Patient Safety Culture among Nurses in Pokhara Academy of Health Sciences, Nepal

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ABSTRACT

Background: Patients' safety is the absence of preventable harm to a patient and reduction of risk of unnecessary harm associated with health care to an acceptable minimum. Assessing health care professionals' perception, in patient safety culture plays a crucial role towards initiation of safety culture within organization. The objective of the study was to find out patient safety culture among nurses in Pokhara Academy of Health Sciences, Nepal.

Methods: A quantitative descriptive institutional based cross sectional study design was carried out using a self -administered "Hospital Survey on Patients Safety Culture form" developed by Agency for Health Research and Quality from conveniently selected 178 nurses. Data were analyzed using SPSS Version 23 and statistics like frequency, percentage, mean, standard deviation and Mann Whitney U test was used for analysis.

Results: This study found that only 13% of the respondents had high level of patient safety culture and 36% had average positive score to patient safety grade. Only the "feedback and communication of error" sub-dimension was the area of strength. Teamwork within unit and organizational learning and continuous development showed statistically significant difference ($p<0.05$) with marital status, post and professional experience. Similarly, Supervisor expectation and action promoting patient safety and management support for patient safety were found statistical different in terms of working department and direct contact with patient.

Conclusion: This study concluded the few numbers of the respondents had moderate level of patient safety culture and only one third had average positive score to safety culture grade. The hospital management need to conduct continuous professional development program on patient safety culture and to create non punitive environment to increase patient safety culture.

Keywords: Patient safety culture, Nurses, Hospital Survey

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INTRODUCTION

Patient safety is a framework of organized activities that creates cultures, processes, procedures, behaviors, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, and reduce the impact of harm when it occurs. Patient safety is becoming the global challenge of achieving universal Health coverage. World Health Assembly in 2021 envisioned a world in which no one is harmed in health care, and every patient receives safe and respectful care, every time, everywhere.1 Patient safety culture involves leader and staff inter action, routines, attitudes, practices and awareness that influence risks of adverse events in patient care. It is the outcome of individual and organization shared values, attitudes,

perceptions, competencies and patterns of behavior that determine the commitment, style, and competence of managing the health and safety of an organization. [2] It includes team work, staffing and workplace, organizational learning-continuous improvement, response to error, supervisor, manager, or clinical leader support for patient safety, communication about error, communication openness, reporting patient safety events, hospital management support for patient safety, hand offs and information exchange, number of events reported and patient safety rating. [3] Due to unsafe care, around 10% patient is harmed and more than 3 million deaths occur annually in high income countries and 4 % deaths in low to middle income countries. Patient harm potentially reduces global economic growth by 0.7% a year. On a global scale, the indirect cost of harm amounts to trillions of US dollars each year. [4]

The safety culture, an important attribute of the health system, reflects the quality of healthcare services being supplied, the level of system credibility and the resilience of adverse events. [5] A positive patient safety culture plays a major role in reducing medical errors and increasing productivity among healthcare staff. [6] Studies in Saudi showed the positive response regarding the perception of patient's safety (59.9%) among nurses, and 30% of the respondents indicated that they have patient safety problems in their units. [7] Similarly, study in a tertiary hospital of Kathmandu, Nepal revealed that among 12 areas, the reported total mean score of patient safety was 3.43 with the highest score in teamwork within units and the lowest reported score was in staffing and only 15% of the respondents reported adequate patient safety. [8] Likewise, 64% nurses reported patient safety culture within organization as adequate in Sahid Gangalal National Heart Center, Nepal.[9]

Patient safety is a fundamental element in healthcare quality and a major challenge in achieving universal health coverage, especially in low- and middle-income countries like Nepal. The first step to improve patient safety is to evaluate the safety culture in hospitals. For this reason, this study was carried out to assess the patient safety culture among nurses in Pokhara Academy of health science, Nepal.

