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KNOWLEDGE & ATTITUDE OF NURSES REGARDING PREVENTION OF PRESSURE ULCER IN TERTIARY CARE HOSPITAL

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Abstract:
Introduction: *If nurses possess the necessary information, they can effectively prevent pressure ulcers (PUs), which are a sign of the calibre of nursing care provided. Various findings have been published in this topic by numerous studies.*
Objective: *To ass the knowledge and attitude of nurses regarding prevention of pressure ulcers in tertiary care hospital.*
Materials & methods: *A descriptive, cross-sectional and quantitative study suggested for the research work. Structured questionnaires were used to collect the relevant data from study participants.*
Results: *There was 200 nursing staff having ages between 20 to 40 years included in the study. As per knowledge on prevention of pressure ulcers among 200 study participants, only 40.50% know Risk factors of pressure ulcer are immobility, incontinence, impaired nutrition and altered level of consciousness and remaining 59.50% didn't know. 61% study participants agreed with the statement that they did not need to concern themselves with pressure ulcer prevention in their practice and rest of 39% disagreed. . Finally, 45% study participants having sufficient knowledge and 55% insufficient; 57% study participants showed good attitude and rest of 43% poor attitude.*
Conclusion: *As a result, it was discovered that although nurses' attitudes were better than their knowledge, they lacked sufficient awareness regarding pressure ulcer prevention.*
Keywords: *PUs (Pressure Ulcers), knowledge, attitude, nurses etc.*

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INTRODUCTION:

Pressure ulcer (PU) was a localized lesion on the skin and/or underlying tissue that often occurred on bony prominences due to pressure or pressure in combination with shear and/or friction forces **(Akhkand SS, et al., 2020)**. In addition to causing suffering and reducing the quality of life of patients, PU (Pressure Ulcers) were associated with high costs of health care and prolonged nursing care **(Charalambous C, et al., 2019)**and might lead to life-threatening situations **(GressHalasz B et al., 2021)**. Recent ESPEN guideline mentioned that in polymorbid medical patients with bedsore, specific amino acids such as arginine, glutamine, and β-hydroxy β-methylbutyrate can be added to oral/enteral foods to accelerate the healing of bedsores **(Gomes F et al., 2018)**.

On the other hand, insufficient knowledge and skills, and negative attitudes towards pressure ulcer prevention might lead to the worsening of pressure ulcers **(Fernandes, Lima & Santos 2021)**. Therefore, it was warn that the development of pressure ulcers in the hospital may lead to medico-legal hazards resulting in litigation because of a lack of care **(Ortega et al., 2020)**. In lower-income countries, the prevalence of a lack of knowledge on ulcer was noted as evidenced by incompetence among nurses especially in managing pressure ulcers **(Furtado et al. 2022)**.

Poor attitudes regarding pressure ulcers and negative feelings towards providing care to patients with pressure ulcers as well as their preferences in terms of wound management might lead to the development of pressure ulcers **(Sucu & Kilic, 2022)**. The researchers furthermore indicated that positive attitude among nurses might lead to wound improvement and create satisfaction while dealing with pressure ulcers.

On the contrary, **(Du et al., 2021)** argued that negative attitude among nurses who disliked dealing with pressure wounds might result in complications and prolonged healing of patients. Furthermore, the authors expounded that attitudes influence the practice of risk assessment associated with pressure ulcers to identify possibilities and barriers in prevention and treatment of pressure ulcers.

These negative attitudes could be the factors which might increase the incidence of PU among admitted patients especially for those with risk factors. Therefore, in-service training should be carried out for the purpose of improving their knowledge, hence, improving their attitude. The training of health care professionals is considered as an integral part of the prevention of PU for the purpose of reducing the frequency of pressure ulcers by changing behavior pattern, thus, increase the knowledge level of health professionals on the prevention of pressure ulcers **(Sayilan, A.A., 2019)**.

There are several scoring systems to classify patients at risk for the development of pressure ulcers. EPUAP guidelines emphasized that as an adjunct to clinical judgment, a risk management tool should be used. The Updated Norton Scale (MNS), which has been reviewed, modified and used in Sweden, is the risk assessment method defined in the Swedish quality guidelines. It contains seven subscales: mental wellbeing, exercise, mobility, consumption of food, consumption of fluids, incontinence, and general physical condition. The treatment reporting of nurses was made compulsory by law in Sweden in 1986 (16±18), and the Swedish standard guidelines emphasize the documentation of pressure ulcer prevention **(Madadkar T, 2019)**.

