ORIGINAL ARTICLES

Perception of patient safety and associated factors among health staff: A cross-sectional study in some hospitals in Vietnam

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ABSTRACT

Objectives: Patient safety is a global challenge of preventing and mitigating medical errors which might harm patients during their course of treatment and care. This research aimed to assess the perception of patient safety culture and its associated factors among health staff in some hospitals in Vietnam.

Methods: A cross-sectional study was conducted in three hospitals in Vietnam with a total of 763 heath staff. This study used the Hospital Patient Safety Scale developed by the American Health and Quality Research Organization. Bivariate and multivariate regression were used to analyze the association between the overall perception of patient safety culture among health staff.

Results: The overall perception of patient safety among health staff in three hospitals was on the average positive response at 39.19% with a score of 3.93. Among the 12 dimensions of patient safety culture, "Feedback and communication about errors" had the highest average positive response (92.5%) with a score of 4.25, however, "Frequent of event reported" scored the lowest percentage of positive responses (20.71%) with a score of 2.49. There are two factors of department and position being found to have significant association with overall positive responses. Staffs who worked at the subclinical department are more likely to have overall positive responses than those who worked at the administration department, with an adjusted odds ratio of 2.76 (95% CI = 1.22 – 3.86). Nurses were less likely to have overall positive responses than doctors, with an adjusted odds ratio of 0.65 (95% CI = 0.45 – 0.95).

Conclusion: This study reported that "Frequent of event reported" aspects that need to be improved because they are strongly related to patient safety culture and to knowledge exchange among health staff. It has been suggested that hospitals should deliver patient safety training courses and establish a supportive learning environment to improve these challenges.

Keywords: *Patient safety, patient safety culture, Hospital Survey on Patient Safety Culture (HSOPSC), hospital, health staff, Vietnam.*

INTRODUCTION

The patient safety culture of an organization is the outcome of individual and organization shared values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment, style, and competence of managing the health and safety of an organization (1). The safety culture, an important attribute of the health system, reflects the quality of healthcare services being supplied, the level of system credibility and the resilience of adverse events (2). Evaluating the patient safety culture of health organizations receives increased attention, especially in hospitals where patient-centred care comes before other operational targets. The Agency for Healthcare Research and Quality (AHRQ) has developed a patient safety culture assessment, namely, Hospital Survey on

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Patient Safety Culture (HSOPSC) (3). HSOPSC is used to reflect the present status of patient safety in a healthcare organization, identifying the strengths and weaknesses of safety culture expressed by dimensions; in turn, improving the safety culture state and quality of healthcare services in an organization. According to the AHRQ 2018 benchmark report, the perception of patient safety culture among health staff was approximate 65% and other studies in India, the US and Europe countries (ranging from 50 to 87%) (4-9). There was a similar finding in a survey in 43 hospitals in Ho Chi Minh City, Vietnam (6).

Since 2013, the Vietnam Ministry of Health (MoH) constructed patient safety regulations, procedures and technical guidelines for health organizations, health staff and healthcare services. Although the MoH has taken actions on encouraging patient safety in health organizations, little is known about health staff perceptions of safety culture. The General Hospital of Agriculture, Vietnam National Children's Hospital, Hanoi Obstetrics and Gynecology Hospital are located in Hanoi which have quality management departments with one of the primary missions being to enhance patient safety culture within hospitals. Accordingly, this study was conducted employing the HSOPSC scale with two objectives: i) to assess the patient safety culture among health staff and ii) to determine its associated factors of health staff perceptions of patient safety in hospitals in Vietnam.

METHOD

Study design: A cross-sectional study was conducted to measure the perception of patient safety culture among health staff.

Study site and time: The research was employed in one general hospital and two specialized hospitals including Vietnam National Hospital of Pediatrics, Hanoi Hospital of Obstetrics and Gynecology and General Hospital of Agriculture during 2019-2021.

Sample size and sampling: A total of 763 health workers working at the three hospitals were selected for interview. Convenient sampling approach were used, including 252 health workers at Vietnam National Hospital of Pediatrics, 286 health workers at Hanoi Hospital of Obstetrics and 225 health workers at General Hospital.

