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Original Article

A study of assessment of patient safety climate in tertiary care hospitals



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ABSTRACT

Background: Medical errors are being detected with increasing frequency in healthcare environment, in many cases leading to patient harm. Measurement and improvement of patient safety climate has been identified as a strategic effort towards addressing this vital issue.

Method: Safety Attitude Questionnaire (SAQ), validated by previous research was administered to 300 respondents in three tertiary care hospitals of India, the respondents representing various categories of healthcare workers and variations in safety scale score was analyzed by various statistical tools.

Results: No variation was observed in the Patient Safety Index score among the study hospitals. However, significant variations were observed among different categories of healthcare workers across dimensions of Teamwork, Perception of Management and Stress Recognition. Multiple Regression models identified Teamwork and Perception of Management to have significant correlation with Patient Safety Index Score.

Conclusion: Patient Safety Climate can be effectively assessed and such assessment utilized for focused improvement efforts towards safety in healthcare organizations.

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Introduction

Hospitals provide care in a complex, dynamic environment with its focus on delivering patient care in a resource constrained competitive market. Modern medical care involves

quick decision making by health care professionals with risk of errors being committed in such circumstances and sometimes, a possibility of unintentional harm to a patient. Medical errors are being detected with increasing frequency, such errors causing 44,000–98,000 deaths annually in hospitals of

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USA – more than that caused by car accidents, breast cancers or AIDS.¹

Safety is a fundamental principle of patient care, involving a broad range of actions in performance improvement, environmental safety and risk management including infection control, safe use of medicines, equipment safety, safe clinical practice and safe environment of care. Several International organizations like the Institute of Medicine, USA and The Joint Commission are urging health care organizations to address patient safety through safety culture surveys and appropriate quality interventions following such surveys.²

The current focus on measuring and improving patient safety in hospitals has brought to the fore the concept of safety culture that includes shared beliefs, values, norms and behavioral characteristics of the hospital staff.³ Relative difficulty in measuring several non-tangible components of safety culture has led to a shift towards evaluating patient safety climate, patient safety climate being the measurable component of safety culture.⁴

Very few research or publications exist on the vital issue of patient safety or safety culture in India, as observed during search of several medical database. The present paper aims to explore composite patient safety climate followed by further enquiry into various dimensions of patient safety climate in three large multi-speciality tertiary care hospitals located in major metropolitan cities of India towards identifying future directions for developing a strong safety climate.

Materials and method

The study had an observational, cross-sectional design and was conducted over a period of six months in the clinical care areas of three large tertiary care hospitals located in different metropolitan cities of India, clinical area being recognized as the study areas of interest. All the three hospitals are similar in their role, capacity, bed complement and staff-mix and thus considered suitable for the study.

The study instrument used for the study to generate safety climate profile of the study hospitals was the self-administered Safety Attitude Questionnaire (SAQ), the instrument being developed by the University Of Texas and widely utilized in the health care environment. The psychometric properties of the instrument had been repeatedly validated and confirmed for application in hospitals.^{5,6} An additional reason for utilizing the instrument is accumulating evidence of SAQ eliciting provider attitudes responsive to improvement interventions.⁷

The study instrument was suitably modified to a 46 item questionnaire, retaining all the essential questions of the SAQ Ambulatory Version. The modified instrument was thoroughly scrutinized by five domain experts for its content validity. The modified SAQ used for the study is a single page questionnaire and takes 15–20 min for completion. Each of the 46 items is answered using a five point Likert scale. The instrument measures patient safety climate along six dimensions, namely Team work climate (ten items), Job satisfaction (five items), Safety climate (sixteen items), Stress management (five items), Working conditions (five items) and Perception of recognition (five items). SAQ items score reflect

the level of agreement of the respondents with individual item statements and both multi-dimensional and hospital wise composite scale scores can be generated for suitable analysis.

A pilot study was initially carried out at one of the study hospitals and calculation of sample size was obtained at a sample of 300. Therefore, the study instrument was administered to 100 respondents for each hospital (clinician, post-graduate residents, nurses and para-medical workers), the respondents being selected by a procedure of stratified random sampling with the strata being that of operationally similar tertiary care hospitals in three different cities of India and different categories of healthcare workers to be found in teaching hospitals. At least three months of exposure to their current clinical area was adopted as inclusion criteria for the study and similar representation of the staff-mix was maintained in all study hospitals. All collected data was entered in electronic spreadsheet and suitably formatted for statistical analysis using MINITAB version 16 statistical software, statistical significance being defined as $p < 0.05$.

Patient Safety Climate composite scale score (PSC Index) was calculated for individual respondents by taking the average of scaled items, whereas results at the level of hospitals and category of healthcare workers was calculated by arriving at composite mean scores for individual hospitals and staff category. Composite mean values of the study hospitals as well as different category of healthcare workers were compared for significant inter-unit and intra-unit variability by using ANOVA. Subsequently, ANOVA was also utilized for testing inter-unit variability across each of the six scale dimensions of SAQ. Similarly, Mann–Whitney U test and ANOVA was undertaken for testing multi-dimensional variability among different category of healthcare workers operating in the study hospitals.

Finally, Multiple Regression and Co-relation analysis was performed to understand strength of correlation of the scale safety climate dimensions as independent variables with the composite scale score for identifying suitable improvement interventions.

Results

The study was conducted in three large tertiary care hospitals, the survey instrument being exercised on 100 respondents per hospital. The response rate for the questionnaire was 100%, each respondent being followed up by co-workers of the study for assured response to the study instrument.

The respondents were divided among various categories of healthcare workers, post-graduate residents forming the largest contributors with 32% of total respondents. 56% respondents were male while 44% were females, the healthcare workers being dispersed across different shift of duties in the study hospitals. The respondents belong to different age groups with 65% of them below 35 years and 71% being in the service bracket of 1–10 years (Table 1).

Any variation in safety climate composite scale score (PSC Index) among the study hospitals was assessed by ANOVA, such variations being observed to be non-significant (Table 2). To further confirm the presence or absence of variations in PSC Index among study hospitals, multiple ANOVA tests were

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