The National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, and Pan Pacific Pressure Injury Alliance Nutrition Guidelines discussed the role of nutrition in managing and preventing pressure ulcers **(Munoz N, Posthauer ME., 2022)**. Reviewing the literature, the majority of researches mostly showed lack of knowledge among nurses regarding pressure ulcer **(Charalambous et al., 2019)**. It was found in a study that knowledge and attitudes of pressure ulcers among nurses correlated positively and were statistically significant **(Tirgari, B.; Mirshekari, L.; Forouzi, M.A., 2018)**. Given the foregoing, it became extremely necessary to research nurses' attitudes and understanding about pressure ulcer prevention. The issue of the current study is being investigated at the Sir Ganga Ram Hospital in Lahore.

1.1. Problem statement

Limited and outdated guidelines, contained in old course outlines and books regarding pressure ulcer prevention are observed at public training hospitals of Pakistan where the participants of this study do their clinical practice. Studies indicated that teaching of pressure ulcer management and prevention provides the knowledge on skincare, nutrition, mechanical loading and management of existing ulcers (Isa et al. 2019). Therefore, it is necessary for nurses to apply theoretical knowledge in clinical settings to prevent the formation of pressure ulcers and the management of existing pressure ulcers. However, because of a lack of evidence-based practice in Pakistan little is known about the nurses knowledge, attitude and practices regarding prevention and management of

pressure ulcers. To the best of the researcher's knowledge, there is lack of published literature on pressure ulcers. As nurses who provide care during clinical allocation, their competence may affect the quality of care given to the patients. Therefore, this study aimed to determine the knowledge and attitude of nurses on the prevention of pressure ulcers.

1.2. Significance of the study

It was anticipated that the study would discuss the nurses' attitudes and knowledge regarding pressure ulcer prevention. The findings of this study are useful for Pakistani nursing practice, nursing education, and upcoming research. It will give higher authorities a starting point from which to organize an initiative for staff development to raise the standard of care. The study's findings will also offer a distinctive investigation of nurses' knowledge and attitudes regarding the prevention of pressure ulcers, adding to the body of information on this topic. For nurses, in-service training and educational programs can be created to improve their knowledge, outlook, and practice.

1.3. Research objectives

The following are some of the study's main goals:

- To assess nurses' level of knowledge on the prevention of pressure ulcers.
- To evaluate the nurses' level of attitude towards pressure ulcer prevention.

1.4. Key term definitions (Conceptual & Operational)

- **Knowledge**
  Knowledge applies to facts or ideas acquired by study, investigation, observation, or experience.
- **Attitude**
  Attitude can be defined as the way in which a person views and evaluates something or someone, a predisposition or a tendency to respond positively or negatively toward a certain idea, object, person, or situation.

MATERIALS & METHODS

Study design

Because a descriptive study necessitates that a researcher witness, explain, and document several characteristics of an event, a descriptive cross-sectional, quantitative design was used in this research investigation (Sousa, et al. 2007). This method helps the investigator gain crucial information by using new data or by maintaining current data (Ingham-Broomfield, 2015).

Study population

There were 750 staff nurses in total.

Study setting

The location of the research is known as the study setting or study area. Thus, Sir Ganga Ram Hospital in Lahore is currently doing a study.

Study duration

The study was carried out for a total of six months, from (10^{th} September 2023 to 10^{th} February 2024)

Sample size

Using the formulas below, where N stands for population size and the sample size was calculated for a population of 750:

N= Population = 750
n= Sample Size
E= Margin error = 0.05

$$n = \frac{N}{1 + N(E)^2}$$

$$n = \frac{750}{1 + 750(0.05)^2}$$

$$n = \frac{750}{1 + 750(0.0025)}$$

$$n = \frac{750}{1 + 1.875}$$

$$n = \frac{750}{2.875}$$

$$n = 260.87$$

The sample size of 261 was determined using the aforementioned sampling formulas (Taro Yamane's formula); however, as it would have been difficult for us to get data from 261 study participants, we were only able to enroll 200 study participants at this time.

