Factors Affecting Patient Safety Culture In A Tertiary Care Hospital In Sri Lanka

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Abstract: - **Purpose** Patient safety is an important component of the quality of health care. As health care organizations improve their quality of care, importance of establishing patient safety culture arises. According to WHO, rate of adverse incidents of healthcare system is very high in developing countries. Sri Lanka, being a developing country, may encounter adverse events in healthcare system due to lack of infrastructure and equipment, quality and supply of drugs, poor performance of health care staff and severe shortage of essential financial investments. This will be helpful in patient safety improvements and developmental studies. **Methodology** This cross-sectional descriptive study was carried out to assess the current patient safety culture in a tertiary care hospital in Sri Lanka. This study was carried out using a self administered questionnaire with eleven dimensions of patient safety culture, on with 389 respondents including Administrators, Consultants, and Postgraduate trainees, Medical Officers, House officers and Nursing Officers. Pearson's correlation was used to assess the patient safety culture in the hospital by measuring correlation between overall patient safety and other independent variables. **Findings** This survey showed there is a positive response towards patient safety culture within the organization. Correlation between the overall patient safety and other variables are found to be significant. Prevailing patient safety culture seems to be in a reactive stage but, with strong "blame Culture'. **Originality/value**   This is a patient safety culture assessment, which was done in Sri Lanka, for the first time in government sector hospitals under developing country setting.

Key words: - Active failure, adverse events, blunt end, errors, latent failure, patient safety culture, patient safety perception, sharp end, reporting, non punitive,

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1 INTRODUCTION

Sri Lanka as a developing country may encounter with many adverse events which may be reported and may not be reported. As mentioned above this could be due to many reasons, being a developing country itself could be a reason for lack of safety culture in healthcare organizations. Necessity of initiating patient safety culture in our health care system and a compensation mechanism has been raised [38]. As in many counties in Sri Lanka, the number of malpractice litigations against care givers has increased dramatically [28]. In the recent past there were few cases which drew enormous attention nationally and internationally: "A 48-year-old mother alleged that her healthy leg was accidentally amputated at the Negombo Base Hospital. A 45-year-old mother reportedly died after receiving a transfusion of the wrong blood type at the same hospital. [9]. Due to this fact, health managers are pressurized by media, public and politicians to ensure the safety of patients. In April 1982, ABC Television net work in USA broadcasted "Deep Sleep" which awakened the health care providers as well as purchasers.

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They stated that 6,000 Americans die or suffer brain damage by anaesthetic accidents [43]. This moved the American Society of Anaesthesiologists to form the 'Anaesthesia Patient Safety Foundation' where for the first time in the world, the word called 'Patient Safety' was used. Similarly, Australian Patient Safety Foundation was formed in 1989 to address anaesthetic errors [8]. A study in Colorado, Utah and New York found that 2.9% to 3.7% of hospitalizations end up with adverse events [11]. Of these 6.6% in Colorado and Utah, 13.6% in New York led to death. Over half of these adverse events were preventable [26]. In 1997, out of 33.6 million admissions, 44,000 – 98,000 died due to hospital adverse events in United States [5]. These have made the 'death due to hospital adverse events' to be the eighth leading cause of death in USA [12]. 'To Err is Human; Building a Safer Health System' was an eye opener which highlighted that Patient Safety Culture is important. Patient Safety Culture is a relatively new concept in health management. Highly reliable health care providers have a patient safety culture incorporated in them. This brings down the number of adverse events and mistakes i.e. these organizations can carry out most risky procedures with very low hazard rate [25]. Organizational culture has been defined as "a complex framework of national, organizational and professional attitudes and values within which groups and individuals function" [23]. In health care, a number of quantitative measures of organizational culture have been developed, but differ in terms of their applicability, scope, and ease of use [39]. Typically, these instruments assess the values, attitudes, behaviors, and norms of organization members. They may also focus on perceptions of the organizational context such as managerial priorities, adequacy of training and resources, or policies and procedures [29]. Patient safety culture forms a subset of organizational culture relating specifically to the beliefs and values concerning health and safety within an organization [14]. In other words, safety culture reflects the "ability of individuals or organizations to deal with risks and hazards so as to avoid damage or losses and yet still achieve their goals" [36] In recent years, there has been growing

