

EVALUATING PATIENT SAFETY CULTURE AT VIETNAM NATIONAL CHILDREN'S HOSPITAL: INSIGHTS AND CHALLENGES

Running name: Patient Safety Culture at Vietnam National Children's Hospital

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SUMMARY

Objective: The study evaluated healthcare personnel's perceptions of the patient safety culture (PSC).

Method: A cross-sectional analysis was performed on primary healthcare workers at the Vietnam National Children's Hospital, utilizing the Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire. Data were collected from August 2022 to April 2023.

Results: The overall score for patient safety culture was relatively moderate, at 60.4%. Nine of the twelve assessed domains of patient safety culture were deemed positive. However, areas requiring improvement were identified in "Nonpunitive response to errors" (50.7%), "Frequency of events reported" (41.2%), and "Organizational learning" (67.8%).

Conclusion: It was suggested that patient safety training be strengthened across all staff members, especially clinical personnel. Additionally, fostering an environment of open communication and encouraging the reporting of medical errors were recommended to enhance healthcare service quality.

Keywords: Patient safety culture, Vietnam National Children's Hospital.

I. INTRODUCTION

Patient safety is defined by the Institute of Medicine (IOM) as "the prevention of harm to patients from accidents or medical errors".¹ In recent years, medical errors have continued to occur at alarming rates, resulting in significant consequences. Studies on medical incidents and errors from countries with advanced healthcare systems indicate that the incidence of adverse events among hospitalized patients ranges from 3.7% to 16.6%, affecting millions worldwide.^{2,3} The primary causes of medical

errors are system failures (70%) and individual practitioner mistakes (30%).^{2,3} In Vietnam, the rate of surgical site infections (SSIs) in patients undergoing surgery at various hospitals nationwide ranges from 4.1% to 7.9%. The infection rates are higher among patients who undergo small intestine surgery (19.5%), colorectal surgery (11%), and gastric surgery (7.9%).⁴⁻⁶ In response to this situation, the World Health Organization (2001) introduced the concept of patient safety to prevent errors that could harm patients during treatment and care. Patient safety culture is regarded as a practice guideline for healthcare workers, with patient safety being a top priority.⁷ There is limited evidence on the status of patient safety culture in pediatric hospitals in Vietnam, particularly at national-level hospitals like Vietnam National Children's Hospital." so we are undertaking a study titled "Evaluating Patient Safety Culture at Vietnam National Children's Hospital: insights and challenges".

II. Research objects and methods

1. Study participants: Healthcare workers employed at the Central Pediatrics Hospital, with a minimum of six months of work experience at the hospital.

2. Study Duration and Location

- **Study Period:** From August 2022 to April 2023.

- **Study Location:** Central Pediatrics Hospital.

3. Research Methodology

- **Study Design:** Cross-sectional descriptive study.

- **Sample Size:** The sample size was determined using the formula for descriptive sample selection to estimate a proportion.

$$N = Z^2_{1-\frac{\alpha}{2}} \frac{p(1-p)}{(\varepsilon)^2}$$

Where:

- $Z_{1-\alpha/2} = 1.96$ (Confidence coefficient with 95% confidence);
- $\varepsilon = 0.1$ (relative error);
- $p = 0.6$. Rate of positive response to the patient safety culture of medical staff according to the study of Thu, et al (2023)⁸.

- The sample size was calculated to be 257 based on the formula. In practice, data were collected from 286 healthcare workers.

- **Sample selection:** Healthcare workers with at least six months of employment in the following departments at the Vietnam National Children's Hospital were included: Pediatric Orthopedics, Infectious Diseases, Hepatobiliary, Physical Therapy and Rehabilitation, Emergency and Toxicology, Neonatology, General Surgery, Urological Surgery, Gastroenterology, Clinical Hematology, Cardiology, and Nephrology and Dialysis.

4. Measurements

The interview questionnaire was developed based on the Hospital Survey on Patient Safety Culture (HSOPSC) created by the Agency for Healthcare Research and Quality (AHRQ).⁹ The

