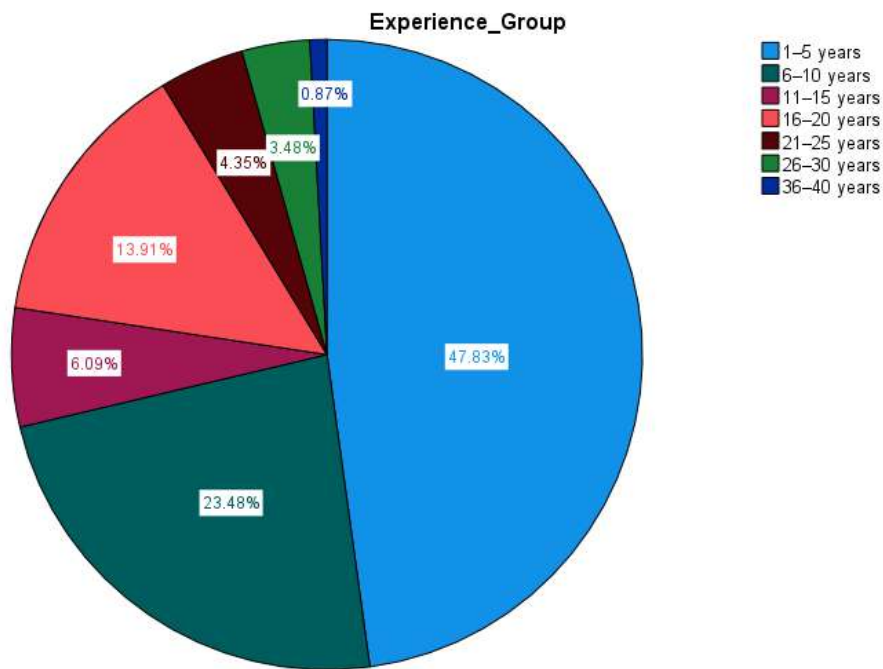


Table 5.5: Clinical Experience of Participants

Experience Group	Frequency	Percent
1-5 years	55	47.8%
6-10 years	27	23.5%
11-15 years	7	6.1%
16-20 years	16	13.9%
21-25 years	5	4.3%
26-30 years	4	3.5%
36-40 years	1	0.9%

Similarly, the results of the clinical experiences indicated that nearly half of those that were sampled (47.8) had 1 to 5 years of experience,

implying that a big number of sampled nurses were inexperienced, and there was very little of those that had over 20 years of experience.



5.2 Nurses Knowledge Score.

The scores of knowledge were determined and the average score was revealed to be 6.65 with a standard deviation of 2.78 of the possible 15. This implies that the average response of the nurses was below fifty percent on the questions. This was also supported by the percentage score where the mean

percentage score was 44.35 which shows a minimal level of awareness of pressure ulcer prevention. These findings indicate that the nursing knowledge in the chosen environment is insufficient and has to be enhanced by means of systematic educational programs.

Table 5.6: Descriptive Statistics of Knowledge Score

Variable	Mean	SD	Min	Max
Total Score	6.65	2.78	0	14
Percentage	44.35%	18.54	0	93.33

5.3 Knowledge Level Distribution

Upon grouping them into the level of knowledge, 60.9 percent of the participants were discovered to

have low knowledge, 33.9 percent had moderate knowledge and only 5.2 percent of the participants were identified to be good in their knowledge.

