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Application of Patient safety culture tool to understand the perception of Healthcare staff in comparison to the AHRQ data base hospitals with a tertiary care teaching hospital.

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ABSTRACT: The objective of the study to compare the perceptions of the different healthcare staff at a tertiary care teaching hospital, Hyderabad, India in comparison with the healthcare staff registered in AHRQ database Hospitals. It also examines to identify the deficient services and strengths in comparison to the perceptions of the AHRQ database Hospitals and provide the opportunity to develop organization culture within the Hospitals to improve patient safety using Hospital Survey on Patient Safety Culture (HSOPSC) developed by AHRQ

KEYWORDS: Patient Safety Culture, Organization Culture, AHRQ,HSOPSC

I. INTRODUCTION

Patient safety is one of the most critical components to quality healthcare and organizations strive to improve their quality of care, there is a growing recognition of the importance of establishing a culture of patient safety and transforming organizational culture in order to improve patient safety. Growing interest in safety culture has been accompanied by the need for assessment tools focused on the cultural aspects of patientsafety[1]

As per study report by the Institute Of Medicine, USA, the magnitude of the harm done by preventable errors is quite alarming. At least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented, according to estimates from two major studies[2]. The Fifty-fifth World Health Assembly passed a resolution "WHA55.18 "in May 2002,which called upon Member States to "pay the closest possible attention to the problem of patient safety and to establish and strengthen science-based systems necessary for improving patient safety and quality of care."[3] Pressed with this consideration, in October 2004, WHO launched the World Alliance for Patient Safety[3].. Classen and colleagues (2011) have reported that adverse events occurred in one third of hospital admissions, with varying degrees of severity[4]

As Pronovost[4] said improving patient safety starts by assessing the patient safety culture. In this study Patient Safety Culture (HSOPSC)[5] tool has been used to assess the patient safety culture of hospital units. HSOPSC was first introduced by the Agency of Healthcare Research and Quality (AHRQ) in America. Hindi .Significant work still needs to be done in the sampled organization and in the context of the region in general to improve patient safety practices and culture.[6]

Ballangrud,[7] studied highlighted required for improvements are in the ICUs include incident reporting, 'feedback and communication about errors', and 'organizational learning". Kho[8] highlighted the importance of teamwork across units in ensuring a positive safety culture.. Scherer[9] compared the perceptions of physicians and nurses in the perioperative area, and suggested the safety culture dimensions of "supervisor/manager expectations and actions promoting safety" and "feedback and communication about error" had significant room for improvement. Hoffmann conducted an open randomized controlled trial and evaluated the effects on patient safety culture in general practice

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II. Methodology

Study design

A cross sectional prospective study among 314 staff members through stratified randomly selected with a structured questionnaire with data collection period of 3 months

Sample selection

The study was conducted among the staff which includes doctors, residents, nurses & internees accounting to nearly 1698. A total sample size of 314 was obtained through Rao software assuming with response rate of 50% with 95% confidence level and 5 % of margin of error .Sample includes all the healthcare staff(doctors, nurses ,technicians, pharmacist etc;) involved in patient safety either directly or indirectly

The present study investigate the perceptions of patient safety in different group of health care providers working at Nizam's Institute of Medical Sciences, a renowned tertiary care Apex teaching hospital in Hyderabad .The bed occupancy of the hospital averagely account to 85% to 90% for 1165 beds and OPD of 1200-1500 patients /day.

Survey Tool

The investigation instrument was a HSOPSC developed by Agency of Healthcare Research & Quality (AHRQ) in 2004 as a patient safety culture assessment tool. To make the participants understand it, the questionnaire was translated into Local languages "Telugu" and "Hindi" if required, before giving out to the respondents. Translations were conducted by author itself. Readability and functionality of the questionnaire was pilot-tested on several health care workers and research personnel to ensure that the concepts were correctly worded and conceptualized.

. The HSOPSC includes 12 dimensions (a total of 42 items) that indicate the perceptions of patient safety culture. Each dimension contains 3 or 4 items .Every item is measured by a 5-point Likert scale where 5 denotes strongly agree and 1 denotes strongly disagree

Data collection

A stratified random sampling(N=314) method was used and all the personnel who got selected were contact personally and the volunteered healthcare staff was given paper survey tool and 1 week time was given to record their responses.

