Interdisciplinary Differences in Patient Safety Culture within a Teaching Hospital in a South East Asia

ABSTRACT

Background: Patient safety represents a global issue which leads to potentially avoidable morbidity and mortality. This study aimed to determine the inter-professional differences in patient safety culture in a tertiary university hospital.
Method: A cross-sectional study using the Safety Attitude Questionnaire (SAQ) self-administered electronically in the English and Malay languages to evaluate safety culture domains. A positive percentage agreement scores of 60% was considered satisfactory. Comparisons were made between doctors, nurses, allied health professionals, ward attendants and support staff.
Results: Of 6562 potential respondents, 5724 (80.4%) completed the questionnaire; 3930 (74.5%) women, 2263 (42.9%) nurses, and 1812 (34.2%) had 6-10 years of working experience. The mean overall positive percentage agreement scores were 66.2 (range=31.1 to 84.7%), with job satisfaction (72.3±21.9%) and stress recognition (58.3±25.6%) representing the highest and lowest mean domain scores, respectively. Differences were observed between all five job categories. Linear regression analyses revealed that the other four job categories scored lower in teamwork, safety climate, job satisfaction, and working conditions compared to nurses.
Conclusions: The overall mean SAQ score was above the satisfactory level, with unsatisfactory percentage agreement scores in the stress recognition domain. Interventions to improve patient safety culture should be developed, focusing on stress management.

Keywords: Patient safety, Safety Attitude Questionnaire, domains,

INTRODUCTION

Medical personnel across the world continue to push boundaries with advancements in medical technology to treat an increasing number of conditions to extend and preserve life. However, the risk of medical errors and adverse events continue to increase due to complex treatment regimens and the extension of treatment to increasingly sicker and frailer populations.[1] In the past few decades, there have been tremendous changes in the medicine progress, with a better understanding of many conditions and diseases that has refined the management of various diseases with increased effectiveness. Unfortunately, the improvements achieved in medical therapy have also been accompanied by the increases in potential harm to patients who avail it. While the recognition of medical therapy related damage has recognized as a concept 50 years ago when health systems started encountering compensation claims started, and gained some traction 20-25 years ago with increasing media interest, many organizations still grapple with the concept of incident reporting and patient safety cultures.[2]

A harmful act occurring during medical care is the most common frequently reported medical error. While there are many differences between treatment-associated risk and medical error, this remains ambiguous and challenging to correctly categorize in terms on cases which have led to litigation.[3] The Institute of Medicine (IOM) [4] defines patient safety as "the prevention of harm to patients".[5] It is an emerging healthcare discipline that emphasizes risk reduction, incident management and quality improvement in patient care. Healthcare-related harm occurs through errors of commission and omission. Patient safety, however, emphasizes a system of care delivery that prevents errors, learns from the errors that do occur and is built on a culture of safety that involves health care professionals, organizations, and patients. It is essential to identify the factors that contribute patient harm and appropriate actions to be taken to prevent future recurrence. Patient safety pioneers recognize that the

communication among HCPs and the working culture within the organisation are keys to create safer and error-free systems. These pioneers recommended the use of checklists and guided communication tools as an effective way to reduce lapses in team functioning, errors and the likelihood of harm.[6]

Well-developed 'system approach' strategies are required to strengthen the existing patient safety culture. This is based on the principles that errors are led by system, process and conditions that cause people to make mistakes or fail to prevent them.[7] For instance, to build a safety learning culture, every medical error is being reported and viewed as learning opportunity for HCPs and to move away from blaming culture. Hence, this study was aimed to evaluate the patient safety culture among healthcare providers at a teaching hospital in Kuala Lumpur, Malaysia. The results of this survey will help inform and support the implementation of policies to enhance safety culture in our setting.

METHOD

Study Setting and Sample Population

This cross-sectional study was carried out among the healthcare providers at a 1100-bedded teaching hospital in Kuala Lumpur. A total of 6,652 eligible participants comprising all healthcare professionals (HCPs) working within the teaching hospital which included doctors, nurses, allied health professional and clinical support staff were approached to participate in this study using a universal sampling method. An invitation to participate in this research was sent to all HCPs through Google™ platform. The study obtained the approval of the University of Malaya Medical Centre Medical Ethics Committee (ID: 2018921-6702). Written consent was waived for this study. Participation in this study was voluntary and no identifiable personal information was retained. This study complied with the principles of the Helsinki Declaration 1964.