Table 5.7: Distribution of Knowledge Level

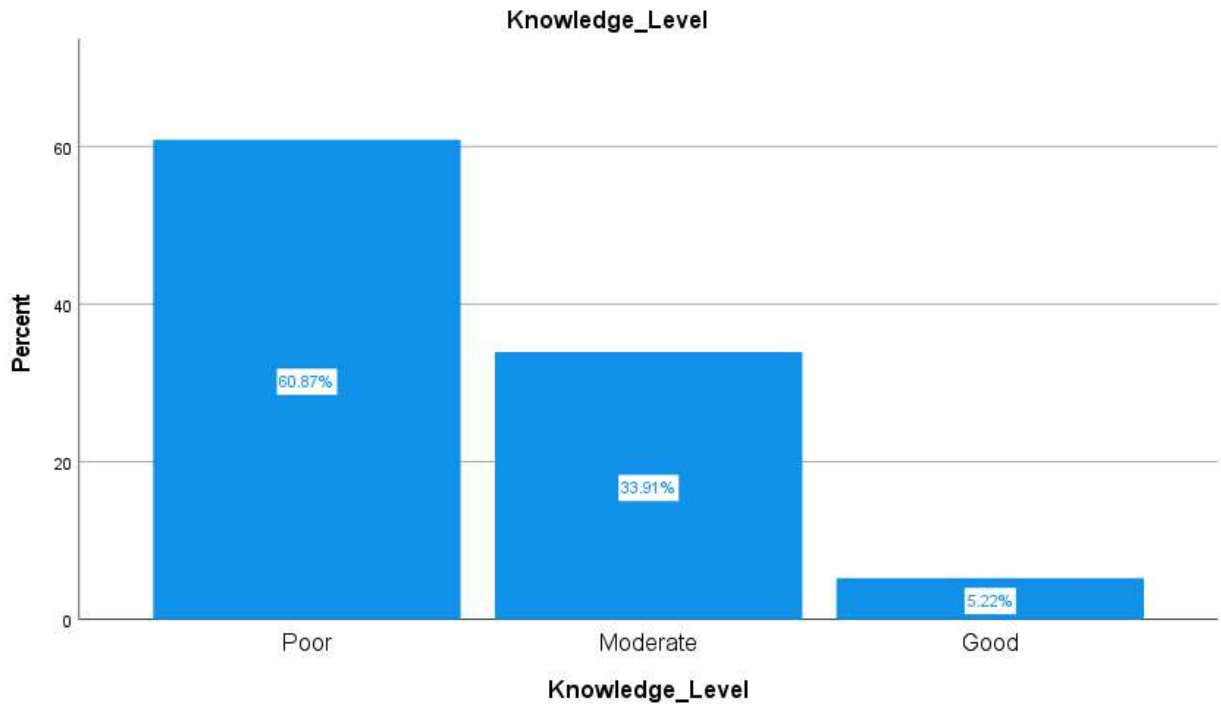
Level	Frequency	Percent
Poor	70	60.9%
Moderate	39	33.9%
Good	6	5.2%

This distribution is a clear indication that most of the nurses are in the poor knowledge category with

an extremely small number of nurses having adequate knowledge. This observation indicates a

considerable knowledge deficit in relation to the pressure ulcer prevention practices in nurses and

the importance of specific training and awareness interventions.



5.4 Normality of Data

Shapiro-Wilk test was used to determine whether the data is normal and the p-value of the test is

0.004. The value is less than 0.05, which means that the data is not distributed normally.

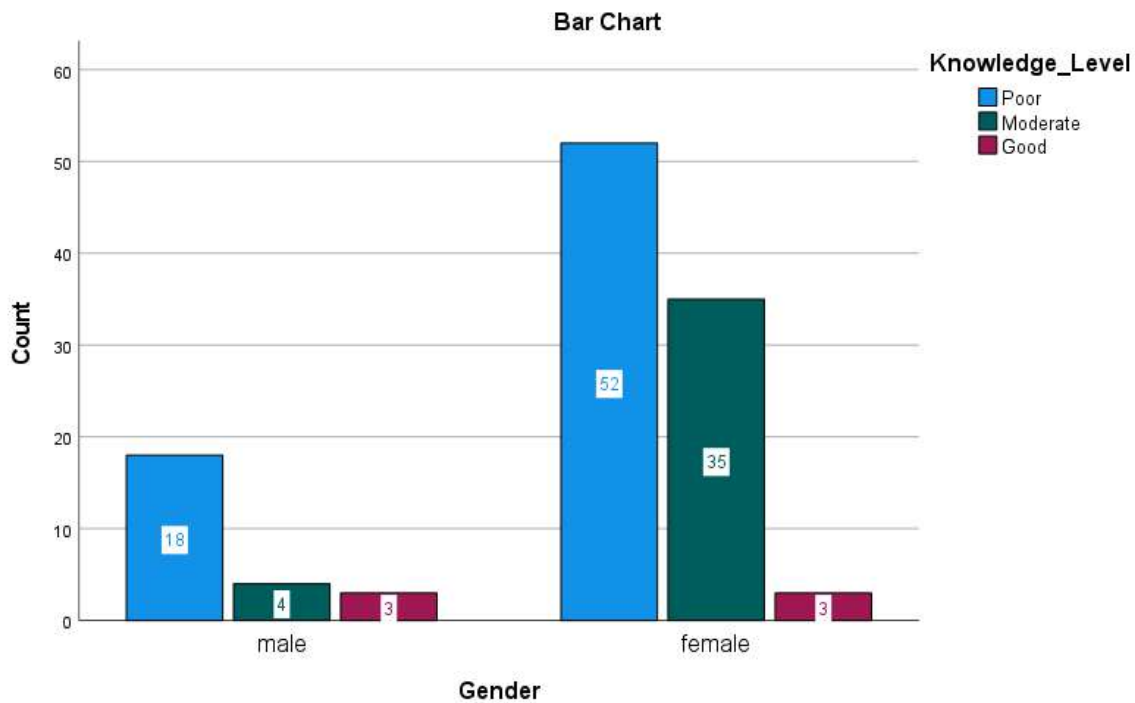
5.5 Correlation of Gender with Level of Knowledge.