questionnaire was divided into two parts: Part 1 contained of 11 questions related to general information and associated factors. Part 2 consisted of 42 questions representing 12 components, including: (1) Communication openness; (2) Feedback and communication about errors; (3) Handoffs and transitions; (4) Management support for patient safety; (5) Nonpunitive response to errors; (6) Organizational learning; (7) Overall perception of patient safety; (8) Staffing; (9) Supervisor/manager expectations and actions promoting safety; (10) Teamwork across units; (11) Teamwork within units; (12) Frequency of events reported measured using a Likert scale from 1 to 5 (Strongly Disagree – Strongly Agree). Each question was rated as Positive or Not Positive. The percentage of positive responses for each component of the safety culture was calculated based on the positive responses to the questions within that component. If the percentage of positive responses for a given component was above 75%, it was considered a favorable factor; if it was below 50%, it was considered an unfavorable factor that required future improvement.^{9,10} The questions were phrased in both positive and negative directions. Responses of "Strongly Agree/Agree" or "Most of the time/Always" were considered positive for positively worded questions, while for negatively worded questions, positive responses were assessed inversely ("Strongly Disagree/Disagree" or "Never/Rarely"). The overall patient safety culture variable was a composite of the 12 components of patient safety culture. After aggregating the scores of the 12 components into a single patient safety culture score, we classified this score into a binary variable as follows: the threshold for positive responses was 42 subcomponents $\times$ 4 points = 168 points. Thus, scores of 168 points or higher were classified as Positive, while scores below 168 were classified as Not Positive.¹¹

5. Data management

The data were analyzed using STATA 16.0. Descriptive statistics, including mean, median, standard deviation, frequency, and percentage, were applied to characterize the safety culture. For positively worded items, responses of 4 and 5 ("agree/strongly agree" or "most of the time/always") on a 5-point Likert scale were considered positive, while responses of 1 and 2 ("strongly disagree/disagree" or "never/rarely") were regarded as positive for negatively worded items. The positive rate for each dimension was calculated by averaging the percentages of positive responses across the subsections within each field.

6. Ethics Statement

The study protocol was approved by the scientific panel of Hanoi Medical University, Vietnam. Participation was anonymous and voluntary. Verbal informed consent was obtained from all participants, who were informed of their right to withdraw from the study at any time.

III. Result

Table 1. General characteristics of study subjects (n=286)

Characteristics		Quantity	Percentage (%)
Gender	Male	56	19,5%
	Female	230	80,4%
Age	≤ 35 years old	179	62,5%
	> 35 years old	107	37,5%
Work Unit	Clinical Division	137	47,9%
	Paraclinical Division	107	37,4%
	Functional Department	42	14,6%
Current Title	Doctor	56	19,5%
	Nurse/Midwife/Technician	191	66,7%
	Pharmacist/Specialist	39	13,6%
Current Position	Leader/Head Nurse	24	8,3%
	Staff	262	91,6%
Years of Service	<5 years	124	43,3%
	From 5-10 years	83	29,0%
	> 10 years	79	27,6%
Years of Experience	<5 years	106	37,0%
	From 5-10 years	91	31,8%
	> 10 years	89	31,1%
Working Hours	≤ 40 hours/week	254	88,8%
	>40 hours/week	32	11,1%
Number of On-call sessions per Month	Under 5 sessions/month	265	92,6%
	5-8 sessions/month	16	5,5%
	>8 sessions/month	5	1,7%

Table 1 showed that within the study population (80.4% female), the majority were aged ≤ 35 years. Nearly half of the healthcare workers were from the Clinical division, with most holding roles as Nurses/Midwives/Technicians. The majority of healthcare workers worked ≤ 40 hours per week and had fewer than 5 on-call shifts per month.

Table 2. Average positive response rate of safety culture dimensions by department level (n=286)

Patient safety culture dimensions	Average positive	
	n	%
Nonpunitive response to errors	145	50.7%
Department staff feel prejudiced when making mistakes (<i>reverse</i>)	254	88.8%
When an incident occurs, the department only considers personal responsibility without looking into the cause due to the process or system (<i>reverse</i>)	268	93.7%
Staff worry that their mistakes (if any) will be recorded and used as a basis for evaluating their performance (<i>reverse</i>)	148	51.7%
Organizational learning	194	67.8%