METHODS

The quantitative descriptive cross-sectional research design was employed to conduct this study among conveniently selected 178 nurses from 240 nurses. Sample size for the study was calculated on the basis of the prevalence of study conducted at Kathmandu, Nepal in which 64% nurses reported patient safety culture within organization as adequate[9] by using Cochran Formula for finite population i.e. $(n)= N \times [(Z^2pq/e^2)/\{(N-1)+ (Z^2pq/e^2)\}]$. All the registered nurses working in this hospital for at least 3 months who were willing to participate and gave informed consent were included and nurse academicians were excluded. Ethical permission was taken from Institutional Review Committee (Ref.120/081) of this hospital. The data was collected from 6th July to 5th August, 2025 using a self -administered questionnaire i.e. Hospital Survey on Patient Safety Culture (HSPSC) Instrument developed by Agency of Health Care Research and Quality (AHRQ) in 2016. [10] This tool was widely used in various countries and freely available for use. [11] It comprised of 42 (29 positively worded and 13 negatively worded) items separated into twelve sub-dimensions and aggregated into three dimensions: unit safety culture level, hospital-wide safety culture, and outcome measures. It was a reliable tool having Cronbach's alpha for the two dimensions: hospital-wide Safety Culture (α = 0.897) and unit safety culture. The sub-dimensions of outcome measures had overall perceptions of patient safety (α=0.725) and frequency of reported occurrences (α= 0.734). [12] After taking verbal informed consent, the printed self administered questionnaire was distributed to the nurses allowing to fill in

their convenient time and collected after 2-3 days. The data were analyzed using IBM SPSS Version 23. Descriptive statistics like frequency, percentage, mean, standard deviation, average positive score of each 12 dimensions were measured according to AHRQ guidelines. [13] The negatively worded items were reversed to calculate average positive score. The dimensions with average positive score were categorized as area of strength (>75%), area of improvement (50-75%) and weak (<50%). Level of nurse's perception was categorized as low (42-97), moderate (155-210) and high (155-210). The statistical difference between patient safety culture dimensions and demographic variables was calculated using Mann Whitney U test with 95% of confidence interval.

RESULTS

In terms of sociodemographic and work related characteristics, higher number of staffs were 20-30 years of age (72.5%), married (53.9%), had Bachelor and Masters degree professional qualification (71.3%), having professional experience less than 5 years (58.4%), working in critical ward (56.2%), Frontline staffs (94.4%), having direct contact with patient (91.6%), received training (7.9%) and average positive score of number of events reported (31.5%). Details are depicted in table 1. Regarding level of patient safety culture, only 13 % of the respondents had high level. (Table 2) In terms of safety culture grade, only 36% had average positive score. (Table 3) In relation to nurse's perception on patient safety culture factors, only the "feedback and communication of error" sub-dimension was the area of strength. (Table 4)

This study revealed significant difference of patient safety factors between certain socio-demographical variables. Teamwork within unit showed statistically significant difference with marital status (p<0.001), post (p<0.001) and professional experience (p<0.001). Likewise, organizational learning and continuous improvement was significant different in respect to marital status (p=0.03), post (p<0.001) and professional experience (p<0.001). Similarly, Supervisor expectation and action promoting patient safety was found statistical different in terms of working department (p=0.04) and direct contact with patient (p<0.001). And, management support for patient safety was statistical different to working department (p=0.04) and direct contact with patient (p<0.001). Overall safety perception was fund statistically different to working department (p=0.04) and direct contact with patient (p=0.03). Other patient safety factors that found significant different were frequency of reporting to marital status (p=0.04), hand offs and transitions to working department (p=0.04) and staffing and work pace to direct contact to patient (p=0.03). (Table 5)

Table 1: Sociodemographic and Work Related Characteristics of the Respondents (n=178)

Variables	Number	Percent
Age		
20-30 Yrs	129	72.5
>30 Yrs	49	27.5
Mean± SD= 29.64 ±7.269		
Marital status		
Unmarried	82	46.1
Married:	96	53.9
Professional Qualification		
Certificate level	51	28.7
University education:	127	71.3
Professional experience		
<5yrs	104	58.4
≥5 yrs	74	41.5
Mean± SD= 6.89 ±7.005		
Departmen		
Critical	100	56.2
Non critical	78	43.8