Table 5.9: Association Between Gender and Knowledge Level

Gender	Poor n (%)	Moderate n (%)	Good n (%)	Total	p-value
Male	18 (72.0%)	4 (16.0%)	3 (12.0%)	25	0.039*
Female	52 (57.8%)	35 (38.9%)	3 (3.3%)	90	
Total	70 (60.9%)	39 (33.9%)	6 (5.2%)	115	

The statistically notable association among gender and the level of knowledge, with the p-value of 0.039. The results reported that male nurses

recorded a relatively higher percentage of good knowledge (12) as opposed to female nurses (3.3%).



Conversely, female nurses had more moderate category of knowledge representation. This implies that gender can potentially involve in determining the level of knowledge in this study group but the cause of the variance is yet to be studied.

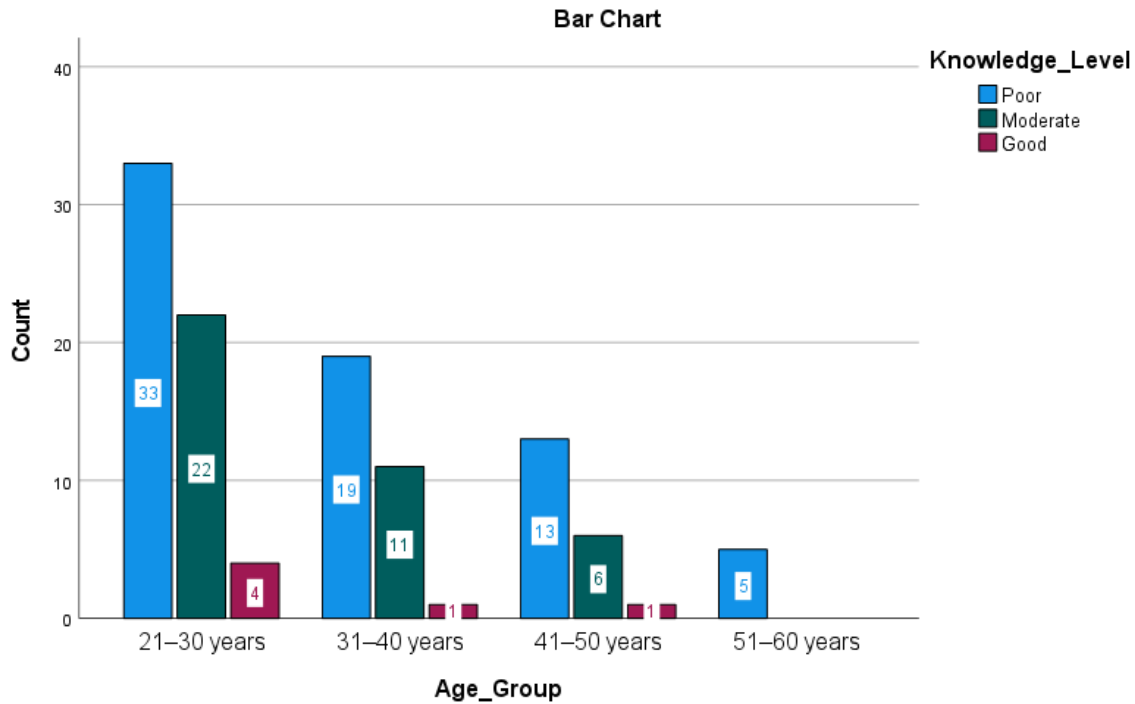
5.6 Relationship between Age and Level of Knowledge.