Data Collection

All HCPs were encouraged to participate in this research by sending frequent mails at-least once in a week for 2 months. The study instrument was made available in the hospital staff electronic portal for ease of access to all HCPs. The responses to the questionnaire were recoded and calculations were made on the collected data.

Study Instrument

The 5-point Likert scale response version of the Safety Attitude Questionnaire (SAQ), developed by Sexton et al., [8-13] consists of 36 items and a validated tool that measures hospital staff's attitudes regarding the safety. The questionnaire was made available electronically in both English and Malay languages to assess the six domains of patient safety, namely, teamwork climate, safety climate, job satisfaction, perceptions of management, stress recognition and working conditions. The responses score was summed to 100, and items with response scores of greater than 60% was considered as satisfactory level of safety culture. Three negatively worded items in this study instrument were included to avoid any errors in response to the questionnaire. A pilot study involving 102 participants not subsequently included in the final analysis yielded a Cronbach's α of 0.920 for the overall questionnaire and 0.75 to 0.82 for the six domains.

Data analysis

The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) version 25.0. Descriptive statistic (means and standard deviations) for normally distributed and interval scale data; medians and interquartile ranges (IQR) for skewed interval scaled and ordinal scaled data were used to describe the sample characteristics. For each domain, a

higher score indicates a more positive attitude towards patient safety among healthcare providers. Chi-square, ANOVA and linear regression were also performed in data analyse. The positive percentage responses for each domain was calculated and benchmarked against the 60% positive percentage agreement which has been used as an international standard indicator of the desired level of patient safety culture.[14] Mean scores were calculated for individual items and then aggregated to yield a mean score per SAQ domain. Subsequently, the percentage agreement score was compared between each profession first using analysis of variance, and linear regression using dummy variables with nurse as the reference group.

RESULTS

Respondent Characteristics

Out of 6562 HCPs approached to participate in the online survey, 5274 responded which leading to a response rate of 80.4%. The demographic details of the respondents are presented in Table 1. Significant differences were observed in gender, duration of service as well as clinical areas between the professional groups.

Attitudes of respondents towards patient safety

Within domains, percentage agreement scores were highest overall for job satisfaction (72.3±21.91), followed by teamwork climate (66.95±16.13), and safety climate (66.24±15.71) Stress recognition (58.42±25.60), working conditions (62.94±18.39), perception on hospital management (63.87±17.59) and perception on unit management (64.20±17.67) comprised the domains with the lowest percentage agreement scores in ascending order (Table 2).

Significant differences existed between all domain scores between professional groups. The occupational groups with the highest mean scores for each domain was nurses for teamwork climate, safety climate, job satisfaction and working conditions, allied health professionals for perception of unit management and perception of hospital management, and doctors for stress recognition. The occupational groups with the lowest scores for each domain was support staff for teamwork climate, safety climate, job satisfaction, perception of unit management, perception of hospital management and working conditions, and ward attendants for stress recognition. Groups which scored below the 60% threshold by domains were; support staff for perception of unit management, whereas nurses, allied health, ward attendants and support staff scored low for stress recognition; and doctors and support staff scored low for working conditions.

The overall mean scores for the whole study population was above the 60% minimum acceptable threshold apart from stress recognition (Figure 1).

Table 3 summarizes the mean differences with 95% confidence interval using linear regression analysis using dummy variables with nurses as the reference group. The second column contains unadjusted comparisons while the third column the adjusted mean difference with 95% confidence interval, adjusted for gender, years of experience and clinical areas. Following adjustment for potential confounders, doctors, allied health, healthcare assistants and support staff had significant lower teamwork, safety climate, job satisfaction and working condition domain scores than nurses. Doctors had significantly lower unit management and hospital management perception scores than nurses. There was no significant difference in stress management scores between the professional groups. Perception of unit and hospital

management was not significantly different between allied health, healthcare assistants, support staff and nurses.