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recognition within health care of the importance of transforming organizational culture to improve patient safety. Major health care policy documents have openly acknowledged that there is a need to move away from the current "blame and shame" culture that prevents acknowledgement of errors and therefore obstructs any possibility of learning [16]. Patient safety can be defined as the prevention or reduction of adverse outcomes. Patient safety culture is defined as values, beliefs and assumptions within the members of an organization towards patient safety. Patient safety culture emphasizes the reporting, analysis and prevention of errors that lead to adverse health care events [2]. Now Sri Lankan hospital management has started to focus on patient safety culture in their health care facilities. It is vital to have a systematic, sustainable patient safety culture within an organization and monitor it regularly. This study was carried out to assess the prevailing patient safety culture before implementing.

2 Literature review

Safety culture assessments have been developed in a range of high risk industries [22]. In health care, assessments of safety culture have predominantly focused on the hospital setting, [34], [46] recent developments have resulted in tools aimed at assessing the prevailing safety culture in general practice too [22], [32]. Patient safety is a discipline in the health care sector, applies safety science methods to achieve goals to make a trustworthy system of health care delivery. Patient safety is an attribute of health care system; it minimizes the incidence and its impact, and maximizes the recovery from, adverse events. Safety is considered as a sub group of quality in health care [17]. In 1998, National Roundtable on Health Care Quality was formed by the Institute of Medicine. They categorized adverse events in quality of health care into three: under use, over use, and misuse. These are the preventable complications of treatment. Since the health system deals with an already compromised group of people and these preventable adverse events are wide spread which made patient safety a necessity in hospitals unlike other sectors. Moreover, there are standard protocols and guidelines to treat diseases. These cannot be used always even for the same disease, there are instances it has to be tailor made for each patient. Health care delivery deals with risk. Patient safety is to minimize this risk. A health system where patient safety is integrated into the system is trustworthy. It prevents preventable errors and near misses taking place through prior preparedness [17]. Patient safety also changed the shielding of professionals by the organization. It is not to cover up one's mistakes. Organizations were advised to be responsible and not to defend the mistakes even if they are justifiable. Organizations and persons should be accountable [17]. Experts have proposed different methods and mechanisms to achieve patient safety. Patient safety culture is defined as "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 safety management" [18],[21],[41]. When we compare the safety and reliability of health care, currently we are not providing the services that we can. One can see the necessity of change in health provider culture. Main change that should be done is to move from 'blame culture' to 'learning culture'. Any mistake is seen as an opportunity to improve by learning from it. This will motivate voluntary reporting of

adverse events [25]. Open communication is also one of the most important features in patient safety. This is the main source to learning from errors [17]. Well established patient safety culture importantly consists of six components. They are: Inform culture is willingness of the frontline-workers to report their errors and near misses. This is a behaviour pattern of members in the organization. Where organization anticipates the adverse events and readily counteract; Learning culture is when an organization analyzes the information and implements appropriate changes; Open culture is openness about errors. They are reported as they occur; Just culture is balance between accountability and patient safety improvement; Flexible culture is the willingness to report, which depends on the belief of workers that authorities will be flexible when safety information is exchanged; and Report culture is willingness of the front line workers to report their errors and near misses. Patient safety culture in an organization can be assessed on above factors at unit level, hospital level and as outcome variables [25]. Failures were found while analyzing the root causes for breakdown of organizational patient safety. They are: Active failure - Failures that occur due to 'front line' workers while delivering services e.g.; between patients and nurses; and Latent failure - Failures take place due to gaps in the higher levels e.g. managerial level. Post-accidental investigations have shown the local trigger factors are active failures in the system. Majority of the active failures occur due to latent failure i.e. weaknesses in the organizational system and managerial deficiencies. Latent failure accounts for 85% of the failures in an organization. Therefore, Patient Safety Culture of an organization plays an important role in reducing errors and mistakes [37]. Sharpe [42] stated in her report that people face enormous health and financial consequences following deaths and disabilities due to medical errors. The loss of productivity, income and health expenditure is unacceptable. Brennan *et al* [11] stated that Harvard study on medical practice is the benchmark for estimating injuries occurring in hospitals. According to them out of total admissions, 3.7% patients faced adverse events due to medical mismanagement, each of which ended up as prolonged hospital stay or disability. Another study done in Australian found that 16.6% of total admissions were harmed by adverse events, which led to permanent disability in 13.7 % and death in 4.9 % patients. Of these, 51% of the events were preventable. Still they believe this to be the lower estimate of the prevalence of injuries & that most of the events are not recorded. In hospitals in Salt Lake City, Utah, Classen *et al* [15] found that 1.7% of admissions meet with drug adverse events.