Variables	Number	Percent
Post		
Staff Nurse	147	82.6
Officer	31	17.5
Leadership Position		
Frontline Staff	168	94.4
Ward Incharge	10	5.6
Professional experience in current department		
<1yrs	70	39.3
1-5 yrs	63	35.4
>5yrs	45	25.3
Direct contact with patient	163	91.6
Training Received on patient safety	14	7.9
Number of reported events in 12 months		
None	122	(68.5)
1-5 events	40	(22.5)
≥6 events	16 (9)	

Table 2: Level of Nurse's Perception Regarding Patient safety culture (n=178)

Level	Number	Percent
Moderate	155	87.1
High	23	12.9
Mean ± SD (1.7079 ± 0.45603)		

Table 3: Nurse's Evaluation of overall patient safety culture grade (n=178)

Overall patient safety culture Grading	Number	Percent
Poor	9	5.1
Fair	36	20.2
Good	69	38.8
Very good*	46	25.8
Excellent*	18	10.1

** Average positive score=35.9%*

Table 4: Nurse's Perception regarding Patient Safety Culture Factors (n=178)

Factors	Mean ±SD	Average Positive Score
Feedback and Communication about Error	11.89 ± 2.73	75.16%
Teamwork within Units	14.23 ± 1.99	71.82%
Supervisor Expectation & Action Promoting Patient Safety	14.48± 2.55	62.0%
Communication Openness	10.49 ± 2.27	57.23%
Organizational Learning & Continuous Improvement	9.25 ± 2.38	56.76%
Management support for Patient safety	14.48± 2.55	39.5%
Staffing & Work Pace	11.46 ± 2.47	32.57%
Non punitive response to Error	8.12 ±2.73	26.56%
Total Unit Safety	94.4 ± 10.52	52.7%
Teamwork across units	11.62 ± 2.47	35.25%
Hand-offs & Transitions	11.37± 2.52	25.87%
Total Hospital wide safety	22.94 ± 4.46	30.56%
Overall Perception of Patient Safety	11.76 ± 2.65	45.67%
Frequency of Events Reported	9.6 ± 2.70	43.46%
Total Patient Safety Culture Score	138.85±14.18	58.30%

Table 5: Difference of Patient Safety Culture Factors between Selected Variables (n=178)

Variables	Patient Safety Factors							
	Unit Teamwork Mean Rank	Supervisor's Expectation Mean Rank	Organizational Learning Mean Rank	Manager's support Mean Rank	Staffing & work-pace Mean Rank	Handoffs & transitions Mean Rank	Frequency of events reporting Mean Rank	Overall safety perception Mean Rank
Marital status								
Single	77.00	85.5	80.59	85.5	91.35	86.68	86.29	83.37
Married	100.18	92.92	97.11	92.92	87.92	91.91	92.24	94.73
p-value	<0.001*	0.33	0.03*	0.33	0.65	0.49	0.04*	0.14
Post								
Staff	80.68	85.29	80.75	85.29	86.54	86.93	86.24	86.15
Officer	101.9	95.42	101.80	95.42	93.66	93.11	94.48	94.2
p-value	<0.001*	0.19	<0.001*	0.19	0.35	0.42	0.13	0.30
Professional Experience								
<5 Yrs	80.68	85.29	80.75	85.29	86.54	86.93	86.24	86.15
≥5 Yrs	101.9	95.42	101.8	95.42	93.66	93.11	94.08	94.20
p-value	<0.001*	0.19	<0.001*	0.19	0.35	0.42	0.31	0.30
Department								
Critical	86.76	82.65	91.29	82.65	87.29	82.63	83.82	82.62
Non critical	93.02	98.29	87.21	98.29	92.34	98.31	96.79	98.32
p-value	0.41	0.04*	0.59	0.04*	0.51	0.04*	0.09	0.04*
Direct patient contact								
No	88.83	122.27	92.53	122.27	116.77	112.20	103.6	86.15
Yes	89.56	86.48	89.22	86.48	86.99	87.41	88.20	94.20
p-value	0.95	<0.001*	0.80	<0.001*	0.03*	0.07	0.26	0.03*

