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Determination of the Patient Safety Culture Among Nurses Working in a Tertiary Care Hospital South India

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Abstract

Patient safety is one of the most important and essential elements of quality in healthcare setting. A report by the Medial Council of India indicates that almost 5.2 million injuries happen every year due to medical errors and adverse events. Recent evidences suggest that majority of these errors and harm associated can be prevented by creating a culture of patient safety. The aim of the present study was to determine patient safety culture among nurses workingin a tertiary hospital, South India. Using a descriptive cross sectional survey design, 252 nurses were asked to complete hospital survey on patient safety culture (Response rate -84%). Analysis revealed that majority (92.8%) were working for less than 5 years in the current hospital and more than half of them (59.5%) had total professional experience between 1-5years. Safety dimensions with more than 50% positivity were identified and these were;organizational learning, teamwork within units, and feedback & communication about error with the following percentages of positivity 86.5%, 80.95 %and 58.73% respectively. The dimensions with less than 25% positivity were non-punitive response to errors (13.63) and communication openness (21.83). The study recommends focusing on building leadership capacity that support open communication, blame free environment,and interdepartmental collaboration to nurture patient safety culture in hospitals.

Keywords: Medical errors, Harm, Adverse events, Patient safety culture.

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Introduction

Patient safety is evolving as one of the most important and essential elements of quality in healthcare setting. For every patient, carer, family member, and healthcare professionalsafety is pivotal to diagnosis, treatment, and care. Also,patients and their family are entitled to expect to be treated by competent professionals who are appropriately skilled and up-to-date with developments in their field, and in facilities that are fit for purpose.

Worldwide, it is estimated that 1 in every 300 patients experiences harm while getting health care. In the developed countries, the number of patients harmed during hospitalization is estimated to be one in ten patients (World Health Organization 2012). A report by the Medial Council of India indicates that almost 5.2 million injuries happen every year due to medical errors adverse events. This harm is caused by a range of medical errors or adverse events. When the medical errors take place, they lead to increased length of stay in hospitals, litigation associated costs, healthcare-associated infections, lost income, disability, and additional healthcare expenses [1].

Recent evidences suggests that majority of these errors and harm associated can be prevented by creating a culture of patient safety [2]. Patient safety culture is a subset of organizational culture and is defined as the integration of safety thinking and practices into clinical activities. According to the Agency for Healthcare Research and Quality (AHRQ) the safety culture of an organization is the

product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management. Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures. The culture of safety has 6 dimensions; an organizational commitment towards safety concerns, the acknowledgment of high-risk - error-prone nature of an organization's activities, an emphasis on teamwork and effective communication, honesty, respect and an organizational commitment towards systems analysis and redesign to improve safety. The challenge for health care organizations is not just in defining culture, but in embracing the concepts; it is in embedding safety culture into the every day work of the organization. A patient safety culture will develop open communication with patients, and ensure learning throughout the system when things go wrong. This will bring down the number of adverse events and mistakes i.e. these organizations can carry out most risky procedures with very low hazard rate.

Healthcare is becoming more and more complex day by day, the potential for errors are also becoming high. Creating a culture of safety requires a change in the values and beliefs historically held by healthcare practitioners. Additionally, standardized methods do not exist that outline how a culture of safety can be established in healthcare. Unfortunately, recent studies have demonstrated that cultural change can be initiated in healthcare settings.

Evidence suggests it is necessary to fully understand the safety culture of an organization before designing interventions to improvepatient safety. Measuring and monitoring the patient safety culture in healthcare organizations allows detecting vulnerabilities and implementing and evaluating improvement interventions to strengthen it. Also, measurement promotes transparency; it allows us to benchmark how we are performing relative to others. Measuring safety culture will provide a stimulus to acknowledge significance of creating or improving an organizational safety culture among hospital leadership.

Nurses are the largest workforce in healthcare. In all hospitals, nurses play a vital role in ensuring patient safety due to the nature of their work, which involves ongoing patient monitoring and coordination of care [3]. This also provides them with various opportunities to reduce adverse events and to intercept healthcare errors before they happen (Institute of Medicine 2004). For this reason, it is of great significance for the nurses to adopt, defend, and have a critical perspective on the issue of patient safety to offer a prolonged and safe care.