Table 4.10: Association Between Age Group and Knowledge Level

Age Group	Poor n (%)	Moderate n (%)	Good n (%)	Total	p-value
21-30 years	33 (55.9%)	22 (37.3%)	4 (6.8%)	59	0.632
31-40 years	19 (61.3%)	11 (35.5%)	1 (3.2%)	31	
41-50 years	13 (65.0%)	6 (30.0%)	1 (5.0%)	20	
51-60 years	5 (100%)	0 (0%)	0 (0%)	5	
Total	70	39	6	115	

The p-value was 0.632, indicating that there was no statistically considerable connection between age group and knowledge level. The overall levels of knowledge distribution were fairly similar to the different age groups, indicating that age plays no

significant role in the knowledge regarding pressure ulcer prevention. This means that the level of understanding of this area is equal between younger and older nurses.



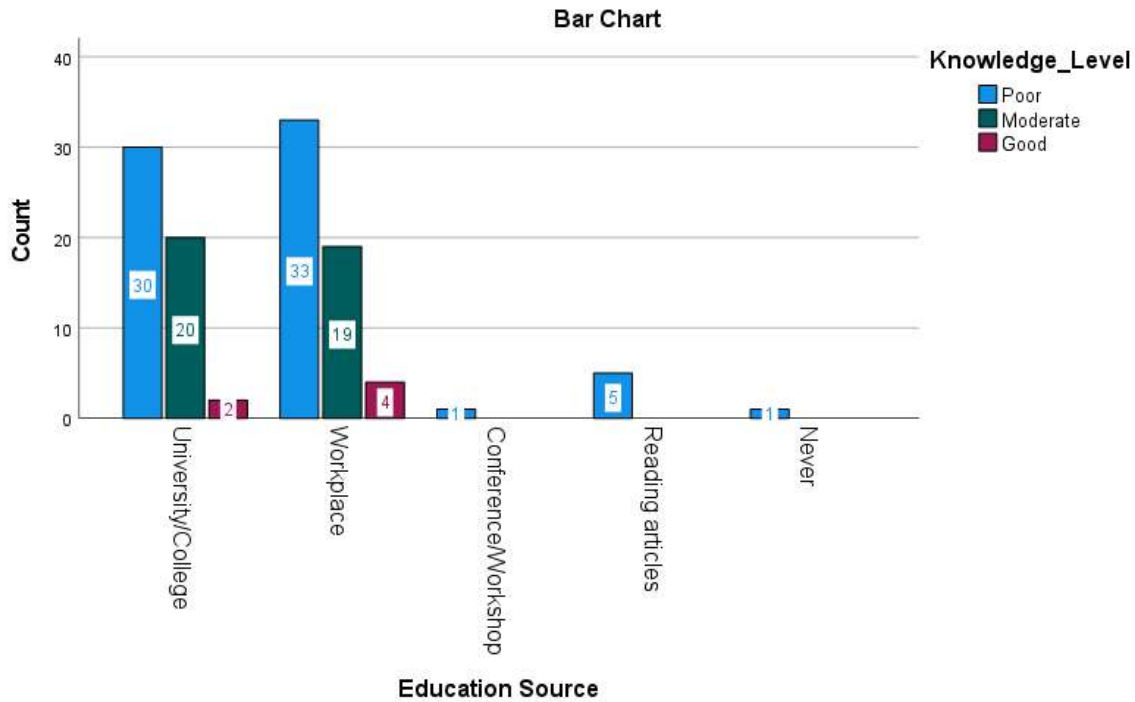
5.7 Correlation between Education Source and Level of Knowledge.

Table 5.11: Association Between Education Source and Knowledge Level

Education Source	Poor n (%)	Moderate n (%)	Good n (%)	Total	p-value
University/College	30 (57.7%)	20 (38.5%)	2 (3.8%)	52	0.700
Workplace	33 (58.9%)	19 (33.9%)	4 (7.1%)	56	
Conference/Workshop	1 (100%)	0 (0%)	0 (0%)	1	
Reading Articles	5 (100%)	0 (0%)	0 (0%)	5	
Never	1 (100%)	0 (0%)	0 (0%)	1	
Total	70	39	6	115	

There was no statistically significant relationship and the p-value was 0.700 between source of education and level of knowledge. Nurses that underwent their education through other means, such as workplace training and formal education,

showed the same level of knowledge. This implies that the nature of the source of education in itself might not be adequate to enhance knowledge in a significant way unless it is complemented with continuous training and application.