Study variables: The study included the socio-demographic variables such as age, sex, department, position, managerial level, and professional experience in years. Apart from that, we used the HSOPSC developed by the AHRQ in this study. The tool was officially published in November 2004 and was used in many countries around the world (4). Since 2017, this tool was used to survey hospitals in 71 countries and was translated into 32 different languages (Vietnamese was as the 31st language) (5). The Vietnamese version of the questionnaire was first verified by Tran Nguyen Nhu Anh in 2015 (6) and used to survey in 43 hospitals in Ho Chi Minh City. It helped hospitals to understand the perceptions, attitudes and behaviors of health workers, contributing to improving the quality of medical examination and treatment in hospitals (7).

Data collection: The tool included 42 questions covering 12 safety culture dimensions: communication openness, feedback and communication about errors, handoffs and transitions, management support for patient safety, non-punitive response to errors, organizational learning, overall perception of patient safety, staffing, supervisor/manager expectations and actions promoting safety, teamwork across units, teamwork within units and frequency of events reported. Each dimension consisted of three or four questions, assessed on a five-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree or from 1 = never to 5 = always. A self-administered questionnaire was given to the health staff for data collection. They were explained the research purpose and participated in the data collection if agreed.

Data analysis: The collected data were entered by Epidata 3.0 and exported to SPSS 20.0 for analysis. Descriptive statistics such as mean, and standard deviation were used to present the perception of patient safety. For items that were positively worded, responses on 4 and 5 ('agree/ strongly agree' or 'most of the time/always') on a 5-point Likert scale indicated positive responses, while 1 and 2 ('strongly disagree/disagree' or 'never/rarely') indicated positive responses on negatively worded items. The positive rate of each dimension was determined by averaging the percentages of positive responses of the subsections in each field, using the Hospital Survey Excel Tool 1.7 2010 of Microsoft Excel provided by the AHRQ organization and Stata Software 20.0 (8, 9). Bivariate and multivariate regression were used to analyze the association between the overall perception of patient safety culture among health staff and other factors such as age, sex, department, position, managerial level, professional experience in years.

Ethical approval: The study protocol was approved by the scientific panel from the School of Preventive Medicine and Public Health, Hanoi Medical University in Vietnam. Participation of all respondents was anonymous and voluntary. They were informed about research content and objectives as well as how the interview data would be documented and reported and that their confidentiality would be respected. Participants provided verbal informed consent and could withdraw at any time.

RESUTLS

Table 1. Characteristics of research participants

Characteristics		Number (n)	Percent (%)
Gender	Male	600	78.6
	Female	163	21.4
Age in years	< 35	473	62.0
	36 – 50	273	35.8
	50 - 60	17	2.2
Department	Clinical department	539	70.6
	Subclinical department	132	17.3
	Administration departments	92	12.1
Position	Doctors	181	23.7
	Nurses/ Technicians	520	68.2
	Pharmacists	17	2.2
	Other	45	5.9
Managerial level	Leader/managers	96	12.6
	Staff	667	87.4
Professional experience in years	<5 years	275	36.0
	5-10 years	250	32.8
	> 10 years	238	31.2

Table 1 described the characteristics of the study subjects. The results showed that male health workers accounted for a high rate of 78.6%. The group with age under 35 accounted for the most with 62.0% of the sample, followed by the age 36-50 group with 35.8%. Subjects mainly come from the clinical department with a rate of 70.6%. Among the study subjects, the rate of nurses/technicians accounted was highest with 68.2% while the rate of doctors was 23.7%. Most of the research subjects were staff, and only 12.6% of the subjects were leaders/ managers. Regarding professional experience, the numbers of employees in 3 groups of experience <5 years, 5-10 years and >10 years were quite similar.