3 Method

A hospital based cross sectional descriptive study, was carried out.

3.1 Sampling and Data Collection

The study population was the administrative and clinical staff at the tertiary care hospital, who had been working there at least for three month (within the unit as well as in the hospital). This study population consists of two groups:

Staff keeps direct contact with patients

Staff keeps indirect contact with patients

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Staffs, who are directly in contact with patients known as the ones at the 'sharp end'. They are Consultant doctors, Senior Registrars, Registrars, Medical Officers, Intern Medical Officers and Nursing Officers, working in hospital wards, ICU, NICU, CCU, dialysis unit or ETU. This contact point is very crucial most of the adverse events take place at this point, 'active failures'. Staffs that are not directly in contact with patients are the ones at 'blunt end'. They are the administrators who control the scene from behind. They are Managers, Chairman, Director, Deputy Director, Secretary, Chief Accountant, Assistant account, Matrons, Unit Sisters and Administration Officer and Assistant. Failures that take place due to gaps in the higher levels are called 'latent failures' eg; at managerial level. There were no previous studies done in Sri Lanka to evaluate the patient safety culture. Hence the anticipated population proportion (P value) was taken from Hospital Survey on Patient Safety Culture (HSOPSC) a study done in Taiwan hospitals. This was 64 [13]. Therefore sample taken was 389 including 10% of non-responsive rate.

Staff in Direct Contact with Patients in the selected hospitals, Clinical staff were stratified based on the staff category. The number to be selected in each category was determined based on probability size in each category. Then simple random sampling method was carried out to select the sample from each category of staff.

Staff not in Direct Contact with Patients, whole population was taken into the study as the number was small (42).

3.2 Data Collection Instrument
HSOPSC (Hospital Survey on Patient Safety Culture) questionnaire, which was developed by The Agency for Healthcare Research and quality (AHRQ) to measure the Patient Safety Culture in organizations, was used as guide line. A new self administered questionnaire was developed to suit the Sri Lankan context. The questionnaire had three broad categories. In category 'A' (Unit-level aspect of safety culture): with six Factors with 29 indicators. Category 'B' (Hospital- level aspect of safety culture): three factors with 11 indicators. In category 'C' (Outcome variables): two factors with 13 indicators. Six point Likert scale of agreement ('strongly agree' to 'strongly disagree') or frequency (never to always) was used to avoid central tendency. Two hospitals were used for this purpose. Pre-testing of the questionnaire was done at the Vijaya Kumaranathunga Hospital, Seeduwa, Sri Lanka, while data collection was done at a Tertiary care Hospital in Sri Lanka. Self-administered questionnaire was submitted and filled by staff individually without discussing the purpose or the goal. Confidentiality of the information given was assured. Also, anonymity of the participant was maintained. Necessary information was given to the participants when required.

3.3 Data Analysis
Internal consistency reliability was estimated with the Cronbach $\propto$ coefficient. It is measure of the extent to which items within the same scale correlate with each other. The $\propto$ coefficient ranges from 0 to 1: values greater than 0.70 are generally considered acceptable for a group comparison has been recommended [30]. Upon completion of data collection, statistical analyses were completed using the Statistical Package for the Social Sciences (SPSS 19.0) computer program to determine and measure frequencies and central

tendencies. The data obtained was summarized as percentage, mean, and SD values. Categorical values were examined for the relationship between factors and level of attitudes using the chi-square test. Operational Variables are illustrated in below.