There is very limited literature available about the safety culture in Indian hospitals. So the present study was undertaken with an aim to assess safety culture in a tertiary care hospital to raise the awareness of patient safety environment and issues, to facilitate and guide the implementation of interventions in improving patient safety and outcomes.

Methodology

Purpose: Determine the perception of the safety culture among nurses working in a tertiary care hospital.

Research approach: Quantitative approach.

Research design: Cross sectional descriptive survey.

Setting: A tertiary care hospital, Kerala, South India.

Sampling and Data Collection: Convenient sampling technique was used to select sample. The study populations were the nurses who had been working there at least for three month (within the unit as well as in the hospital) and who were available during the period of data collection. HSOPSC (Hospital Survey on Patient Safety Culture) questionnaire, which was developed the AHRQ to measure the patient safety culture in organizations, was used as guide line. Permission was obtained to use the tool before administration. It was designed to measure 12 factors (dimensions) of patient safety culture. The HSOPSC questionnaire contains 42 items which mostly use the 5-point likert response scale of agreement ("Strongly disagree" to "Strongly agree") or frequency ("Never" to "Always"). The survey measures:

Seven unit-level aspects of safety culture

- Supervisor/manager expectations and actions promoting safety (4 items)
- Organizational learning-continuous improvement (3 items)
- Teamwork within units (4 items)
- Communication openness (3 items)
- Feedback and communication about error (3 items)

- Nonpunitive response to error (3 items)
- Staffing (4 items)

Three hospital-level aspects of safety culture

- Hospital management support for patient safety (3 items)
- Teamwork across hospital units (4 items)
- Hospital handoffs and transitions (4 items)

Two outcome variables

- Overall perceptions of safety (4 items)
- Frequency of event reporting (3 items)

Validity and reliability of the questionnaire was ensured before administering. Permission was obtained from the authorities to conduct the study in selected hospital. A pilot study was conducted among 30 nurses to know the feasibility and practicality. This study was conducted during the period starting from October 2017 toDecember 2017. After screening using inclusion and exclusion criteria, a convenient sample of 300 staff nurses from different inpatient departments at the selected hospital was recruited. The researchers initially introduced themselves to all participants and then they clarified the purpose of the study. Confidentiality of the information was assured and anonymity was maintained. Informed written consent was obtained from all the study participants. The response rate of the questionnaire was found to be 84percentage.

Data Analysis

The data was coded and entered to Excel and then converted to SPSS for further analysis. Descriptive statistics of the demographic characteristics of participants and, the average percentage of positive responses on the patient safety culture were computed. Calculation of the composite frequencies for the safety dimensions measured by HSOPSC data collection tool was performed according to the user's guidelines published by the AHRQ.[4] The average percentage of positive responses, defined as the average of the item-level percent positive responses within an HSOPSC dimension, represented positive reaction(s) toward the patient safety culture.

Characteristics of Participants

A total of 252 nurses participated in the survey. The majority (92.8%) were working for less than 5 years in the current hospital. Out of all, experience in respective units was less than one year (27.2%), one to five years period (66.7%) and more than five (0.6%). More than half of them (59.5%) had total professional experience between 1-5years.

Unit level aspects of patient safety culture

Response to the unit level aspects of patient safety culture dimensions is shown in table 1.Items 1-5, 7 and 8 of table 4 shows the composite scores of positivity towards unit level aspects of patient safety culture.When compared to other dimensions, the current study revealed team work within unit as the most powerful dimensionwith a composite score of 80.95 percentage. This means that people like to actively perform and cooperate with their close peers in the same unit. Regarding staffing only, 3.6% reported positive response being working in "crisis mode" and also only 67.9% indicated that they have enough staff to handle the workload. 66.7% reported that they work longer hours than is the best for patient care. Similar findings have been reported by Ghobashi MM et al. They found that only 24% gave positive response being working in ''crisis mode'' and also only 26% gave positive response as regard working longer hours than is best for patient care.[5]This is important because Alahmadi; El-Jardali et al have reported that shortage of nursing staff leads to an increase in workload, and this pressure is considered a majorcause of errors [6].

