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Original research article

NURSES' KNOWLEDGE AND ATTITUDES REGARDING PATIENT SAFETY AND FACTORS ASSOCIATED TO IT

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Abstract: *Patient safety is a critical aspect of healthcare, and nurses' knowledge and attitudes play a vital role in ensuring safety standards are maintained. Understanding the factors influencing nurses' knowledge and attitudes can help develop strategies to improve patient safety.* **Objective:** *To assess nurses' knowledge and attitudes regarding patient safety and identify factors influencing these aspects.* **Methods:** *A cross-sectional study was conducted in the Nursing Department of a tertiary care hospital from May 2023 to May 2024. A total of 330 full-time nurses were included in the study. Data were collected using a pre-tested 53-item questionnaire available in both English and Urdu. The questionnaire comprised four sections: demographics (age, sex, qualification, and work experience), knowledge about patient safety, attitudes toward patient safety, and factors associated with knowledge and attitude. Statistical analysis was performed to identify factors significantly associated with good knowledge and attitudes, with a p-value of <0.05 considered significant.* **Results:** *Regarding patient safety knowledge, 49% of nurses had good knowledge, with a mean score of 67.2%. The mean attitude score was 62.4%, and 57% (95% CI: 52.6-60) of participants demonstrated good attitudes towards patient safety. Factors significantly associated with good knowledge included age, qualification, work experience, and prior education and training about patient safety (p<0.05). Age and previous education and training about patient safety were significantly associated with good attitude (p≤0.05).* **Conclusion:** *The study revealed that while nurses exhibited moderate knowledge, their attitudes toward patient safety were generally favorable. More years of work experience, higher education, and training significantly contributed to better knowledge and attitudes. Implementing targeted educational and training programs can further enhance nurses' knowledge and attitudes toward patient safety.*

Keywords: Attitude of Health Personnel, Cross-Sectional Studies, Knowledge, Nursing Education, Patient Safety, Tertiary Care Hospitals.

Introduction

Patient safety is the utmost priority of healthcare professionals, and it can help prevent errors and unfavorable patient outcomes. In first-world countries, every one out of ten patients suffers as a consequence of mistakes and side effects of medical negligence(1). Adverse effects during hospitalisation can lead to a high risk of morbidity and mortality, highlighting the need for a qualified and safe healthcare system(2).

As healthcare professionals are directly responsible for the safety of patients, it is essential that they possess adequate knowledge to ensure quality care, identify errors, and prevent adverse effects on patients. Nurses' Knowledge and attitudes are influenced by age, sex, qualification, work qualification, department, previous training, and hours spent with patients every week(3, 4). WHO obliges countries to develop a safe environment for patients and motivate healthcare staff to improve patient outcomes (5). Patient safety can be enhanced by raising awareness regarding safety culture and protocols for safety management and implementing authoritative strategies.

In Pakistan, several programs have been launched to improve the knowledge of professionals despite the fact that there has been a consistent increase in adverse events as a result of staff errors(6, 7). Research studies in the country also indicate a poor safety culture with a safety score of less than 50%(8). Nurses are an integral part of the healthcare system; their positive attitudes are necessary to establish an improved system and adopt appropriate practices.

This study assessed nurses' knowledge and attitudes regarding patient safety and the factors influencing it.

Methodology

A cross-sectional study was conducted in the Nursing Department of Tertiary Care Hospital from May 2023 to May 2024. A total of 330 nurses who were working full-time were included in the study by convenience sampling. Nursing students and interns were excluded. The sample size was calculated by EpiInfo Software, keeping a 95% Confidence Interval, 10% non-response rate, 5% error margin, 0.05α , and 50% population proportion. All the participants provided their consent to be included in the study. The ethical board of the hospital approved the study. Data was collected through a pre-tested 53-item questionnaire in both English and Urdu. The validity and reliability of the survey were tested with 0.9 Cronbach's alpha. The questionnaire had four sections; the first section included questions about demographics, including age, sex, qualification, and work experience; the second section assessed knowledge about patient safety; the third section inquired about attitude regarding patient safety; and the last section included questions about factors associated with

knowledge and attitude. The questions could be answered on a Likert scale from 1 to 5 with one being strongly disagree and five being strongly agree.

All the data was analysed using SPSS version 22. Descriptive analysis was done to present study variables in participants. Logistic regression analysis was done to identify factors associated with knowledge and attitudes. A p-value of less than or equal to 0.05 was taken as significant

Results

300 responses were included for analysis. The average age was 30 ± 3.26 years. Sixty percent of the participants were women, and 90% obtained a bachelor's degree. The average work duration was 6 years with 48 hours per week. Only 15% of nurses had received patient safety training before,, and 40% had learned about it during their education (Table I).

Regarding nurses' knowledge of patient safety, 49% had good knowledge, and the mean score was 67.2%. The responses of participants to knowledge-related questions are shown in Table II. The mean attitude score was 62.4%, and 57% (95% CI: 52.6-60) of participants had good attitudes about patient safety (Table III).