Sampling technique

Non-probability (Convenient) sampling techniques were employed in the investigation.

Sample selection criteria

a. **Inclusion criteria**
   - Nurses who didn't attend any lecture on pressure ulcers.

b. **Exclusion criteria**
   - All nurses who attended lectures on pressure ulcers and MSN nurses are excluded.

Data collection procedure

Data was collected within six weeks of the ethical review board's permission. The hospital management granted the researchers permission to undertake research on the subject after they paid a self-visit to the facility. Every participant was fully informed about the goals of the study and was free to choose whether or not to participate. Before participating, each person requested informed consent. To preserve participant privacy, each questionnaire is coded with numbers rather than the names of the participants.

Data collection tool

Self-structured questionnaires used to collect data. It was consisted of 3 sections: section 1: demographics; section 2: knowledge on prevention of pressure ulcer: section 3: attitude of nurses regarding prevention of pressure ulcers. Likert scale use to assess the attitude of nurses regarding pressure ulcers.

Ethical consideration

The Institutional Review Board of New Advance College of Nursing and Health Sciences first granted ethical approval. Following an explanation of the study's nature and goal to the participants, written informed permission was obtained. Every participant was made aware that the information would only be utilized for study. By removing the subjects' names from the questionnaire, the subjects' confidentiality and anonymity were preserved.

Pilot test

To prepare survey instruments for your whole survey, piloting involves testing, adjusting, and retesting them in the field. Making sure you are gathering relevant and reliable data and that you comprehend how your survey functions in the field is an essential step. After conducting a preliminary survey to ensure the questionnaire's validity and reliability, researchers conducted a follow-up visit to the area with a draught of the questionnaire.

Data analysis

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Following the entry of data collecting, a descriptive analysis was conducted with the goal of comprehending the demographic features of the study participants. Version 2022 of the Statistical Package for the Social Sciences (SPSS) was used to analyze the data. Data was presented in graphs to better understand about the accuracy of data. Percentages and frequencies determined for each demographic variable and questionnaire response.

RESULTS:

There were 200 study participants appeared in the study conducted at Sir Ganga Ram Hospital, Lahore regarding knowledge and attitude of nurses regarding prevention of pressure ulcers. Participants having age range 20 to 40 years included in the study. There were 37.50% study participants were between ages 20 to 25 years; 22.50% were between 26 years to 30 years and same proportion was between age 31 years to 35 years and rest of 17.50% were between 36 years to 40 years old as shown in table 4.1. & figure 4.1

Table No. 4.1.: Socio-demographic data of study participants (n=200)

Variables	Frequency (f)	Percentage (%)
Age (Years)		
20-25 years	75	37.50
26-30 years	45	22.50
31-35 years	45	22.50
36-40 years	35	17.50
Total	**200**	**100.00**
Gender		
Male	0	0.00
Female	200	100.00
Total	**200**	**100.00**
Marital status		
Single	120	60.00
Married	80	40.00
Total	**200**	**100.00**
Qualification		

General Nursing Diploma + Midwifery	55	27.50
BSN/Post RN	137	68.50
MSN	8	4.00
Total	**200**	**100.00**
Job experience		
1-3 years	75	37.50
4-6 years	65	32.50
7-9 years	35	17.50
>10 years	25	12.50
Total	**200**	**100.00**
Working department		
Adult Surgical Ward	49	24.50
Adult Medical Ward	33	16.50
Neurosurgical Ward	71	35.50
Neuro ICU	31	15.50
Others	16	8.00
Total	**200**	**100.00**
Length of time allocated in the ward		
<1 week	35	17.50
1-2 weeks	49	24.50
3-4 weeks	62	31.00
≤2 months	33	16.50
3-12 months	21	10.50
Total	**200**	**100.00**
Last time you listened lecture on pressure ulcer		
≤1 year	29	14.50
>1 year but <2 years	61	30.50
2-3 years	37	18.50
Never	73	36.50

Total	**200**	**100.00**
Last time you read an article or book on pressure ulcers		
≤1 year	10	5.00
>1 year but <2 years	39	19.50
2-3 years	31	15.50
Never	120	60.00
Total	**200**	**100.00**

In the sample of 200, as per job experience 37.50% participants having 1 to 3 years; 32.50% having 4 to 6 years; 17.50% participants having 7 to 9 years and remaining 12.50% having above than 10 years. As per last attended lecture on pressure ulcers, 14.50% participants having duration ≤1 year; 30.50% study participants having >1 year but <2 years; 18.50% having duration 2 to 3 years whereas 36.50% didn't ever attend lecture on prevention of pressure ulcers as depicted in table 4.1. & figure 4.2.-4.3.