Out of all, 77.4% of participants reported that their supervisor/manager overlooks patient safety problems that happen over and over in their unit and 45.2% had negative response regarding supervisor's instructions whenever pressure appears at work. This is in agreement with the findings of Ghobashi MM et al. [5] as only 30% of the interviewed staff had positive response regarding supervisor's instructions whenever pressure appears at work [5].

The main area of strength revealed in the current study is organizational learning, a bright area of 75% positivity meaning that, there is a learning culture when mistakes are disclosed. A similar finding have been reported among Iranian nursing staff with 67% positive responses regarding organizational learning [7]. Also organizational learning positivity of 75.9% is reported among hospital staff in Riyadh, Saudi Arabia [8].

Regarding Non-punitive response to errors dimension, 44% of the participants felt that their mistakes are held against them and 73.8% worry

that mistakes they make are kept in their personnel file. These results are not encouraging. Similarly, in communication openness dimension's positivity was as low as 21.83%. Though 70.2% of the participants reported that they are informed about errors that happen in this unit, more than one third (34.5%) said that they are not given feedback about changes put into place based on event reports. One of the most important priority in patient safety culture is to learn from what went wrong and make sure the mistake was never repeated. The Objectives are not going to meet unless the root cause and preventive measures reaches the user end. Majority (76.2%) reported that staff don't feel free to question the decisions or actions of those with more authority. Only 40.5% reported that they will freely speak up if they see something that may negatively affect patient care. This is in agreement with study done in Netherlands involving 583 staff members in four general hospitals, where a positive response of only 34% was reported for this dimension [9].

Table 1: Response to unit level aspects of patient safety culture

Items	Neutral (%)	Positive response (%)	Negative response (%)
Teamwork within units			
People support one another in this unit.	7.1	83.3	9.5
When a lot of work needs to be done quickly, we work together as a team to get the workdone.	7.1	85.7	7.1
In this unit, people treat each other with respect.	4.8	90.5	4.8
When one area in this unit gets really busy, others help out.	9.5	64.3	26.2
Staffing			
We have enough staff to handle the workload.	13.1	67.9	19
Staff in this unit work longer hours than is best for patient care.	25	8.3	66.7
We use more agency/temporary staff than is best for patient care.	28.6	56	15.5
We work in "crisis mode" trying to do too much, too quickly.	4.8	3.6	91.7
Supervisor/manager expectations & actions promoting patient safety			
My supervisor/manager says a good word when he/she sees a job done according toestablished patient safety procedures.	17.9	54.8	27.4
My supervisor/manager seriously considers staff suggestions for improving patient safety.	21.4	53.6	25
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if itmeans taking shortcuts.	28.6	45.2	26.2
My supervisor/manager overlooks patient safety problems that happen over and over.	17.9	4.8	77.4
Organizational learning - continuous improvement			
We are actively doing things to improve patient safety.	3.6	86.9	9.5
Mistakes have led to positive changes here.	9.5	85.7	4.8
After we make changes to improve patient safety, we evaluate their effectiveness	10.7	86.9	2.4
Non-punitive response to errors			
Staff feel like their mistakes are held against them.	41.7	14.3	44
When an event is reported, it feels like the person is being written up, not the problem.	23.8	24.2	52
Staff worry that mistakes they make are kept in their personnel file	23.8	2.4	73.8
Feedback & Communication About Error			
We are given feedback about changes put into place based on event reports.	27.4	38.1	34.5
We are informed about errors that happen in this unit.	20.2	70.2	9.5
In this unit, we discuss ways to prevent errors from happening again.	20.2	67.9	11.9
Communication Openness			
Staff feel free to question the decisions or actions of those with more authority	17.9	6	76.2
Staff will freely speak up if they see something that may negatively affect patient care.	25	40.5	34.5
Staffs are afraid to ask questions when something does not seem right.	48.8	19	32.1

Hospital level aspects of patient safety culture

Table 2 shows response to hospital level aspects of patient safety culture. Items 10, 11, and 12 of table 4 shows the composite scores of positivity towards hospital level aspects of patient safety culture. The composite scores for all the three dimensions was found to be low and the lowest composite score was found to be for handoffs & transitions and highest for team work across units.