Table 3.1: Operational Definitions of Variables

Variable	Definition
Communication Openness	Ability of staff to give their opinion on negative decision and actions taken by higher authority.
Feedback and communication about errors	Following an adverse event reporting, the relevant unit is informed of the error and discussed about the changers and prevention
Frequency of event reporting	How often adverse events and near misses are reported or are they reported at all.
Hospital Practices when Handing Over & Transferring Patients	How important patient care information is transferred across hospital units and shift changes
Hospital management support for patient safety	Extent to which the hospital management support patient safety and consider it a top priority
Non- punitive response to errors	Adverse event are not considered as an individual failure or kept in personal records
Organizational Learning and continuous improvement	Learning from mistakes and evaluate the positive changes
Overall perception of safety	No patient safety patient safety problem as systems and procedures are in place to prevent errors.
Supervisor expectations and actions promoting patient safety	He/she appreciates patient safety procedures, considers important part of work, listens to staff suggestions
Teamwork across the hospital	Unity and co-ordination among all units to obtain the common objectives
Teamwork within the unit	Whether the unit members work as a team to complete the work load, by sharing and helping each other with respect
Workload and Staff	Details of in-position of staff , work load and working hours

4. Findings

Assessing patient safety culture Hospital, analysis is done on percentages made according to the number of respondents to each indicator. The total number of respondents may vary from variable to variable depending on this, even though the study population is 389 participants. Questionnaire reliability was confirmed by Cronbach's alpha coefficient for each variable. Hospital Practices when handing over & Transferring Patients has the highest alpha coefficient and Non-punitive response to error has the lowest alpha coefficient. In this study the Cronbach's α coefficient is 0.86 and therefore this questionnaire can be regarded as reliable.

Socio Demographic Characteristics of the Respondents
Total study sample was 389, out of which smallest portion was 16 (4.1%) of Consultants, and largest portion was 214 (55%) of Nursing Officers. The rest were Medical Officers 52 (13.4%), House Officers 42 (10.8%), Administrators 41 (10.5%) and PG-Trainees 24 (6.2%). Three hundred and fifteen (81.0%) of the sample were female. Of which 33.0% were < 30 years, 57.7% between 30-49 years, and only 8.9% were 50 years or older. Majority of the staff were in the range of 25-29 years. Majority (78.3%) of the respondents was married. Twenty-one percent were single and less than 0.5% were divorced and separated in this sample. Majority had a single child. The distribution of respondents according to the period of service in the hospital was divided in to three groups: more than one year (22.4%), one to five years period (37.8%) and more than five (39.8%). Experience in respective units was more than one year (24.2%), one to five years period (49.6%) and more than five (26.6%). Correlation between Overall Patient Safety and Individual Patient Safety Characteristics were calculated using Pearson correlation (Table; 3.1). All the correlations between independent and dependent variables were significant. Patient Safety culture shows highest correlation to Organizational Learning- Continuous Improvement (0.548), and lowest to Non-punitive response to errors (0.134). Percentages of positive and negative perceptions of participants, on patient safety were calculated along with mean and standard deviation (Table: 4.1). This made the comparison of various variables with each other easy. Highest positive responses were obtained by Team work within units (84.8%), followed by Organization learning-continuous improvement (82.5%). Least positive responded areas were work load and staff (15.7%). Also Frequency of events reporting as it occurs (36.6%) and non-punitive response to errors (39.4%).

4.1 Patient Safety Culture

Patient safety culture is built on individual's patient safety attitudes and patient safety climate of the individual units. Measuring either of these subgroups will assess the patient safety culture in the organization. In this study patent safety culture was measured in eleven dimensions (attitudes). Pearson's correlation was used to assess the patient safety culture in the hospital to find out the correlation between the overall patient safety and other independent variables. Correlation between the overall patient safety and its all independent variables were found significant.

Table 4.1: Correlation between Overall Patient Safety and Individual Patient Safety Characteristics

Patient safety Characteristic (n=389)	Pearson Correlation	Sig. (2-tailed)
Organizational Learning- Continuous Improvement	0.548	0.000
Hospital Management Support	0.498	0.000
Team work across the hospital units	0.312	0.000
Team work within units	0.425	0.000
Communication Openness and Feedback	0.369	0.000
Non-punitive response to errors	0.134	0.000
Workload and Staff	0.232	0.000
Hospital Practices when Handing Over & Transferring Patients	0.429	0.000
Units Managers' Expectations and Actions	0.345	0.000
Frequency of events reporting	0.293	0.000