Statistical Analysis

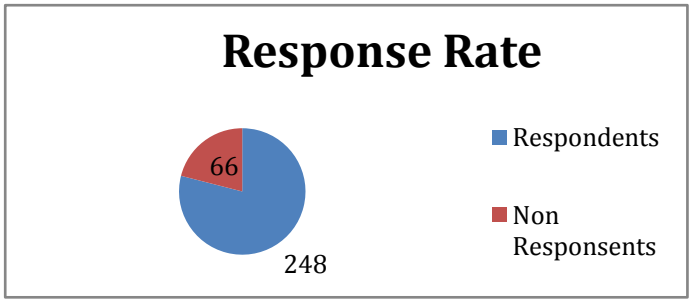
Collected data was entered into Hospital Survey tool 1.6-v2 Microsoft Excel spreadsheets provide by AHRQ and were analyzed using descriptive and inferential statistics.. Research Hypothesis were formulated and statistically tested using appropriate statistical test with a significance level to reject the hypothesis of p-value as less than 0.05 at 95% confidence level, using SPSS tool

Ethics

Ethical approval was obtained from NIMS Institutional Ethics Committee prior to commencement of the study. No respondent will be forced to participate in the study. The full details of the study will also be discussed with them before they answer the survey questionnaire. To ensure that ethical principles are followed, the researcher will in no way influence the answers of the respondents. They will only answer questions on items the respondents have trouble with. Furthermore, there will be no harm done to the respondents as they will not be subjected to treatment or trials that may jeopardize their lives. The research only requires that they answer truthfully and completely. Another consideration is that the names of the respondents will not be asked nor if ever stated, be disclosed. Along with the survey tool informed consent will be obtained and returned responses were with identification marks. The author promises and ensures that there will be no plagiarism, false documentation, multiple publication

III. Results

A Out of 1698 of healthcare staff workingat NIMS, Hyderabad 314 were selected through systematic stratified random sampling method and 248(79%) responses were received .As the response rate was above 50 % the sample selected response rate is validated



Area wise Response participation is shown below

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Table 1

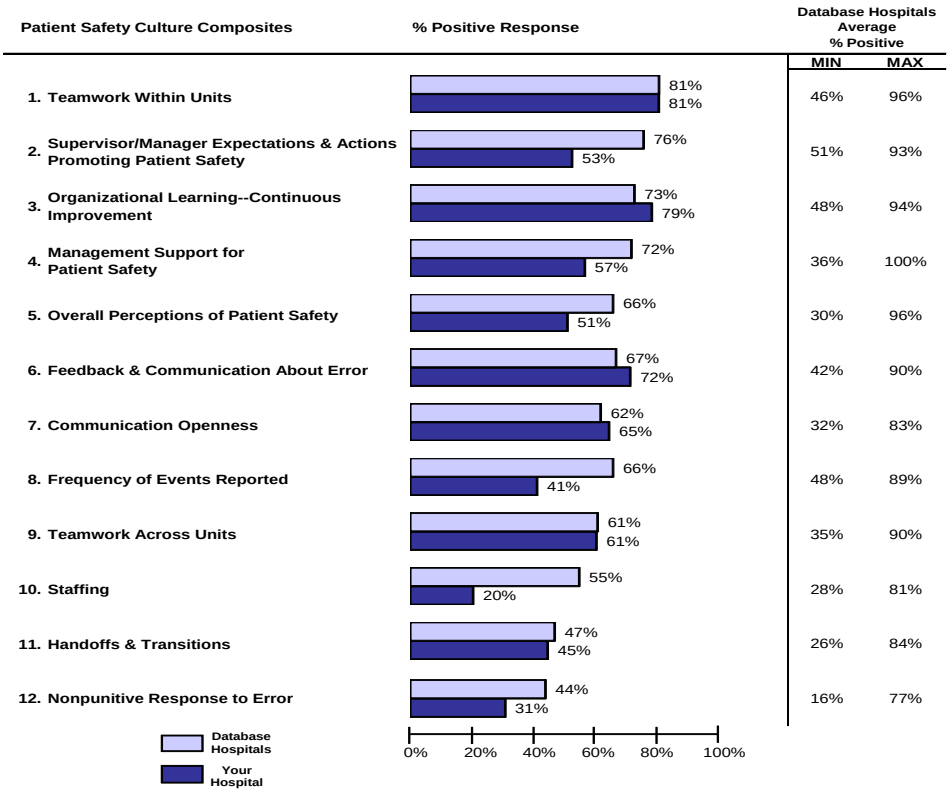
Work Area/Unit (Survey Item: Ai)	N	%
Many different units / No specific unit	28	11%
Medicine (non-surgical)	56	23%
Surgery	48	19%
Emergency department	10	4%
Intensive care unit (any type)	37	15%
Pharmacy	5	2%
Laboratory	32	13%
Radiology	11	4%
Anesthesiology	8	3%
Other	12	5%
Missing	1	0.4%
Total	248	100%