Responses to individual items of the safety attitudes questionnaire

Reponses to individual item of the safety attitude questionnaire are presented in Supplementary Table 1. The positive percentage agreement scores ranged from 31.1 to 84.7 and the mean values ranges from 2.95±1.12 to 4.00±0.96 for items across all domains. Of the 36 items, "I like my job" yielded the highest mean score (4.00±0.96) within the job satisfaction domain. The item with the lowest means scores "In this clinical area, it is difficult to speak up if I perceive a problem with patient care" (2.95±1.12) within the teamwork domain. The item with the highest agreement score was "Communication breakdowns that lead to delays in delivery of care are common" which was 84.7, and the item with the lowest agreement score was 31.1% observed for "The levels of staffing in this clinical area are sufficient to handle the number of patients".

LIMITATIONS

As this was a single centre study, its results may not be translatable to other centres. Furthermore, the high response rate and overall rather positive responses many have emerged from the method of recruitment which is through the staff sign-in portal. A prevalent fear of authority may have obligated the responses, and despite assurance of voluntariness and anonymity, respondents may have felt an element of policing as the pop-up window appeared immediately after they entered their log-in usernames and passwords. Nevertheless, this study has identified a difference in patient safety culture which may be influenced by cultural differences. Malaysia is multiethnic, multireligious country, where 60% of its population are Muslims, but Buddhism, Hinduism and Christianities are also commonly practiced.

Contentment, fear of punishment, lack of openness and suppression of freedom of expression may all contribute towards a potentially inflated overall score, though difficulty in speaking up and discussion errors where highlighted with lower scores.

DISCUSSION

Patient safety culture evaluated using the SAQ survey conducted in a teaching hospital within the capital city of Kuala Lumpur, Malaysia, a higher middle income South East Asian Nation suggested that overall safety culture was satisfactory with a mean score above the accepted recommended threshold. When individual domain scores were considered, all domains scores were above the accepted threshold for the overall study population, apart from stress recognition. When occupational groups were considered, however, the mean scores of support staff fell below the accepted threshold of 60% for perception of unit management and working conditions as well as stress recognition. Except for doctors, the other four occupational groups of nurses, allied health, healthcare assistants and support staff had a mean score of below 60% for stress recognition.

Within the clinical environment, lives are potentially at stake if errors occur. Hence teamwork and safety climate are of utmost importance. Failure of teamwork among HCP is often believed to independently lead to systems failures. Within the SAQ, the areas of teamwork explored include reception of nursing input, ability to speak up, conflict resolution, support from team members, asking questions and doctor-nurse teamwork, while the safety climate domain explores feeling of safety as patient, appropriateness of handling errors, channels to direct questions, feedback, openness, error reporting and learning from errors. [15] The overall scores in both these domains were satisfactory, which was comparable to that found in previous published studies.[16-18] However; the mean total scores were lowest for

ability to speak up and difficulty discussing errors. This does potentially suggest that the overall scores may be falsely elevated as individuals reported most difficulties with speaking up or discussing errors, and hence may by more likely to assign positive scores, in fear of collective punishments for instance, in a potentially punitive culture.[19] Conversely, there may also be lack of reflection or denial of potential issues, which may be reflected on a culture of contentment and acceptance influenced by religion.[20] This may limit the ability to compare scores between studies, and may also challenge the relevance of the proposed threshold of 60% as acceptable safety culture for our setting. Therefore, interpretation of percentage positive scores against the threshold should be performed with caution, but comparisons between the domain scores and item scores within the population and within occupational groups remains highly meaningful.

While job satisfaction scores were comparatively higher than in other domains, when reference was made to individual items, the overall population scored lowest on the item on suggestions to management being acted upon, with only 50% mean positive agreement scores, which were offset by relatively high scores for liking their jobs, feeling like part of a family, good place to work, workplace prestige and workplace morale. This further highlights issues with speaking out and discussion of errors identified in the teamwork and safety climate domains. Patient safety climate within an inter-professional team assessment in an operating room was evaluated and found job satisfaction to be below 60% with correspondingly low mean values for perceptions of management and working conditions.[21] The interrelatedness of the three domains within this study, was highlighted, despite higher job satisfaction levels, perception of management and working conditions were not comparable, suggesting that job satisfaction is less linked to perception of management and working conditions in our culture, though both these domains remained above the acceptable

threshold.[22-23] Job satisfaction within Asian cultures and developing countries may be less likely to be influenced by perceptions of management as the Asian working environment is generally considered more hierarchical and governed by stricter social norms. Hence, job satisfaction here may be driven more by co-worker relationships and organisational prestige than freedom of expression and management or working conditions.[24]