Table 2. Average Scores and Average Positive Response Rate of 12 Dimensions

No	Patient safety culture dimensions	Mean (SD)	Average positive Response Rate (%)
1	Communication openness	4.05 (0.56)	74.44
2	**Feedback and communication about errors**	**4.25 (0.57)**	**92.53**
3	Handoffs and transitions	3.90 (0.69)	68.28
4	Management support for patient safety	4.23 (0.52)	84.14
5	Non-punitive response to errors	3.56 (0.77)	47.97
6	Organizational learning	4.14 (0.59)	76.80
7	Overall perception of patient safety	3.89 (0.48)	51.11
8	Staffing	3.71 (0.60)	55.05
9	**Supervisor/manager expectations and actions promoting safety**	**4.26 (0.52)**	**86.63**
10	Teamwork across units	4.03 (0.56)	76.41
11	**Teamwork within units**	**4.40 (0.57)**	**91.74**
12	Frequency of events reported	2.49 (1.32)	20.71
	Overall Patient Safety Grade	**3.93 (0.35)**	**39.19**

Table 2 presented the average score and the percentages of the respondents answering positively by 12 dimensions. Among the 12 dimensions of patient safety culture, “Feedback and communication about errors” had the highest average positive response (92.5%) with a score of 4.25, followed by “Teamwork within the unit” (91.74%) with a score of 4.40, “Supervisor/ manager expectations and actions promoting safety” (86.63%) with a score of 4.26 and “Management support for patient safety” (84.14%) with a score of 4.23. On the other hand, “Frequent of event reported” scored the lowest percentage of positive responses (20.71%) with a score of 2.49.

Table 3. Association between characteristics of sample with overall positive Patient safety response

Characteristics		Bivariate Model		Multivariate Model	
		OR	95% CI, p	OR	95% CI, p
Gender					
	Female	1		1	
	Male	1.73	**1.22 – 2.46, 0.002***	1.42	0.97 – 2.08, 0.074
Age in years					
	< 35	1		1	
	35-50	1.81	0.87 – 1.60, 0.280	1.27	0.85 – 1.90, 0.236
	> 50	1.88	0.79 – 5.10, 0.200	2.00	0.68 – 5.96, 0.205
Department					
	Administration departments	1		1	
	Clinical department	0.58	**0.37 – 0.91, 0.016***	0.63	0.39 – 1.04, 0.067
	Subclinical department	1.89	**1.10 – 3.26, 0.021***	2.16	**1.22 – 3.86, 0.009***
Position					
	Doctors	1		1	
	Nurses/ Technicians	0.66	**0.47 – 0.93, 0.019***	0.65	**0.45 – 0.95, 0.025***
	Pharmacists	0.49	0.15 – 1.39, 0.199	0.55	0.17 – 1.59, 0.292
	Other	1.40	0.70 – 2.61, 0.370	1.18	0.57 – 2.44, 0.663
Managerial level					
	Leader/ Managers	1		1	
	Staff	0.99	0.59 – 1.68, 0.971	1.16	0.66 – 2.10, 0.610
Professional experience in years					
	<5 years	1		1	
	5-10 years	0.87	0.61 – 1.24, 0.449	1.08	0.74 – 1.58, 0.698
	> 10 years	0.89	0.63 – 1.27, 0.529	1.07	0.67 – 1.71, 0.774

Table 3 displayed the results for simple logistic and multiple logistic regression analyses to determine the association between characteristics of sample with an overall positive response of patient safety culture. In terms of simple logistic results, there was a statistically significant difference between gender, department and position in overall patient safety. To be more specific, male staffs were more likely to have overall positive responses than female staffs, with an odds ratio of 1.73 (95% CI = 1.22 – 2.46). Staff who worked at the clinical department, and subclinical department were significantly associated with overall positive responses with odds ratio of 0.58 (95%

CI = 0.37 – 0.91), 1.89 (95% CI = 1.10 – 3.26), respectively compared to those who worked at the administration department. Nurses were less likely to have overall positive responses than doctors, with an odds ratio of 0.66 (95% CI = 0.47 – 0.93).

In the final model, there are two factors, namely department and position that are significantly associated with overall positive responses. Staffs who worked at the subclinical department are more likely to have overall positive responses than those who worked at the administration department, with an adjusted odds ratio of 2.76 (95% CI = 1.22 – 3.86). Nurses were less likely to have overall positive responses than doctors, with an adjusted odds ratio of 0.65 (95% CI = 0.45 – 0.95).