In the present study, the positivity for team work across unit was found to be only 39.78percentage. The percentage of positive response for all the three items of tem work across unit dimension was less than 50%. Compared to the present study findings, Ghobash MM et al (63%)[5] and El-jardali F et al. [6] (56%) found a higher percentage of positivity for team work across units.

Out of all, 72.6% of the participants reported that things "fall between the cracks" when transferring patients from one unit to another and 44% revealed that shift changes are problematic for patients in this hospital. Loss of important patient care information during shift changes were reported by 25% of participants.This is particularly important because previous evidence by Hendrich AL et al have found that some nursing units may "transfer or discharge 40% to 70% of their patients every day", thereby illustrating the frequency of handoffs encountered daily and the number of possible breaches at each transition point [10]. Similar findings have been reported among doctors and nurses while examining communication patterns. They found that thirty one percent of communication exchanges involved interruption, translating into roughly 11 interruptions an hour for physicians and nurses [11].

The other concerning dimension revealed in the present study setting is the perception of management support for patient safety. Out of all, 71.4% perceived that hospital management is interested in patient safety only after an adverse event happens and 44% reported that actions of hospital management does not show that patient safety is a top priority. Only 35.7% reported that hospital management provides a work climate that promotes patient safety. This means that these dimensions need attention and corrective actions. Despite being accountable for the quality and safety of care being provided in their organizations, the leadership at most hospitals placed relatively little emphasis on identifying and addressing safety issues. Goeschel CA et al in a surveyconducted among more than 700 board chairs found that fewer than half rated quality as one of their top two priorities. Few board chairs reported any dedicated training in quality, and large differences were present between board activities in high-performing versus low-performing hospitals [12].

Table 2: Response to hospital level aspects of patient safety culture

Items	Neutral (%)	Positive response (%)	Negative response (%)
Teamwork across units			
There is good cooperation among hospital units that need to work together.	24.2	47.2	28.6
Hospital units work well together to provide the best care for patients.	13.1	46.4	40.5
It is often unpleasant to work with staff from other hospital units.	17.5	40.5	42.1
Handoffs & Transitions			
Things "fall between the cracks" when transferring patients from one unit to another.	9.5	17.9	72.6
Important patient care information is often lost during shift changes.	39.3	35.7	25
Problems often occur in the exchange of information across hospital units.	36.9	44	19
Shift changes are problematic for patients in this hospital	31.7	24.2	44
Management Support for Patient Safety			
Hospital management provides a work climate that promotes patient safety.	14.3	35.7	50
The actions of hospital management show that patient safety is a top priority	15.5	40.5	44
Hospital management seems interested in patient safety only after an adverse event happens	9.5	19	71.4

Outcome measures of patient safety culture

Table 3 shows the percentage of response to outcome measures of patient safety culture. Items 6 and 9 of table 4 indicate the composite percentage of positivity of outcome measures. Though majority of the participants indicated the presence of patient safety problems in their unit (67.9%) and believe that it is just by chance that more serious mistakes don't happen (76.2%),only 40.5% reported that hospital procedures and systems are good at preventing errors from happening. The composite positivity score for the overall perception of patient safety dimension in the present study was also found to be low (32.73%). GhadaAbdelsalam Ahmed Eldeehavefound similar findings in a study conducted among nurses as majority of nurses (57.9%) perceived low patient safety[13]. Study by Ghobashi MM et al. [5] while assessing the patient safety culture in primary health care settings in Kuwait have found that 69% of participants claimed that patient safety is never sacrificed to get more work done and 67% claimed that the systems are good at preventing errors from happening. On the other hand 53% and 55% respectively responded positively regarding that it is only due to chance that serious mistakes don't happen and having no patient safety problems in the unit.[5] In addition, Ammouri et al. (2014), have reported that nurses who perceived more supervisor/manager expectations, more feedback and communications about error, more teamwork across hospital units, and more hospital handoffs and transitions had more overall perception of patient safety [14].