Depending upon the survey results, the data collected was compared to the AHRQ data base Hospitals and chisquare test was done with the average positive response rate between two groups at composite levels and item levels with Null hypothesis projection that there is no significant relation between two groups with P value >0.05 while P value <0.05 the Null hypothesis rejected and there is significant difference between the two groups in their perception regarding that composite developed by AHRQ

Composite level Comparitive Results for Nizams Institute of Medical Sciences with restive data base hospitals of AHRQ

Table 2

Composite-Level Comparative Results for NIZAMS INSTITUTE OF MEDICAL SCIENCES



Note: 1) Composite scores are not calculated when any item in the composite has fewer than 3 respondents; 2) Comparative results are based on data from 653 hospitals included in the Hospital Survey on Patient Safety Culture 2014 Comparative Database Report.

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Table 3

Composite and item level positive Response rate of staff towards each component

SL No	Composite	Item level	Data Base Hospitals	NIMS	Data Base Hospitals	NIMS	Df	Table Value	Calculated Value	P Value	Remark
1	**TEAM WORK WITHIN UNITS**				81%	81 %					
	A1	1. People support one another in this unit.	86 %	85 %			3	7.81	2.29	0.513	Not Significant
	A2	2. When a lot of work needs to be done quickly, we work together as a team to get the work done.	86 %	87 %							
	A3	3. In this unit, people treat each other with respect.	80 %	93%							
	A11	4. When one area in this unit gets really busy, others help out.	71 %	58 %							
2	**SUPERVISOR/MANAGER EXPECTATIONS &ACTIONS PROMOTING SAFETY**				67%	72 %					
	B1	1.My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.	75 %	84 %			3	7.81	39.1	<0.00001	Significant
	B2	2.My supervisor/manager seriously considers staff suggestions for improving patient safety.	77 %	79%							
	B3R	3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts.	75 %	24 %							
	B4R	4. My supervisor/manager overlooks patient safety problems that happen over and over.	77 %	24%							
3	**ORGANIZATION LEARNING - CONTINOUS IMPROVEMENT**				47%	45 %					
	A6	1. We are actively doing things to improve patient safety.	84 %	88 %			2	5.99	0.357	0.837	Not Significant
	A9	2. Mistakes have led to positive changes here.	64 %	75 %							
	A13	3. After we make changes to improve patient safety, we evaluate their effectiveness.	71%	73 %							
4	**MANAGEMENT SUPPORT FOR SAFETY**				72%	57 %					
	F1	1. Hospital management provides a work climate that promotes patient safety.	81 %	67 %			2	5.99	2.695	0.26	Not Significant
	F8	2. The actions of hospital management show that patient safety is a top priority.	75 %	68 %							
	F9R	3.Hospital management seems interested in patient safety only after an adverse event happens.	61 %	36 %							