**p value significant at <0.05*

DISCUSSION

The present study revealed that the only 13% of the respondents had high level of perception toward patient safety culture. This finding was in contrast to the findings of the study carried in Egypt and Ethiopia that showed 88.36% had high level and 50.8% had good level of patient safety culture in their organization respectively.[14,15] Similarly, the findings of frequency of not reported critical events in last 12 months (68.5%) was reinforced by the findings of study carried out in Egypt (74.66%) and Portugal (79.4%).[14,16] Likewise, the reported patient safety culture grade of this study as good (38.8%) was found in contrast to the findings of study in Nepal (84%) and excellent grade (10.1%) to Portugal (1.7%).[9,16]

This study revealed that patient safety factor "feedback and communication of error" had the highest positive mean score (75.16%) followed by Teamwork within unit (71.82%), supervisor expectation and action promoting on patient safety (62.0%), communication openness (57.23%), organizational learning and continuous improvement (56.76%), manager's support on patient safety (39.5%), staffing and work pace (32.67%), nonpunitive response to error (26.56%) and hand offs and transitions (25.87%). The average percentage of positive score on patient safety factors towards communication openness, organizational learning & continuous improvement and hand offs & transitions were higher in a study carried out in Ethiopia that mentioned 67.54%,

66.90% and 68.03% respectively. [15] In the same way, a study carried out in Portugal revealed consistent findings toward teamwork with in units (70.18%) and nonpunitive response to error (26.56%).[16] The teamwork within units was consistent and staffing and work pace, nonpunitive response to error, feedback & communication of error and manager expectation on patient safety were in contrast to the findings of a study in Saudi Arabia that showed 73%, 72.75%, 68%, 45.7% and 43.5% respectively.[17] The mean score of staffing and work pace (32.57%) was reinforced by the findings in Saudi Arabia (34%). [18]

Similarly, the present study called improvement in patient safety in unit level as well patient safety culture as attributed to the teamwork within the unit, supervisor expectation and actions promoting patient safety culture, communication openness and organizational learning and continuous improvement. This finding was contrasted to the findings of study carried out in Egypt that reported as area of strength. [14] The congruence was established by the study findings resulted in Saudi Arabia that reported patient safety in unit level as an area of improvement and in Brazil which revealed overall safety initiatives should be focused on unit level.[19,20] Likewise, this study resulted nurse's had weak perceptions on hospital wide safety culture dimensions attributed area of weakness in teamwork across units, hand off and transitions, and outcome measures dimension attributed by frequency of events reporting and overall safety perception. This was contradicted to the findings in Brazil that showed hospital wide safety dimension and outcome measures dimension as area of strengths.[14] The weak area of outcome measure was supported and weak area of hospital wide safety was contrasted by the study findings in Saudi Arabia that revealed outcome measures as an area of weakness and hospital wide safety dimension as area of improvement.[19]

This study revealed significant difference of patient safety factors between certain socio-demographic variables. Teamwork within unit showed statistically significant difference with marital status, post and professional experience. Likewise, organizational learning and continuous improvement was significant different in respect to marital status, post and professional experience. Similarly, Supervisor expectation and action promoting patient safety was found statistical different in terms of working department and direct contact with patient. And, management support for patient safety was statistical different to working department and direct contact with patient. Overall safety perception was fund statistically different to working department and direct contact with patient. Other patient safety factors that found significant different were frequency of reporting to marital status, hand offs and transitions to working department and staffing and work pace to direct contact to patient. The consistent finding was found to organizational learning and continuous improvement to professional experience. Other findings were contradicted to the findings of study conducted in Portugal. The later study found hand offs and transition to age, supervisor expectation and action promoting safety to age group and professional experience, Organizational learning and continuous improvement to professional experience, age group, qualification, Overall safety perception to professional experience, age group, qualification, feedback and communication to qualification, frequency of events reported to qualification.[16]

CONCLUSIONS

This study concluded the few numbers of the respondents had moderate level of patient safety culture and only one third had average positive score to safety culture grade. The Teamwork within units and Organizational learning and continuous improvement subdimensions were statistically different to marital status,

post and professional experience. Similarly, Supervisor expectation and action promoting patient safety and management's support were statistical different to working department and direct contact to patient. The hospital management need to conduct continuous professional development program on patient safety culture as well as creating non punitive and improved work environment to increase patient safety culture that results quality of care within the organization.

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