In the present study, the positivity for the event reporting of mistake was found to be less than 50% except for reportingerrors that could harm the patients. This is a pathological culture as this will obstruct the possibility of learning from error.More than half of nurses (68.4%, 63.2% & 60.5%) do not formally report adverse events whether a mistake is made but there is no any potential to harm the patient or a mistake caught and corrected before affecting the patient even if the mistake could harm the patient respectively. Inconsistently, Ross reported that nurses discovered more than 90% of potential medication errors prior to administration [15]. Perhaps, fear of punishment in the current study setting is the cause.

Table 3: Response to outcome measures of patient safety culture

Items	Neutral (%)	Positive response (%)	Negative response (%)
Overall Perceptions of Patient Safety			
It is just by chance that more serious mistakes don't happen around here	13.1	10.7	76.2
Patient safety is never sacrificed to get more work done	22.6	69	8.3
We have patient safety problems in this unit.	21.4	10.7	67.9
Our procedures and systems are good at preventing errors from happening.	19	40.5	40.5
Frequency of Events Reported			
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	22.6	47.6	29.8
When a mistake is made, but has no potential to harm the patient, how often is this reported?	40.5	33.3	26.2
When a mistake is made that could harm the patient, but does not, how often is this reported?	26.2	58.3	15.5
Hospital units do not coordinate well with each other.	15.5	25	59.5

Table 4: Composite scores for dimensions of patient safety culture for all participants (n = 252)

Patient safety culture dimensions	Composite score (%)
Teamwork within units	80.95
Staffing	33.95
Supervisor/manager expectations & actions promoting patient safety	39.6
Organizational learning - continuous improvement	86.5
Non-punitive response to errors	13.63

Patient safety culture dimensions	Composite score (%)
Overall perceptions of patient safety	32.73
Feedback & communication about error	58.73
Communication openness	21.83
Frequency of events reported	46.4
Teamwork across units	39.78
Handoffs & transitions	30.45
Management support for patient safety	31.73

Frequency of events reported

Figure 1 reveals the frequency of error reported in last one year by the nurses. It was alarming that 82.1% of the participants never reported any events or patient safety incidents in the last one year. Out of all, only (1.2%) of participants each reported 3-5 and 6-10 events while 15.5% reported 1-2 events.

Several surveys asked nurses to estimate how many and what types of errors were reported by colleagues and themselves. There was significant variation when nurses were asked to estimate how many errors were reported. Respondents in one survey estimated that an average of 45.6 percent of errors was reported [16]. Another multicentric study of medication errors in 29 rural hospitals found that less than half of nurses believed that all medication errors were reported [17], while another study found significant underreporting as only 44 percent of nurses estimated that 25 percent of medication errors were reported [18].

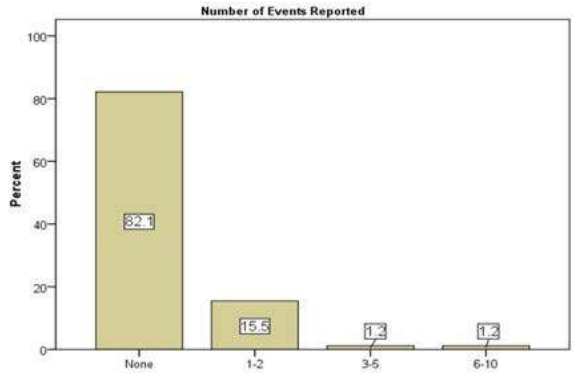

Fig. 1: Frequency of error reported in last one year

Overall perception of patient safety

Perception of patient safety grade showed that most (65.5%) of the participants perceived patient safety grade as acceptable while only 8.3% perceived as excellent (Figure 2).