Overall patient safety had high correlation with 'Organizational Learning- Continuous Improvement' (0.548. p< 0.001). This was followed by 'Hospital Management Support for Patient Safety' and 'Hospital Practices when Handing Over and Transferring Patients' which correlates 0.498 and 0.429 respectively with overall patient safety. According to staff perception the above mentioned three key areas in the hospital are likely to be important in patient safety. 'Organizational learning – continuous improvement' may be due to in service or on the job training obtained by the staff. Hospital management plays a major role in promoting patient safety in the organization. Managerial support is the backbone of a safety system. Safety Climate and attitude depends on the backing of the management, they form the safety policies, committees, protocols, disciplinary action etc. According to the findings, correlation of 'Team Work within Units' (0.425) to 'Overall patient safety' is greater than the correlation of 'Team work across the Hospital Units' (0.312) with 'Overall patient safety'. This may be due to a lack of 'systems thinking behavior' in the hospital. This indicates that the each unit in the hospital works individually and not interrelated. Lack of team work may be due to the competition for private practice or reluctance to spend time treating routine patients. It could also be due to distrust and disrespect between staff. Delaying care for these patients can cause displeasure between units. 'Communication Openness and Feedback' is another variable with low correlation of 0.369 with 'Overall patient safety'. Lack of open culture could be due to many reasons. Seniors are regarded as well knowledge and no mistakes can happen from them. When comparing aviation industry with medicine, Sexton [40], found that 55% of consultant surgeons do not agree for flat hierarchy whereas, 94% pilots advocate flat hierarchy. Junior staff may be unable to comment on seniors' or colleagues' mistakes. Also the same study stated that doctors are not encouraged to report on safety issues [40]. 'Units Managers' Expectations and Actions' correlates 0.345 with 'Overall patient safety', which again shows less commitment from the immediate supervisors. This is may be because immediate supervisors may not be well aware of patient safety and importance of it. Firth [19] in his study

identifies that personality and attitudes of leadership have an enormous effect on safety. Low correlation 0.232 is seen between 'Workload and Staff with 'Overall patient safety'. 'Frequency of events reporting' and 'Non-punitive response to errors' also holds low correlation with 'Overall patient safety'. As found in many researches, safety in health care is reactive [3]. In a study carried out in Urban teaching and non-teaching hospitals in the United States, Israel, Germany, Switzerland, and Italy showed that the reporting and discussing is relatively less because of the disciplinary action of licensing boards, threat of malpractice suits, threat to job security, high expectations of patients and their families and egos among staff. The above scores may be indicative that the current culture as **reactive phase** of patient safety culture. Overall patient safety had high correlation towards 'Organizational Learning- Continuous Improvement', 'Hospital Management Support', 'Hospital Practices when Handing Over & Transferring Patients', and 'Teamwork within Units'. A study conducted in 2005-2007 in USA showed similar results: The highest scoring in both the baseline and follow up survey results were Teamwork within Units, Supervisor/Manager Expectations and Actions Promoting Patient Safety, and Organizational Learning/Continuous Improvement [1]. Overall patient safety had low correlation towards 'Non-punitive Response to Errors', 'Workload and Staff' and 'Frequency of Events Reporting'. On the other hand the lowest scoring dimensions in the above study in baseline and follow up survey results were 'Teamwork Across Units', 'Hospital Handoffs and Transitions', and 'Non-punitive Response to Error'[1]. Other domains, i.e. 'Teamwork Across the Hospital Units', 'Communication Openness and Feedback', 'Units Managers' Expectations and Actions', and 'Hospital Management Support' fall in between these two groups.

4.2 Perception towards Patient Safety

Perception of patient safety by hospital staff can be assessed by measuring individual attitudes towards patient safety and measuring patient safety climate. Key players in health care system are Administrators, Consultants, Postgraduate Trainees, Medical Officers, House officers and Nursing Officers. Their attitudes play a major role in patient safety. Key decision making players are consultants and postgraduate trainees, but Medical Officers and Nursing Officers are there in the wards for 24hours a day, which means they are the bridge between the consultants, postgraduate trainees and patients. According to the study, 84.8% positive score was for 'Teamwork within Units' than 'Teamwork across the Hospitals' (65.9%) (Table4.1). This was also supported by figure 3.a. showing high correlation to teamwork within units with overall patient safety than the teamwork across the hospital units. This could be due to the division of work, no system thinking attitude, competition among units or professionals. Each unit tends to work independently to achieve their goals. May be organizational and interpersonal barriers hinders the teamwork such as communication, inter-professional nature of health care delivery and hierarchical decision making process [6]. This is supported by a study carried out in New York, where team work within units was 74.40% and team work across hospital units was 42.35% [7]. When comparing the analyzed research results with the results of hospitals of New Mexico it was clearly seen in both hospitals 'team work within unit' obtained highest percentage of positive responses [33]. Taiwan also shows slightly similar pattern to Sri Lankan

perception: 'Team work within units" scored highest (94%) positive responses [13].