Factors significantly associated with good knowledge were age, qualification, work experience, and prior education and training about patient safety ($p<0.05$). Nurses ≥30 had a 3.2% higher chance of good knowledge than younger nurses; those with a bachelor's or master's degree were 3.5% and 4.4% likely to have good knowledge than those with a diploma. A work experience of more than ten years and previous education and training were also indicators of good knowledge (Table IV).

Age and prior education and training about patient safety were significantly associated with good attitude ($P\leq0.05$). Nurses with good were 97 times more likely to have good attitudes than nurses with poor knowledge. Younger nurses had a 90% more likelihood of having a good attitude than older nurses (Table IV).

Table I: Sociodemographic Characteristics of Study Participants

Characteristics	N (%)
Age	
20-30 years	180 (60%)
31-40 years	99 (33%)
41 and older	21 (7%)
Sex	
Men	120 (40%)
Women	180 (60%)
Education	
Diploma	18 (6%)
Bachelor's	270 (90%)
Masters and higher	12 (4%)
Work experience	
Less than five years	150 (50%)
5-10 years	99 (33%)
More than ten years	51 (17%)
Department	
OPD	45 (15%)
Emergency	24 (8%)
Operating room	24 (8%)
Inpatient	180 (60%)
ICU	17 (9%)
Professional rank	
Staff Nurse	285 (95%)
Head nurse	15 (5%)
Hours per week	
Less than 40	34 (18%)
40-60	180 (60%)
More than 60	36 (12%)
Working at a second job	255 (85%)
Prior education about patient safety	120 (40%)
Prior training about patient safety	45 (15%)

Table II: Knowledge regarding patient safety

Questions	Correct answers N (%)
Errors can be caused by stressful work environment	171 (57%)
Nurses making errors are incompetent	108 (36%)
Governmental protocols lay appropriate patient safety strategies	171 (57%)
It is impossible to avoid errors	150 (50%)

An adverse event leads to bad patient outcome	144 (48%)
A reliable healthcare facility prioritises patient safety	162 (54%)
The key features of patient safety culture	192 (64%)
An error is a failure to implement an appropriate plan	132 (44%)
The primary cause of clinical errors	210 (70%)
The course of action after clinical errors	123 (41%)
The goal of governmental programs for patient safety	111 (37%)

Table III: Attitude regarding patient safety

	Strongly disagree/ Disagree	Strongly agree/ Agree
Nurses are integral to patient safety	90 (30%)	174 (58%)
It is easier to ask for help when the patient is unstable	99 (33%)	135 (45%)
Conflict regarding patient care can be solved easily	96 (32%)	156 (52%)
Fellow staff are supportive and helpful	81 (27%)	165 (55%)
Questions are welcomed by fellow nurses when facing ambiguity	102 (34%)	117 (39%)
Nurses appreciate working like a team	102 (34%)	174 (58%)
I would feel safe if I was a patient here	81 (27%)	126 (42%)
Medical errors are reported and handled appropriately	93 (31%)	141 (47%)
My performance is assessed with feedback	93 (31%)	135 (45%)
I know who to consult regarding patient safety	96 (32%)	147 (49%)
Errors are discussed and resolved	96 (32%)	105 (35%)
It is encouraged to report any safety concerns	75 (25%)	162 (54%)
Errors are a source of learning	81 (27%)	102 (34%)
I like my job	78 (26%)	180 (60%)
I feel welcome working with a family-like team	69 (23%)	165 (55%)
I would recommend others to work here	108 (36%)	141 (47%)
I am proud of my workplace	96 (32%)	156 (52%)
I have a high morale working here	99 (33%)	126 (42%)
My professional efficacy declines with a high workload	78 (26%)	174 (58%)
Fatigue affects my performance	84 (28%)	165 (55%)
Stressful situations increase the risk of errors	96 (32%)	135 (45%)
I am incapable of performing during an emergency when fatigued	78 (26%)	171 (57%)
The management appreciates my daily efforts	105 (35%)	141 (47%)
Management tries its best to prioritise patient safety	81 (27%)	165 (55%)
I am informed about events affecting my work	93 (31%)	135 (45%)
The bed-to-nurse ratio is sufficient	96 (32%)	150 (50%)
The new staff is trained sufficiently and supervised	114 (38%)	135 (45%)
A constructive problem-solving system is set up in the hospital	69 (23%)	150 (50%)

Table IV: Factors associated with knowledge and attitudes

	Good knowledge	Crude Odds Ratio	Adjusted Odds Ratio	Good attitude	Crude Odds Ratio	Adjusted Odds Ratio
Age						
Younger than 30	54 (30%)	1	1	72 (40%)	0.122 (0.042-0.124)	0.110*** (0.047-0.1)
30 years or older	96 (80%)	7.8 (5.07-12.465)	2.9** (1.801-6.102)	106 (88.4%)	1	1
Sex						
Male	64 (53.3%)	1	1	66 (55%)	1.174 (0.762-1.716)	0.73* (0.45-1.264)
Female	87 (48.3%)	0.788 (0.518-0.296)	0.310 (0.152-1.641)	90 (50%)	1	1
Qualification						
Diploma	5 (28%)	1	1	2 (11%)	1	1
Bachelor's	135 (50%)	2.7 (2.105-23.630)	2.11** (1.73-14.38)	143 (53%)	1.23 (1.568-10.794)	2.9 (0.934-1110
Masters and higher	9 (75%)	5.5 (1.644-17.687)	3.21** (1.023-22.36)	8 (66%)	2.78 (2.314-16.297)	0.427 (0.63-3.167)