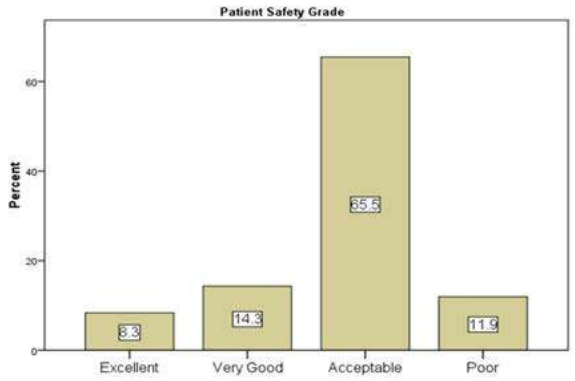

Fig. 2: Overall perception of patient safety grade among nurses

Similar findings were seen by Balamurugan E et al among nurses working in a tertiary care hospital, South India. Patients' safety grade was reported to be excellent only by 12.7% of nurses, whereas majority reported the patient safety action to be only acceptable (31.9%) [19].

Recommendations

- Encourage voluntary reporting of adverse events. Reporting can be increased through a confidential, dependable, un-biased and a user friendly reporting system. Advocacy and motivation of staff in reporting adverse events along with a good reporting system will create a reporting culture in the hospital. If errors are not reported, there is a chance of repeating errors and new errors may take place. In addition to the corrective action steps should be taken to counteract possible errors in the future.
- Reporting of adverse events should be backed by non-punitive response to errors. Staff should feel free and confident to make error reporting. Errors should be seen as opportunities to learn. Create a learningculture by changing the management and supervisors attitude towards the errors reported. Protect reporting systems/ individuals from being used in litigationand respect the indivdual's right to confidentiality when reporting errors. That is not to say that individuals should never be held accountable for their actions. However, relying on the blame approach alone is likely to drive problems underground and impede an honest and effective strategy to improve patient safety. Errors, per se, present a learning opportunity and one goal should be the chance for open discussion and investigation to remove the cause(s) of an error from the system.
- A system with, only reporting culture and non-punitive response to errors is incomplete. There should be a proper communication and feedback method. The low percentage of positive response to communication and feedback shows there is a gap in the current system. This gap should be minimized as much as possible for smooth functioning of the service.
- Unwillingness of the administration to accept their responsibility for system deficiency and allocation of resources to prevent errors.Make patient safety and error reduction a policy of prime importance by proactively identifying,

promptly recognizing the root cause and designing systems to prevent their recurrence. Allocate enough recourses and funds to support error prevention, remedy and develop safety culture.

- Staff, do not seem to have confidence on the supervisors and management.Hospital management and leadership can indirectly influence quality and safety not only through strategic initiatives, but also directly through direct interactions with frontline workers, leadership walk rounds, and ensuring transparency.
- Enhanced teamwork by interprofessional and multiprofessional cooperation, collaboration between units is important for patient safety improvement.Team work across the hospital units scored less positive responses. This could be addressed by designing strategies to promote interdepartmental and interprofessional coordination and collaboration.
- The analysis indicated that there is a shortage of staff in the hospital and health care providers are overworked. This can have a negative effect on the quality of care given and in turn on the safety of the patients. Staff shortage can be overcome by designing a proper recruitment plan for staff and sing working environment.
- Ensure recommended nurse-patient ratio. Nurses' vigilance at the bedside is essential to their ability to ensure patient safety. Assigning increasing numbers of patients eventually compromises nurses' ability to provide safe care. Several studies have demonstrated the link between nurse staffing ratios and patient safety, documenting an increased risk of patient safety events, morbidity, and even mortality as the number of patients per nurse increases.

Conclusion

As front-line providers, nurses often stop errors, feel powerless to stop errors, make errors, and at times blamed for errors they did not commit. Errors cannot beignored in healthcare. Identification, analysis, correction, prevention can make a long way in improving patient safety. Error reporting should be viewed as a strategy to learn from mistakes and an initial step to create patient safety culture. So the results of the present study findings suggests the need and attention by the organizational leaders to take specific actions to enhance safety within their institutions by improving communication, teamwork, error reporting and response to errors.

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