Table 4.2: Mean, SD, and Percentage Distribution of Respondents' Positive Responses to Hospital Survey of Patient Safety Culture

Dimensions	Mean	S D	% Positive response*
Overall perception of patient safety	4.6	0.75	81.3
Organizational Learning - Continuous Improvement	4.6	0.90	82.5
Hospital Management Support for Patient Safety	4.4	1.0	74.2
Team work across the hospital units	4.1	0.84	65.9
Team work within units	4.7	0.71	84.8
Communication Openness and Feedbacks	4.1	0.71	62.1
Non-punitive response to error	3.7	0.77	39.4
Workload and Staff	2.9	0.86	15.7
Hospital Practices when Handing Over & Transferring Patients	4.4	1.1	74.6
Units Managers' Expectations and Actions Promoting Patient Safety	4.3	0.98	73.3
Frequency of events reporting as it occurs	3.7	0.79	36.3

*Positive attitudes were defined as having mean of scale scores ≥4.0, the equivalent of somewhat agree or agree or strongly agree on the Likert scale used for the response options.

The next highest positive response was for 'Organizational Learning - Continuous Improvement' (82.5%), which might be due to learning from the adverse events that takes place in the hospital by analyzing and taking measures to prevent repetition of same adverse events. This involves a retrospective analysis of incidences such as maternal and perinatal mortality reviews. This again indicates that the organization is in a **'reactive stage'** of patient safety culture. In Armellino's [7] study it was 68.37% in New York Hospital, which is fairly less compared to Sri Lankan score. 'Organization learning – continuous improvement' scored (82%) highest positive responses in a study carried out in an Acute Hospital Setting in Dubai, in Sri Lankan set up the same variable was in the second rank (82.5%). 'Overall patient safety' was rated with 81.3% positive responses. Staff perceive that there is a good safety practice in the hospital. Sri Lankan staff shows considerable high responses to overall patient safety compared to New York (49.74%) [7]. This may be due to actually less adverse events taking place or underreporting of such incidences. Staff may not report all the adverse events or may not fill the questionnaire sincerely to protect the hospital from getting a bad reputation. Considering the low frequency of error reporting, this perception could be a pseudo safety perception felt by staff. 'Hospital Practices when Handing Over & Transferring Patients', 'Hospital Management Support for Patient Safety', and 'Units Managers' Expectations and

Actions' stands abreast with each other having 74% - 75% of positive responses. Ineffective handoffs can contribute to gaps in patient care and breaches (i.e., failures) in patient safety, including medication errors, wrong-site surgery and patient deaths. This depends on the communication between the sender and the receiver and their responsibilities [47]. Latter two variables deals with leadership which is very important for success of patient safety plan. Supervisors at all levels should be able to advocate and encourage staff to report and adhere to protocols. Adherence to protocols will ensure the hospital practices are safe in all aspects. The second highest response in Mexican hospital was 'the supervisors support', but in Sri Lanka it is at the sixth place [33]. In a study carried out in a New York hospital, Hospital Practices when 'Handing Over & Transferring Patients' (43.37%), 'Hospital Management Support for Patient Safety' (52.38%), and 'Units Managers' Expectations and Actions' (68.88%) show a similar pattern [7]. 'Communication Openness and Feedbacks' has 62.1% positive responses, which could be due to strict maintenance of hierarchy, belief that professionals do not make mistakes, staff not wanting to complicate relationships among themselves or non responsiveness of higher authority to reporting. There is a possibility of patients being too timid or scared to ask questions from the care givers [13]. In the previously mentioned New York study this variable scored 60.5% of positive responses [7]. Communication among staff is vital: eg. Preoperational and post operational discussions and communication between providers and patients are equally important. Making the patient aware of the health condition, procedures and investigations that he/she is expected to undergo will make treatment easy and increase compliance. This communication seems to be lacking to some extent in the hospital mostly due to hierarchy, fear of legal involvements and to avoid conflicts. 'Frequency of events reporting' rate is 36.3% which is very controversial with the 'Overall perception of Patient Safety' of 81.3%. It shows even though there is a good level of perception of patient safety among the staff, reporting of errors is very low. Reporting is mostly likely to be low if there is no proper easy and confidential method for reporting or if the higher authorities do not act on it or are biased. 'Frequency of events reporting' found in the study in New York was 47.72%, which is slightly higher than the perception in Sri Lanka [7]. This view is supported by 39.4% positive responses to 'Non-punitive response to errors'. In other words staff is scared to report errors. Not having a 'Non-punitive response to errors' causes underreporting [3]. This indicates there may be a strong **blame culture** in the hospital. Where the active end is blamed and errors are not seen as opportunities [26]. In Dubai, the least positive response was obtained by 'non-punitive response to errors' (22%) while in local study it received a higher response (39.4%)[4]. Armellino, had recorded 21.09% positive responses in New York study, which is less than the perception in Sri Lanka. Although there are the high response on 'Hospital Management Support and Units Managers' Expectations and Actions' for patient safety, having a low response to 'non-punitive response to errors' is controversial. This indicates there is no priority for incidence reporting in units and within the hospital. A similar study done by Hellings *et al* found that the lowest response was for 'staffing' [13]. A low positive response of 15.7% for 'Workload and Staff' indicates that there is a severe shortage of staff in the hospital. Even though the staffing is better in the New York hospital,