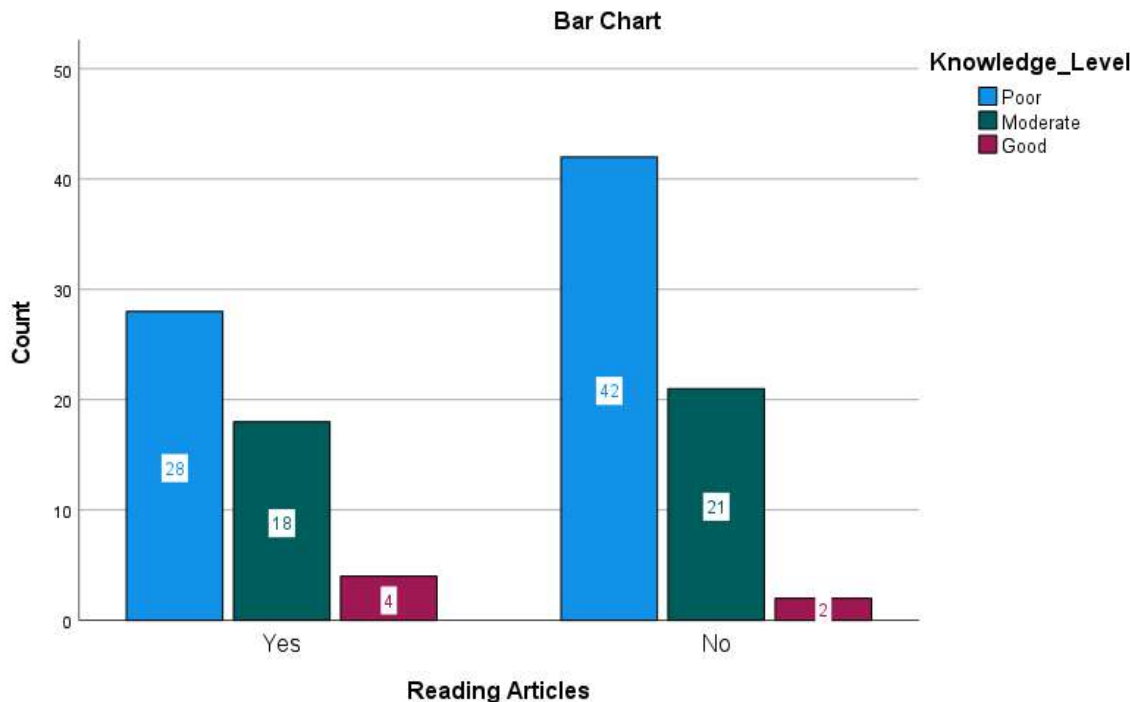
5.8 Correlation between Reading Articles and Level of Knowledge.

Table 5.12: Association Between Reading Articles and Knowledge Level

Reading Articles	Poor n (%)	Moderate n (%)	Good n (%)	Total	p-value
Yes	28 (56.0%)	18 (36.0%)	4 (8.0%)	50	0.412
No	42 (64.6%)	21 (32.3%)	2 (3.1%)	65	
Total	70	39	6	115	

The correlational within the reading of the articles and the degree of knowledge will be established. It was analyzed that no statistically significant correlation was observed between the level of knowledge and reading of the articles ($p = 0.412$). Even though there was a slight difference in the

knowledge level of those who already read the articles, it was not noticeable statistically. This observation leads to the fact that reading articles may not be enough to develop knowledge without the systematic education programs or institutional support.



Chapter 6: Discussion

Pressure ulcer is a global health issue. Which affect the patient and his family physically, economically, emotionally and mentally. Nurses plays a important role in preventing bed sores because nurses are the front liners who notice the early signs of pressure ulcer. The findings revealed that majority of the participants lacked sufficient knowledge regarding pressure ulcer prevention.

The majority of participating registered nurses according to the demographic data were between the ages of 21 to 60 years. Most of participants were females 78.3% and 21.7% were males. Some nurses had general nursing diploma, some had certified nursing assistant (CAN) diploma and a substantial part had BSN degree. It was discovered that 44. 35 registered nurses have general less level of understanding in the selected setting. Lack of training, lack of educational programs can result in the cause of insufficient knowledge regarding pressure ulcer prevention.