Department						
OPD	23 (51%)	1.215 (0.657-2.118)	1.15* (0.462-3.164)	25 (55.7%)	1.107 (0.682-3.045)	1.089* (0.465-2.634)
Emergency	12 (50%)	1.25 (0.543-1.847)	1.034* (0.43-2.93)	15 (62.5%)	1.523 (0.974-5.312)	1.783* (0.73-4.64)
Operating room	4 (17%)	1.012 (0.402-1.782)	1.317* (0.422-4.222)	10 (42%)	0.73 (0.213-3.728)	1.093* (0.364-3.287)
ICU	9 (53%)	1.293 (0.561-1.782)	1.11* (0.410-2.742)	10 (60%)	1.219 (0.742-3.382)	1.208* (0.47-2.894)
Inpatient	81 (45%)	1	1	90 (50%)		
Professional rank						
Staff Nurse	144 (51%)	1.01 (0.192-4.712)	4.87* (0.374-6.712)	165 (57.9%)	1.47 (0.034-1.910)	0.572* (0.18-1.325)
Head nurse	8 (53.9%)	1	1	7 (47%)	1	1
Work experience						
Less than ten years	97 (39%)	1	1	107 (43%)	1	1
Ten years or more	44 (86.4%)	11.3 (3.828-11.536)	2.5** (1.223-5.048)	45 (88.4%)	11.98 (0.034-1.912)	0.621* (0.19-1.324)
Hours per week						
Less than 40	15 (44%)	1	1	17 (50%)	1	1
More than 40	108 (50%)	1.27 (0.853-2.517)	0.82* (0.502-1.234)	118 (54.6%)	1.343 (0.776-2.288)	0.982* (0.408-2.318)
Working at a second job	148 (58%)	1.27 (0.373-1.780)	0.5* (0.210-1.793)	128 (50.2%)	0.64 (0.281-3.05)	1.082* (0.427-2.675)
Prior education about patient safety	96 (80%)	4.47 (3.841-14.237)	3.25*** (2.384-6.81)	95 (80%)	8.92 (4.966-14.741)	3.5*** (2.0-6.992)
Prior training about patient safety	41 (91%)	11.6 (4.610-15.762)	3.0** (1.236-5.201)	41 (91%9	8.10 (7.159-28.922)	4.0** (1.530-9.889)
*Insignificant, **p<0.05, ***p<0.001						

Discussion

This study was conducted to assess the knowledge and attitudes of nurses regarding patient safety and its variables. A total of 49% (95% CI: 46.8-51.2) of participants had good knowledge. These results are similar to studies conducted in Brazil but lower than in developed countries; Turkey and the U.S (9-11). As Pakistan is a developing country, this difference may be due to differences in the quality of education and training and the status of the healthcare institutes. As 51% nurses in our nurses had poor knowledge about patient safety, it is quite alarming as it can harm patients and nurses themselves.

Nurses with more than ten years of experience had 2.8% more likelihood of having good knowledge scores than less experienced staff. Similarly, nurses with prior safety training had a 3% higher likelihood of having good knowledge than untrained nurses. The reasoning of this association can be the access to updated and better information from training programs that add experience of the latest techniques. Comparable results were reported by a South Korean study(12).

Nurses ≥30 had a 3.2% higher chance of good knowledge than younger nurses; those with a bachelor's or master's degree were 3.5% and 4.4% likely to have good knowledge than those with a diploma. Similar results were reported by multi-departmental hospitals in other studies(13-15). This can be due to the fact that educated nurses may be consistently involved in seeking education and training regarding patient care which can give them more experience.

The mean attitude score was 62.4% and 57% (95% CI: 52.6-60) of participants had good attitudes about patient safety. These results are consistent with studies in other developing countries but lower than developed countries(16-18). Nurses with good were 97 times more likely to have good attitudes than nurses with poor knowledge. Younger nurses had a 90% more likelihood of good attitude than older nurses. These findings are also backed by European studies(19, 20). Previously trained staff showed good attitude as education and training influences professional behavior. A Turkish study also concluded the same results(21).

Our study has a limitation. The cross-sectional study design limits the possibility of assessing the cause-and-effect relationship between study variables.

Conclusion

Nurses exhibited a poor knowledge but relatively favorable attitude regarding patient safety. More work experience, training, and higher education can improve understanding.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate.
It is approved by the department concerned. (IRB-THQH-0283)
Consent for publication
Approved
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Not applicable

Conflict of interest

The authors declared an absence of conflict of interest.

Authors Contribution

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