they too have a considerable shortage according to responses (39.12%) [7]. Cover up shifts may be too many and staff is transferred to other units for cover up work. Also they may be working for more than the stipulated working hours. Fatigue due to high workload and employees, especially Nursing Officers, covering up duties in other wards (unfamiliar environments) can lead to errors. Research by Chi-Chen [13] in Taiwan (39%) and by Khan [4] in Dubai (32%) showed similar findings. In an overall view of responses, stronger domains scored higher by Sri Lankan hospital compared to Mexican hospital responses. But the lowest score (51.8%) in Mexican set up was for non-punitive response to errors whereas work and staff scored lowest (15.7%) in Sri Lankan set up. None of the Mexican responses went below 51% as in our hospital [33]. Many studies were carried out, and outcome variables were compared across countries. USA perceives a higher positive patient safety culture in their hospitals(65 %) compared to Sri Lanka (49.74%), Netherland (52%), [10].

4 CONCLUSION

The hospital is still climbing the ladder of patient safety. There seems to be a mixture of two cultures mainly 'reactive culture and blame culture'. Staff has a fear of reporting incidents. In turn the learning opportunities are less. This can lead to errors not being identified, and thus no contingency plans being made. There is a chance of repeating errors and new errors may take place. Action is taken retrospectively to rectify the errors. However prospective planning of action is essential to counteract possible errors in the future. Staff, especially Medical Officers do not seem to have confidence on the supervisors and management. However low responses rates in certain area like teamwork across the hospital and within the units, communication openness, work load and staff and frequency of errors reporting are strongly supported by others especially postgraduate trainees. On comparison of Doctors with Nursing Officers gave a totally opposite out come. There was a significant difference with all the patient safety variables except for 'non-punitive response to errors' and 'staff and work load'. There is a low percentage (62.1%) of positive response to communication and feedback shows there is a gap in the current system. Team work across the hospital units scored less (65.9%) positive responses. Which indicates the smooth running of the service is hindered.

4.1 Recommendations

4.1.1 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 a pleasing working environment. Most of all assure job their job security and open avenues for postgraduate training.

4.1.2 Voluntary reporting of adverse events should be encouraged as the positive responses were 36.3%. Adverse event reporting is very low compared to the other variables. 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.

4.1.3 Reporting of adverse events backed by non-punitive response to errors. Here the errors should be seen as

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opportunities to learn. Create a learning culture by changing the management and supervisors attitude towards the errors reported. Staff should feel free and confident to make error reporting.

4.1.4 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 (62.1%) of positive response to communication and feedback shows there is a gap in the current system. Communication gap could be among staff or between health care providers and patients. This gap should be minimized as much as possible for smooth functioning of the service.

4.1.5 Team work across the hospital units scored less (65.9%) positive responses. This could be addressed by promoting team work and encourage staff of different units to work in unity to enhance to overall quality of the service.

ACKNOWLEDGMENT

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