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5	**Overall Perceptions of Patient Safety**				66%	51 %					
	A10R	1. It is just by chance that more serious mistakes don't happen around here.	62 %	14%			3	7.81	31.35	<0.00001	Significant
	A15	2. Patient safety is never sacrificed to get more work done.	64 %	72 %							
	A17R	3. We have patient safety problems in this unit.	65 %	38%							
	A18	4. Our procedures and systems are good at preventing errors from happening.	75%	81%							
6	**FEEDBACK AND COMMUNICATION ERROR**				67%	72 %					
	C1	1. We are given feedback about changes put into place based on event reports.	59 %	61%			2	5.99	0.105	0.949	Not Significant
	C3	2. We are informed about errors that happen in this unit.	67%	75 %							
	C5	3. In this unit, we discuss ways to prevent errors from happening again.	73 %	78%							
7	**Communication Openess**				62%	65 %					
	C2	1. Staff will freely speak up if they see something that may negatively affect patient care.	76 %	69 %			2	5.99	3.55	0.16	Not Significant
	C4	2. Staff feel free to question the decisions or actions of those with more authority.	48 %	67 %							
	C6R	3. Staff are afraid to ask questions when something does not seem right.	63%	58 %							
8	**Frequency of Events Reported**				66%	41 %					
	D1	1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	60%	53 %			2	5.99	5.06	0.08	Not Significant
	D2	2. When a mistake is made, but has no potential to harm the patient, how often is this reported?	62 %	33%							
	D3	3. When a mistake is made that could harm the patient, but does not, how often is this reported?	75 %	38 %							
9	**TEAM WORK ACROSS UNITS**				61%	61 %					
	F2R	1. Hospital units do not coordinate well with each other.	48%	63%			3	7.81	16.13	0.001	Significant
	F4	2. There is good cooperation among hospital units that need to work together.	62%	71%							
	F6R	3. It is often unpleasant to work with staff from other hospital units.	65%	28%							
	F10	4. Hospital units work well together to provide the best care for patients.	71%	81%							
10	**STAFFING**				55%	20 %					

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	A2	1. We have enough staff to handle the workload.	54 %	22 %			3	7.81	31.49	<0.00001	Significant
	A5R	2. Staff in this unit work longer hours than is best for patient care.	52%	6 %							
	A7R	3. We use more agency/temporary staff than is best for patient care.	66%	49%							
	A14R	4. We work in "crisis mode" trying to do too much, too quickly.	50%	5%							
11	**HANDSOFFS & TRANSITIONS**				47%	45 %					
	F3R	1. Things "fall between the cracks" when transferring patients from one unit to another.	43	18			3	7.81	11.05	0.011	Significant
	F5R	2. Important patient care information is often lost during shift changes.	53	64							
	F7R	3. Problems often occur in the exchange of information across hospital units.	46	46							
	F11R	4. Shift changes are problematic for patients in this hospital.	47	50							
12	**Non Punitive Response to Error**				44%	31 %					
	A8R	1. Staff feel like their mistakes are held against them.	50	24			2	5.99	6.35	0.04	Significant
	A12R	2. When an event is reported, it feels like the person is being written up, not the problem.	48	49							
	A15R	3. Staff worry that mistakes they make are kept in their personnel file.	35	20							

Table 4

SL No	Composite	Data Base Hospitals	NIMS	Df	Table Value	Calculated Chisquare Value	P Value	Remark
1	**TEAM WORK WITHIN UNITS**	81%	81%	11	19.68	23.76	0.014	Significant
2	**SUPERVISOR/MANAGER EXPECTATIONS &ACTIONS PROMOTING SAFETY**	76%	53%					
3	**ORGANIZATION LEARNING - CONTINOUS IMPROVEMENT**	73%	79%					
4	**MANAGEMENT SUPPORT FOR SAFETY**	72%	57%					
5	**OVERALL PERCEPTION OF PATIENT SAFETY**	66%	51%					
6	**FEEDBACK AND COMMUNICATION ERROR**	67%	72%					
7	**COMMUNICATION OPENESS**	62%	65%					
8	**FREQUENCY OF EVENTS REPORTED**	66%	41%					
9	**TEAM WORK ACROSS UNITS**	61%	61%					
10	**STAFFING**	55%	20%					
11	**HANDSOFFS & TRANSITIONS**	47%	45%					
12	**NON PUNITIVE RESPONSE TO ERROR**	44%	31%					