Patient safety culture dimensions	Average positive	
	n	%
The department proactively implements, guides, and trains in reporting medical incidents and patient safety	271	94.7%
Staff in the department feel that errors themselves have helped the department improve	213	74.4%
The department conducts an evaluation of the effectiveness after implementing interventions	269	94.0%
Communication openness	220	76.9%
Staff feel free to give feedback to department leaders when they see errors in the department that affect patients	279	97.5%
Staff feel comfortable and not afraid to ask department/hospital leaders to make improvements to enhance patient safety	256	89.5%
Staff are afraid to ask questions and give opinions when things are not right or there may be errors in the department (<i>reverse</i>)	242	84.6%
Supervisor/manager expectations and actions promoting safety	253	88.4%
Department leaders encourage and praise staff when they report medical incidents and follow the reporting process	280	97.9%
Department leaders always listen to and seriously consider staff's suggestions for reporting medical incidents and improving patient safety	281	98.2%
When work pressure increases, department leaders always urge staff to complete even though they may ignore safety procedures (<i>reverse</i>)	247	86.3%
Department leaders do not care even though errors are repeated in the department (<i>reverse</i>)	256	89.5%
Staffing	259	90.5%
The department has enough staff to work	269	94.0%
The working hours in the department do not ensure the best patient care (<i>reverse</i>)	257	89.8%
The number of staff in the department does not ensure the best patient care (<i>reverse</i>)	251	87.7%
The department often works in a rush. trying to do as much and as quickly as possible, so there is a risk of errors (<i>reverse</i>)	268	93.7%
Feedback and communication about errors	261	91.2%
Staff are informed about incidents in the department and preventive measures are applied	273	95.4%
Staff are informed about errors occurring in the department, hospital	267	93.3%
The department organizes discussions on measures to prevent errors from recurring	275	96.1%
Teamwork within units	285	99.6%
Everyone in the department always supports each other	285	99.6%
Staff in the department always work in groups to complete urgent tasks	276	96.5%
Everyone in the department always respects each other	284	99.3%
Staff in the department voluntarily support each other when the department is overloaded with work	282	98.6%

Table 2 showed that the dimension with the lowest positive rate was "Nonpunitive response to errors" (50.7%); specifically, 48.3% of healthcare staff expressed concern that their mistakes (if

any) would be recorded and used as a basis for performance evaluation. Dimension with higher positive rates included "Teamwork within units" (99.6%); " Feedback and communication about errors " (91.2%); and " Staffing " (90.5%).

Table 3. Average positive response rate of safety culture dimensions by hospital level (n=286)

Patient safety culture dimensions	Average positive	
	n	%
Handoffs and transitions	235	82.1%
When transferring patients, patient information is not recorded and transferred in full according to regulations (<i>reverse</i>)	235	82.1%
Important information in patient care is often not transferred between shifts (<i>reverse</i>)	260	90.9%
The exchange of patient care information between departments often has errors (<i>reverse</i>)	243	84.9%
There are many issues related to patient safety that occur during the handover between shifts in the hospital (<i>reverse</i>)	219	76.5%
Management support for patient safety	241	84.2%
Hospital leadership (hospital) always provides a working environment that promotes patient safety	275	96.1%
Hospital activities show that patient safety is the top priority in patient care activities	279	97.5%
Hospital only cares about patient safety when an incident occurs (<i>reverse</i>)	243	84.9%
Teamwork across units	244	85.3%
There is good cooperation between departments	266	93.0%
Departments cooperate well with each other to ensure the best patient care	276	96.5%
There is no good coordination between departments (counter-direction)	229	80.0%
Staff feel uncomfortable working with staff from other departments (<i>reverse</i>)	236	82.5%

Table 3 demonstrated the positive response rate for each dimension of safety culture by hospital level, with all components being above 80%. However, some feedback indicated that issues persisted in "Handoffs and transitions, such as the occurrence of safety-related problems during handover between shifts (23.5%), and incomplete or insufficient patient information being recorded and handed over according to regulations during transfers (17.9%).

Table 4. Average positive response rate of safety culture dimensions by overall rating (n=286)

Patient safety culture dimensions	Average positive	
	n	%
Frequency of events reported	118	41.2%
Report the type of incident that occurred but was detected and prevented in time before affecting the patient	122	42.7%
Report the type of incident that occurred due to non-compliance with policies. procedures. regulations. etc. Of the hospital	144	50.4%
Report the type of incident that caused unexpected death or serious physical or mental harm to the patient	180	62.9%
Overall perception of patient safety	222	77.6%

Patient safety culture dimensions	Average positive	
	n	%
The department always puts patient safety and medical incident management first rather than trying to get as much done as possible	276	96.5
The department has effective procedures and measures to prevent errors from occurring	283	98.9
The department has not had any serious errors. mainly due to luck	218	76.2
The department has had some errors related to patient safety	155	54.2

The overall response of safety culture is presented in **Table 4**. The "Frequency of events reported" was below average (41.2%), with incidents still being reported incompletely. Even serious incidents, such as those resulting in death or injury, did not meet the required level of positivity.