The occupational groups displayed different patterns in safety attitude. In a previous study, physicians rated working conditions and safety climate more positively than nurses.[22] On the contrary, in this study, working conditions and safety climate scores favoured nurses rather than doctors. When comparing occupational groups, the almost universally lower scores of the other groups in comparison to nurses, may not necessarily reflect a genuine positive safety attitude among nurses, but may conversely reflect a greater willingness to speak out among the other occupational groups, particularly the doctors, who are expected to enjoy greater autonomy and freedom of expression in the Asian workplace than the other occupational groups, a phenomenon observed in non-Western cultures sometimes known as "power-distance".[25] This may particularly be reflected in the doctors' perception of unit management and hospital management as they were the only occupational group which scored lower than nurses, with no differences compared to nurses for the other occupational groups. The primary concern is, however, the relatively lower scores across six of the seven domains among the support staff. Support staffs in clinical areas include receptionists, secretaries and administrative clerks, who often communicate with patients. Hence the potentially poorer patient safety culture among this group of workers in a hospital setting highlights the need to work with this group of individuals, particularly as a previously published study conducted in the Netherlands reported more positive scores from administrative workers.[26]

Stress recognition is an acknowledgement of how performance is persuaded by stressors. Apart from doctors, stress recognition scores were substantially lower than the acceptable threshold in the other professional groups, with the mean domain score for the overall study also below satisfactory levels. Poor stress recognition may lead to an increases tendency of individual healthcare workers committing errors, which in the main domain that may lead to complaints or litigation specifically is pertaining to individuals. Stress recognition is found to be positively correlated with increased medication errors reporting.

A previous study conducted in China found that lower stress recognition was related with female gender and fewer years of experience.[27] A study conducted among nurses in New Zealand, however, found that workload was a major stressors.[28] The lack of recognition of stress is a major concern as this will not then lead individuals to resort to coping mechanism such as planing, problem-solving, social support and self-controlling. Interestingly, an intervention to promote safer surgery which improved all other SAQ domains, paradoxically led to a deterioration in stress recognition.[29] Apart from that, working environment also can be characterised as stressful, with a risk of burnout among health care professionals. A systematic review reported a variation of burnout among health care professionals in ICUs from 0% to 70.1%.[30] It was also found in a study that a positive safety culture strongly significant with absence of burnout and led to high ability in coping stressful situation.[31] Hence, to maintain a positive safety culture, hospital and unit management need to be aware of those possible stressors by improving teamwork and working climate to reduce the burnout among HCPs. This suggests the possibility that poorer stress recognition may be a necessary trade off for better performance in the other domains, as observed in this study.

CONCLUSION

The overall percentage agreement score for the SAQ for the overall population was above satisfactory cut-off values, within all domain scores above the threshold of 60% apart from stress recognition. Areas of particularly weakness identified within individual item scores were ability to speak up and ability to discuss errors. The lack of openness and fear of speaking up may also lead to falsely elevated scores in this study. Hence, interventions to address patient safety culture may be better addressed by detecting relative changes in item and domain scores than expected any improvements in overall scores, which may paradoxically reduce once a culture of openness is developed.

Relevance to clinical practice

Interventions to improve safety culture may well lead to a reduction in the overall scores, due to an increase in openness and confidence to speaking up, hence a change in the culture may be better detected by measuring improvements specific areas of concern- stress recognition and ability to speak up and discuss errors relative to the other item scores. This also serves as a starting point for initiating policy changes for above issues and to implement interventions to reduce the impact of the these domains on the quality of care. All hospitals should foster safety culture to allow all healthcare providers to gain insight in promoting patient safety in clinical setting. Furthermore, the safety culture needs to be integrated into the curriculum to ensure the safer care and patient safety goals been initiated and monitored as early from the student perspectives. Apart from that, in this study, the differences of safety culture across professionals was reported in this study, which may prompt the initiation of a standard patient safety practices based on international benchmark to deliver safer and quality care to community. Various approaches to enhance performance of healthcare providers and patient safety culture can also be adapted in targeting certain domains.

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Conflict of Interest

Nil

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