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The percentage positive response for the composite "team work within units" is highest for both Data base hospitals (81%) and NIMS (81%) which signifies that most of the hospitals in Data base hospitals agreed that the team work within units has high satisfaction which implies good sign for the hospitals. The lowest positive response for composite for data base(44%) hospitals was "Non punitive response to error" and for NIMS(20%) was "staffing".As there was low positive for response for "staffing " composite ,NIMS hospital should ensure sufficient measures to increase the staff to reduce the stress on the current staff which could hamper the patient care

There were 12 composites in HSOPSC tool developed by AHRQ and each composite contains 3-4 item level parameters hence Null hypothesis was established for each composite that there is no significant difference between any two composites when compared to the AHRQ data base hospitals perception and NIMS Hospital staff perception. Depending upon the percentage positive response of the staff respondent for the survey chi square analysis was between these two groups results obtained. Upon calculation it was observed that out of twelve composites nearly six composites "p value" were <0.05 hence it implies that there is significant difference between the perception of the healthcare staff of AHRQ data base hospitals and NIMS staff, the composite with "p<0.05" are as follows ,(2) Supervisor/Manager Expectation and Actions promoting safety[p <0.00001],(5)overall perception of the patient safety[p <0.00001],(9)Team work across units[p <0.001],(10)staffing[p <0.00001], (11)hands off and transitions [p <0.011] (12)Non punitive response to error[p <0.04]. To understand the overall perception of health care staff between the two groups the average positive response of each composite was calculated and chisquare analysis was done for whole 12 composite to reject the hypotheis with p <0.05. it was observed the for all the 12 composite the p value 0.014(<0.05) indicates that there is significant difference in the perception of the healthcare staff working in AHRQ data base hospitals and NIMS staff

IV.CONCLUSION

The primary purpose of the study is to incorporate the importance of patient safety culture in the minds of the healthcare staff & management. There no specific tool to measure the Patient Safety Culture hence the author preferred to choose HSOPSC tool developed by AHRQ which is followed by nearly 653 hospitals which would help to compare the perception of the health care staff with data base hospitals .All the healthcare who participated in the survey appreciated the questionnaire tool as it contain 12 composites which also considers to identify the parameters which indirectly involves the patient safety along with direct patient care. It was observed that out 12 composites of tool, the staff of NIMS hospital had same perception as that of data base hospitals like ['team work within units' 'organization learning – continuous improvement' 'Manager support of the safety' 'Feedback and Communication error', 'Communication openness'].it implies the regarding the above composite perception of both groups is similar with more positive response in data base hospitals compared to NIMS.while there is significant difference in perception in other six composites like ['Supervisor/Manager expectation and their action promoting safety ' 'overall perception of patient safety ' 'team work across units' 'staffing' 'handsoff and transitions' 'Non punitive response to error'] . the overall perception of the two groups was highly significant which denotes the two groups had significant difference of opinion for the variables included in HSOPSC tool.the overall response of the healthcare staff at NIMS had less positive response compare to AHRQ data base hospitals in most of the variables especially with low positive in 'staffing(20%)', 'Non punitive response to error'(31%)& Frequency of events reported(41%) .The management of the institute must active involve in improving the item levels related to the above mentioned composite for improving the patient safety culture within the organization.

Limitations of the study

1. Database hospitals of AHRQ are mainly from nonteaching (63 percent) and non–government owned (79 percent), while NIMS is an autonomous government teaching hospital.
2. AHRQ database hospitals were from developed nation USA, while NIMS is in developing country (INDIA).
3.the sample size of the two groups greatly varies 405,281of data base hospitals to 248 respondents in NIMS

Recommendations

The study has highlighted the various shortcomings in the patient safety which necessitates the need to conduct education programs regarding importance of safety measures to incorporate the culture of

patient safety in the institute. A post induction study can be conducted every year to find out the trending results in patient safety culture of the Institute. Scope for further study may require to identify perception among Doctors,Nurses, and technicians and also work area wise to understand the areas of improvement and engage the key stake holders for training and sensitization about importsnce of patient safety.

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