The findings of the are persistent with the recent studies conducted between 2020 and 2025. According to the study conducted in Saudi Arabia only 20.3% registered nurses presented a high knowledge regarding pressure ulcer prevention.

Which is consistent with this study. The results shows that 82% participants noticing its importance, 66% participants trusted that topical cream is only preventive management, 74.1% continuously examined the skin, 20.3%presented high knowledge. Although ,nurses show insufficient knowledge and attitudes regarding pressure ulcer prevention and need to improve practices.(7)

Another study conducted at SOLYK hospital. This study also shows that registered nurses had lack of knowledge regarding pressure ulcer prevention. Results showed insufficient knowledge (45.5%) of nurses towards pressure ulcer prevention. Nurses' knowledge notable various within the rank of education (p=0.031) and work department (p=0.048) (12)

A study conducted among jordanian nurses shows insufficient knowledge regarding pressure ulcer prevention. With a score range of 13 to 17, 27% (n = 52) of participants qualified, while 142 (73%) did not. The required score was 13 (50%). Registered Nurses' knowledge regarding pressure ulcer prevention was shown to be low on the PU Knowledge Test (10).

Another study conducted in Pakistan at Jinnah Hospital in Lahore. This study shows that 62.8% registered nurses notice that pressure ulcer occur because of prolonged pressure of more than 3 hours. The majority of participant consisted of female (86.8%), in relation to ages of 26 to30 (55.0%). Majority of the registered nurses have 1-3 year of proficiency (79.8%), plus 38% retained a Bachelor of Science in Nursing. Although, 62.8% registered nurses notice that pressure ulcer occur because of prolonged pressure of more than three hours, Just 42.6% Registered nurses conducted a risk assessment scale. Considerable gap is noticed in knowledge and practice regarding prevention strategies for pressure ulcer(9)

This study shows moderate level of knowledge registered nurses had regarding pressure ulcer prevention. But still it is not sufficient.

The result of the study shows that registered nurses in Gulab Devi hospital lacks sufficient knowledge regarding pressure ulcer prevention. Regardless of professional qualification, majority of participants lack a feasible understanding of preventive measures. More effective results can be obtained by consistent training, encouraging policies and educational enhancement according to comparison with national and international studies. It is important to implement training program, advance clinical producers and promote lifelong learning in healthcare environment with the aim of closing knowledge gaps. Improvement in registered nurses knowledge will help to improve patient safety and quality of care.

Chapter 7

7.1 Recommendations

- Develop regular training sessions like workshops and in service training focused on evidence-base methods for preventing and managing pressure ulcers.
- Guidelines or instructions should be included in nursing education programs curricula to educate students theoretically and practically about pressure ulcer prevention.
- Create standardized producers and policies and should implement them by clinical units to improve quality of care and direct daily nursing practice.

- By providing certifications, workshops and courses on pressure ulcers, wound care institutions should strengthen nurses to aim for professional development.
- Clinical supervisors and senior nursing staff should regularly check and make sure that the instructions are begin followed properly related to pressure ulcer prevention producers.

7.2 Limitations

In despite of useful data the study provide some limitations that should be noted.

One-hospital setting

The study was limited to private hospital (Gulab Devi Teaching Hospital in Lahore) its findings cannot be employed to other medical facilities or other areas of Pakistan.

Cross-sectional Design

The cross-sectional study design collect data at one point in time, therefore it cannot explain cause-and- effect relationship.

Self-Reported Data

Collected data may depend on self-reported information from registered nurses, which can present reporting bias.

Limited Sample Size

A sample size of 115 nurses may not represent all nurses employed in Pakistan's major private hospitals, in spite of statistically calculated.

Exclusion Criteria

A variety of response have been impacted by the exclusion criteria which include exclusion of those nurses those are on leave or off duty during data collection.

7.3 Conclusion

The study found that registered nurses' understanding of pressure ulcer prevention is clearly lacking. Nursing staff members were steadily found to have knowledge gaps. The most common barriers to practicing pressure ulcer prevention are a lack of personnel, insufficient training, and a shortage of pressure-relieving

equipment. The findings demonstrate that institutional policies, structured training programs for registered nurses, and continuing education are necessary to raise awareness of pressure ulcer prevention. Increasing knowledge towards pressure ulcer prevention is necessary for both raising patient care standards and reducing the incidence of pressure ulcers in clinical settings.

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