DISCUSSION

This study was a snapshot that captured the perception of healthcare staff regarding patient safety culture in three different hospitals in Vietnam. To reveal all the health staff in those hospitals we applied an HSOPSC questionnaire to measure the perception on patient safety culture among health staff (8). According to the findings, the overall score for all the 12 dimensions of patient safety culture among health staff in three different hospitals was 39.19%, which was lower than the AHRQ 2018 benchmark report of 65% or other studies in India, the US, Norway or the Netherlands (ranging from 50 to 87%) (9, 10). However, among 12 dimensions of patient safety culture, this study observed that the "Feedback and communication about errors" had the highest average positive response (92.5%) with a score of 4.25. This finding is higher than the values reported in related studies (11). These findings implied that those hospitals in Vietnam could create an atmosphere where reporting errors was without fear or penalty to enable patient safety culture in their hospitals. These observed scores were higher than the measurements reported in other studies (9-11).

The following dimension had a high average positive response was "Teamwork within unit" (91.74%) with a score of 4.40, "Supervisor/ manager expectations and actions promoting safety" (86.63%) with a score of 4.26. Several studies also showed that the perceptions of health workers on some aspects of the patient safety culture vary widely even within the same country, only in different workplaces (9-11).

Regarding "Frequency of events reported"in three hospitals positive responses scored the lowest percentage of positive responses (20.71%) with a score of 2.49. These findings implied that those hospitals in Vietnam could create an atmosphere where reporting errors was without fear or penalty to enable patient safety culture in their hospitals. These observed scores were higher than the measurements reported in other studies (3), (9), (11). Those were identified as weak areas requiring patient safety improvement. The observed differences among the hospitals and research in identifying weak areas of patient safety culture dimensions might have caused the nature or characteristics of hospital settings. Moreover, the fear of health staff regarding making mistakes in communication could have affected the patient safety performance among health staff (6, 10, 11).

The study showed there are two factors (department and position) that are significantly associated with overall positive responses. Staffs who worked at the subclinical department are more likely to have overall positive responses than those who worked at the administration department, with an adjusted odds ratio of 2.76 (95% CI = 1.22 – 3.86). Nurses were less likely to have overall positive responses than doctors, with an adjusted odds ratio of 0.65 (95% CI = 0.45 – 0.95). This result was in contrast to some studies' results in which nurses tend to provide a more positive assessment of patient safety culture than doctors and some other groups (6), (9). Nurses could make a good cooperative relationships and build trust with other health

workers to improve service quality and patient safety (10). The finding has suggested that researchers will need to conduct more studies to improve their understanding of the role of nurses in patient safety culture, but this study may suggest solutions to leverage the role of nurses to improve patient safety culture in hospitals.

Study limitations: Our research might have faced bias due to the sensitivity of the health worker's point of view. The accuracy of the study depended strongly on the psychological status and assessment of the study participants, especially contents which were related to the supportive management of leaders. Therefore, health workers could have been dishonest leading to providing inaccurate information. To overcome these issues, we conducted interviews in private places and used a self-administered questionnaire to help subjects feel more comfortable answering questions.

CONCLUSION

The overall perception of patient safety among health staff in three hospitals had the average positive response at 39.19% with a score of 3.93. Among the 12 dimensions of patient safety culture, "Feedback and communication about errors" had the highest average positive response (92.5%) with a score of 4.25, however, "Frequent of event reported" scored the lowest percentage of positive responses (20.71%) with a score of 2.49. There are two factors (department and position) that are significantly associated with overall positive responses. Staffs who worked at the subclinical department are more likely to have overall positive responses than those who worked at the administration department, with an adjusted odds ratio of 2.76 (95% CI = 1.22 – 3.86). Nurses were less likely to have overall positive responses than doctors, with an adjusted odds ratio of 0.65 (95% CI = 0.45 – 0.95). In conclusion, "Frequent of event reported" aspects that need to be improved because they are strongly related to patient safety culture and to knowledge exchange among health staff. It has been suggested that hospitals should deliver patient safety training courses and establish a supportive learning environment to improve these challenges.

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