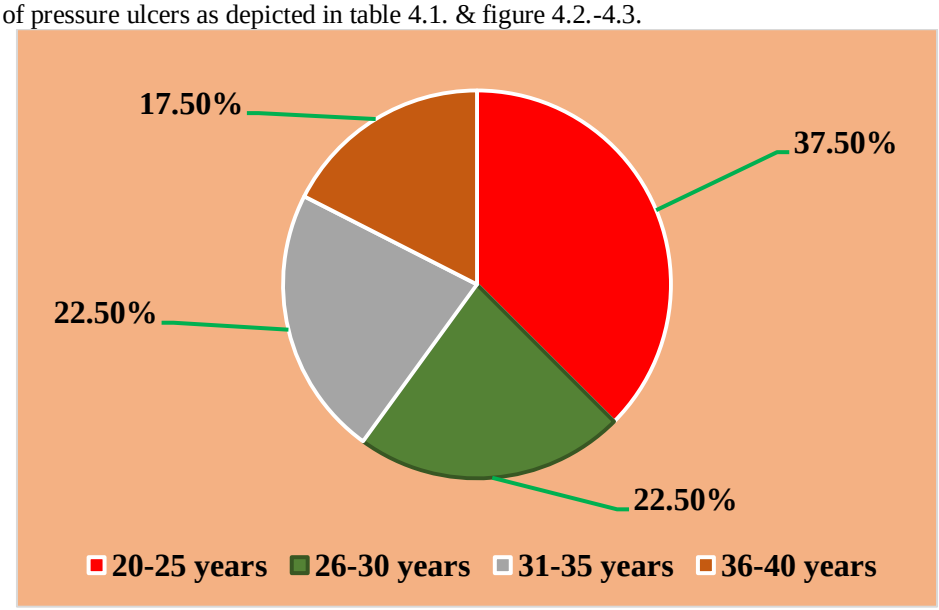

Figure No. 4.1. : Age of study participants

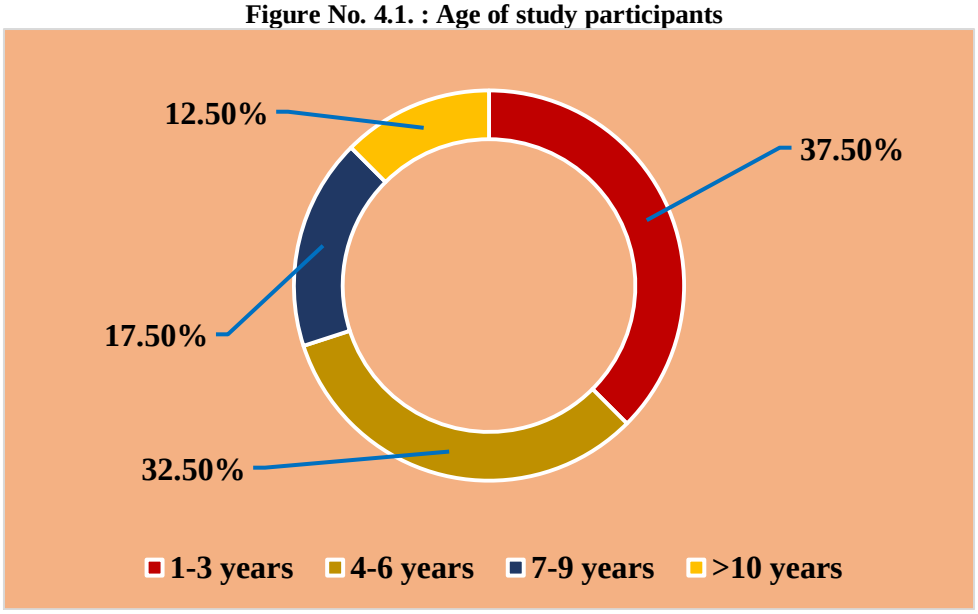

Figure No. 4.2. : Job experience of study participants

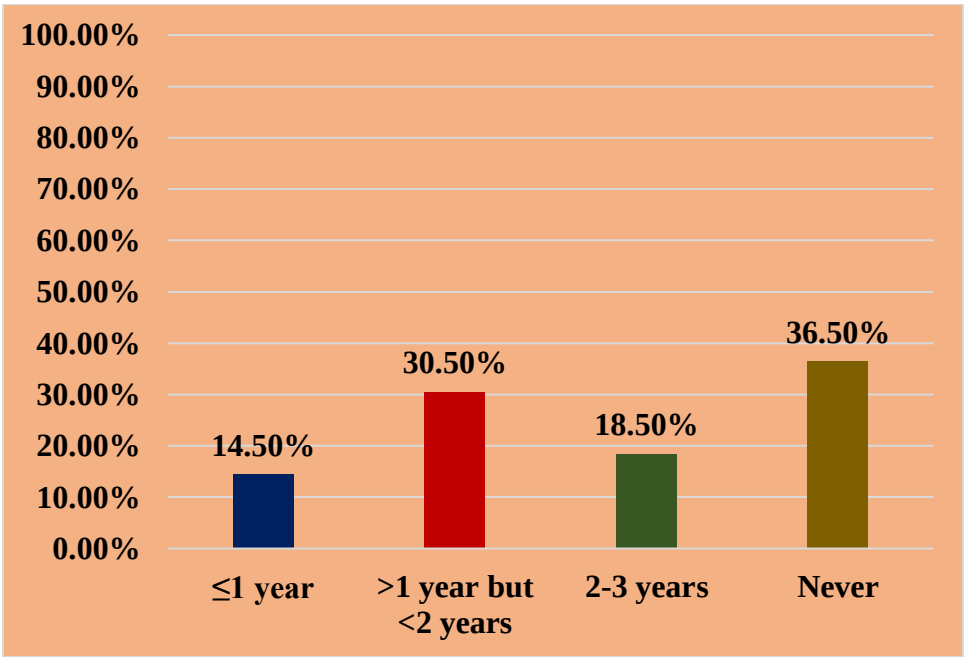

Figure No. 4.3. : Status of last attended lectures on pressure ulcers

As per knowledge on prevention of pressure ulcers among 200 study participants, only 40.50% know Risk factors of pressure ulcer are immobility, incontinence, impaired nutrition and altered level of consciousness and remaining 59.50% didn't know. On the other hand 28% participants knew that first sign of pressure ulcer development was open sore 72% participants didn't have an idea about this stage as revealed in table 4.2.

In the sample of 200 participants, only 20.50% study participants knew that Serum albumin test is the appropriate laboratory test for nutritional assessment of pressure ulcer patient and rest of 79.50% didn't have knowledge about this test. Even 10.50% study participants didn't idea that persons confined to bed should be repositioned every three hours and remaining 89.50% didn't aware about it as recorded in table 4.1.

Table No. 4.2. : Knowledge of nurses regarding prevention of pressure ulcers (n=200)

Sr. No.	Statements	Responses		
		Yes (f) %	No (f) %	Don't know (f) %
1	Risk factors of pressure ulcer are immobility, incontinence, impaired nutrition and altered level of consciousness.	81 (40.50%)	77 (38.50%)	42 (21.00%)
2	All hospitalized individuals at risk for pressure ulcers should have a systematic skin inspection at least daily and those in long term care at least once a week.	40 (20.00%)	31 (15.50%)	129 (64.50%)
3	The first sign of pressure ulcer development is open sore.	56 (28.00%)	61 (30.50%)	83 (41.50%)
4	Hot water and soap may dry the skin and increase the risk for pressure ulcers.	92 (46.00%)	45 (22.50%)	63 (31.50%)

5	It is important to massage over bony prominence.	53 (26.50%)	67 (33.50%)	80 (40.00%)
6	All individuals should be assessed on admission to a hospital for risk of pressure ulcer development.	29 (14.50%)	82 (41.00%)	89 (44.50%)
7	Patient skin should be clean and dry to prevent risk of pressure ulcer development.	90 (45.00%)	19 (9.50%)	91 (45.50%)
8	Adequate dietary intake of protein and calories should be maintained during illness.	77 (38.50%)	45 (22.50%)	78 (39.00%)
9	Vitamin C & E are important to maintain skin integrity.	33 (16.50%)	17 (8.50%)	150 (75.00%)
10	Serum albumin test is the appropriate laboratory test for nutritional assessment of pressure ulcer patient.	41 (20.50%)	32 (16.00%)	127 (63.50%)
11	Persons confined to bed should be repositioned every three hours.	21 (10.50%)	72 (36.00%)	107 (53.50%)
12	A turning schedule should be written and placed at the bed side.	30 (15.00%)	68 (34.00%)	102 (51.00%)
13	The head of the bed should be maintained at the lowest degree of elevation (hopefully no higher than a 30 degree angle) consistent with medical condition.	59 (29.50%)	29 (14.50%)	112 (56.00%)
14	A person who cannot move him or herself should be repositioned every two hourly while sitting in a chair..	61 (30.50%)	35 (17.50%)	104 (52.00%)
15	Heel ulcer is prevented by putting pillow under the patient’s leg.	83 (41.50%)	43 (21.50%)	74 (37.00%)
16	Friction may occur when moving a person up in bed.	47 (23.50%)	56 (28.00%)	97 (48.50%)
17	A Braden scale is risk assessment tool used for assessing pressure ulcer.	65 (32.50%)	39 (19.50%)	96 (48.00%)
18	A low-humidity environment may predispose a person to pressure ulcers.	52 (26.00%)	73 (36.50%)	75 (37.50%)
19	For person who has incontinence should be clean at the time of soiling and at routine intervals.	42 (21.00%)	89 (44.50%)	69 (34.50%)
20	Educational programs may reduce the incidence of pressure ulcers.	170 (85.00%)	3 (1.50%)	27 (13.50%)

As there were 200 study participants appeared in the study out of which 41.50% participants knew that heel ulcer was prevented by putting pillow under the patient's leg and remaining 58.50% didn't know. Only 23.50% participants knew that friction may occur when moving a person up in bed and rest of 76.50% didn't have accurate idea about it as depicted in table 4.2.

Table No. 4.3. : Attitude of nurses regarding prevention of pressure ulcers (n=200)

Sr. No.	Statements	Responses				
		Strongly agree (f) %	Agree (f) %	Neutral (f) %	Disagree (f) %	Strongly disagree (f) %
1	All Patients are at potential risk of developing pressure ulcers.	33 (16.50%)	45 (22.50%)	23 (11.50%)	66 (33.00%)	33 (16.50%)
2	Pressure ulcer prevention is time consuming for me to carry out.	87 (43.50%)	45 (22.50%)	9 (4.50%)	32 (16.00%)	27 (13.50%)
3	In my opinion, patients tent and to get as many pressure ulcers nowadays.	71 (35.50%)	54 (27.00%)	8 (4.00%)	55 (27.50%)	12 (6.00%)
4	I do not need to concern myself with pressure ulcer prevention in my practice.	91 (45.50%)	31 (15.50%)	5 (2.50%)	21 (10.50%)	52 (26.00%)
5	Pressure ulcer treatment is a greater priority than pressure ulcer prevention.	34 (17.00%)	76 (38.00%)	12 (6.00%)	17 (8.50%)	61 (30.50%)
6	Continuous assessment of patients will give an accurate account of their pressure ulcer risk.	89 (44.50%)	21 (10.50%)	11 (5.50%)	23 (11.50%)	56 (28.00%)
7	Patient should be cleansed immediately after soiling themselves.	41 (20.50%)	12 (6.00%)	32 (16.00%)	70 (35.00%)	45 (22.50%)
8	Attending educational activities on pressure ulcer prevention is important for nurses.	96 (48.00%)	54 (27.00%)	8 (4.00%)	22 (11.00%)	20 (10.00%)
9	A pressure ulcer is an important indicator of the quality of nursing care.	38 (19.00%)	88 (44.00%)	3 (1.50%)	30 (15.00%)	41 (20.50%)
10	Standard nursing care should be carried out to prevent pressure ulcers.	109 (54.50%)	45 (22.50%)	7 (3.50%)	22 (11.00%)	17 (8.50%)
11	Patients at risk of pressure ulcers should be turned every 2 hours.	45 (22.50%)	55 (27.50%)	5 (2.50%)	78 (39.00%)	17 (8.50%)

Regarding attitude of nurses on prevention of pressure ulcer, 39% participants agreed that all Patients were at potential risk of developing pressure ulcers and rest of 61% disagreed. In the sample of 200 study participants, 66% agreed that pressure ulcer prevention was time consuming for me to carry out and remaining 34 disagreed as shown in table 4.3.

61% study participants agreed with the statement that they did not need to concern themselves with pressure ulcer prevention in their practice and rest of 39% disagreed. In the sample of 200 nurses, 55% agreed that pressure ulcer treatment was a greater priority than pressure ulcer prevention and rest of 45% denied as recorded in table 4.3.

Out of 200 participants, 63% agreed that a pressure ulcer was an important indicator of the quality of nursing care and remaining 37% disagreed whereas 50% agreed that patients at risk of pressure ulcers should be turned every 2 hours and 50% disagreed as indicated in table 4.3. Finally, 45% study participants having sufficient knowledge and 55% insufficient; 57% study participants showed good attitude and rest of 43% poor as displayed in figure 4.4.

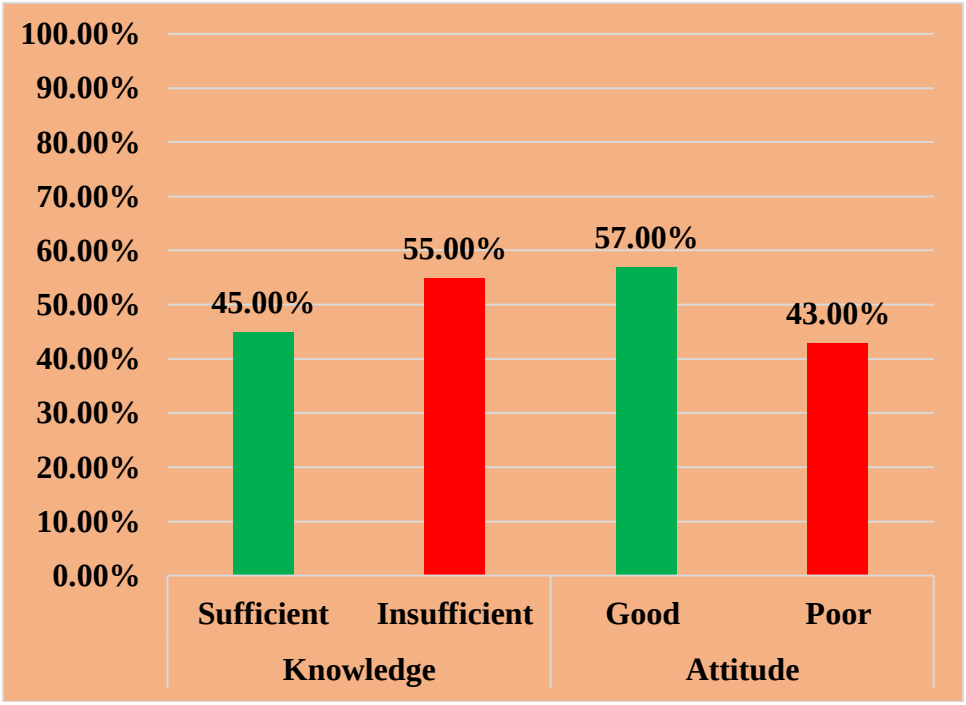

Figure 4.4. Level of knowledge & attitude regarding prevention of pressure ulcer among nurses

DISCUSSION:

The study on knowledge and attitudes on pressure ulcer prevention, conducted at Sir Ganga Ram Hospital in Lahore, involved 200 participants. The results of the current study showed that nurses had poor knowledge but above-average attitudes. This is in line with the findings of another study **(GressHalasz, B. et al., 2021)** which also showed poor knowledge but positive attitudes. It is generally acknowledged that knowledge and attitudes showed a strong positive link.

Another study by **(Muhammed et al., 2020)** is also consistent with the result of current findings who determined lack of knowledge found among nurses regarding prevention of pressure ulcers. It can be determined from current findings that older participants showed good knowledge and attitude as compared to younger as well as higher experience having good expertise on prevention of pressure ulcers.

The findings of this study are consistent with those of **(Wu J, Wang B, Zhu L, and Jia X, 2022)** who discovered that the pooled score of knowledge on pressure ulcer prevention increased significantly with participant age. In summary, nurses lacked appropriate expertise regarding the prevention of pressure ulcers.

On the other side **(Ebi, et al., 2019)** result having similar findings to ours that inadequate nurses knowledge to PU prevention found among study participants. A study by **(Fulbrook, P., Lawrence, P. and Miles, S., 2019)** having similar findings that majority of nurses having lack of knowledge regarding prevention of pressure ulcers. As well as a study by **(Murugiah, Ramuni, Das, Che Hassan and Abdullah, 2019)** revealed that nurses had low knowledge about the prevention of pressure ulcer where they argued that lack of knowledge regarding pressure ulcer prevention may lead to increases incidence of pressure ulcer in the hospital.

It is acknowledged that there is a need to increase the general publics and nursing staff's understanding of diseases in Pakistan. It is recognized, therefore, that inadequate expertise and unfavourable attitudes towards pressure ulcer prevention could exacerbate the condition of pressure ulcers **(Fernandes, Lima & Santos 2021)**. Another study **(Sucu & Kilic, 2022)** found that patients' choices for wound care as well as their negative attitudes towards treating patients

who have pressure ulcers may contribute to the development of pressure ulcers. Definitely, if nursing staff having lack of knowledge and practices about patient's care then patient will take time to recover which is indication of development of disease. We recognized the results of previous studies that showed positive and statistically significant correlations between nurses' knowledge and attitudes about pressure ulcers **(Tirgari, B.; Mirshekari, L.; Forouzi, M.A., 2018)**.

Some researchers found that inadequate pay was a major contributing factor to nursing staff members' ignorance about illnesses, but they also noted that financial incentives can have the opposite effect. Even if learning is a natural human skill, a lack of money shouldn't be a barrier to learning anything at all. In the meantime, it is evident that a lack of practices existed among participants if they lacked the information and attitude necessary to follow hospitalized disease standards.

The majority of study participants, according to the current results, did not attend any lectures or seminars on pressure ulcer prevention. Then, given that human beings find methods to put knowledge into practice as soon as they receive it, how can their attitudes and practices be improved? Therefore, it is advised to increase nursing staff's understanding of diseases, but disease information should also be known to the general people. Because patients should also have a part in their own recovery, it is not just the nursing staff's job.

CONCLUSION:

As a result, nurses were found to have inadequate understanding about the prevention of pressure ulcers, but they had a better attitude than knowledge. Compared to younger and less experienced nurses, older and more experienced individuals had better knowledge and attitudes.

OUTCOMES & UTILIZATION

The majority of studies focused on the lack of knowledge and unfavorable attitudes of nurses towards pressure ulcer prevention; however, none of them identified effective and efficient methods or channels for educating Pakistan's general public and nursing staff about the condition. The results of this study can be applied to future investigations into how healthcare personnel's knowledge should be enhanced in order to prevent pressure ulcers.

RECOMMENDATIONS

- Conduct seminars/trainings/refresher courses to update knowledge among nursing staff about the pressure ulcers.
- Nursing managers must provide opportunities to nursing staff without any discrimination so that they can get expertise about patient management.
- Health minister must take initiatives to disseminate health information among general public to prevent the disease.

IMPLICATION FOR FUTURE RESEARCHES

These findings implicated that hospital administration should pay attention on the learning of nurses about the preventive measure of pressure ulcers for immediate and efficient recovery of patients in ICU. The resources and apparatus available for pressure ulcers in the hospital should be considered in any future research on this subject.

LIMITATIONS OF THE STUDY

Nonetheless, it is necessary to talk about the study's limitations. First off, the study's cross-sectional approach limited the research of potential determinants of knowledge/attitude to associations rather than causal linkages. Furthermore, we cannot rule out the variations in nurses' awareness of the approaches, experiences, and techniques of teachers. Next, this study did not evaluate the availability of preventive materials. It's probable that the hospital did not have enough useful resources on hand to offer people who were at risk prevention that complied with regulations.

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