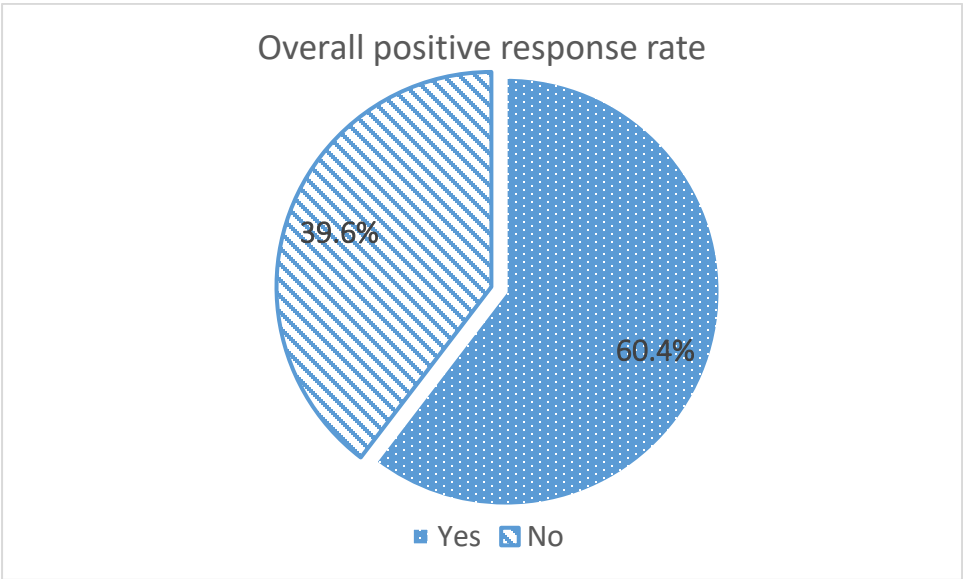


Figure 1. Overall positive response rate of safety culture of healthcare workers (n=286)

Chart 1 illustrates that the overall rate of positive patient safety culture in the study was only at a moderate level (60.4%).

IV. Discussion

Patient safety culture represents a fundamental pillar of healthcare quality and has been increasingly recognized as a critical global concern.^{12,13} By systematically evaluating patient safety culture, institutions can delineate both strengths and areas necessitating improvement, thereby establishing a foundation for targeted interventions.^{9,10} The present study explored various dimensions of patient safety culture among healthcare professionals, identifying key deficits requiring intervention alongside notable strengths.¹⁴

One of the most concerning findings pertained to the "Nonpunitive response to errors," which garnered a relatively low positive response rate of 50.7%. This outcome suggested that a substantial proportion of healthcare staff harbored concerns that error reporting could be used against them in performance evaluations. Such apprehension fosters a culture of blame, thereby deterring transparency and learning. This issue had been negatively assessed in multiple international studies, including those conducted in as Egypt in 2015 (66.7%)¹⁵, Saudi Arabia in 2013 (49%)¹⁶, Palestine in 2013 (17%)¹⁷, and Lebanon in 2010 (24.3%)¹⁸. Ahmed et al. (2023) reported similar findings in a Pakistani hospital, where only 41% of staff held favorable perceptions of nonpunitive responses to errors.¹⁹ Likewise, Alshammari et al. (2024) identified this as the lowest-rated domain

among Saudi nurses, underscoring the widespread nature of this issue.²⁰ The persistence of hierarchical medical cultures within healthcare institutions likely exacerbates this problem, as rigid organizational structures may inhibit open communication, strain staff-supervisor relationships, and, in some cases, encourage the concealment of medical errors.²¹

Similarly, the "Frequency of reporting medical incidents" demonstrated a low positive response rate of 41.2%, indicating suboptimal reporting practices. This trend has been observed in several international studies, including those conducted in Egypt in 2015 (60%)¹⁵ and Kuwait in 2014 (32%)²². The reluctance to disclose adverse events has been linked to punitive workplace environments, reinforcing the urgent need for policy shifts that foster a blame-free reporting culture.²³ Ahmed et al. (2023) emphasized the role of positive safety climates in increasing reporting rates, particularly in healthcare systems where punitive responses remain entrenched.¹⁹

Another key area for improvement was "Systematic improvement and learning efforts," which received a positive response rate of 67.8%. This dimension evaluates an institution's commitment to learning from adverse events and implementing corrective measures.²⁴ In similar global studies, this factor had generally been evaluated positively^{15,18,21}. While learning cultures are often well-developed in high-income countries, Juliasih et al. (2023) found that punitive cultures in Indonesian hospitals hindered the effectiveness of these efforts.²⁵ Similarly, Nwosu et al. (2022) reported weak safety cultures in operating rooms, highlighting the need for structured learning initiatives.²⁶ However, the reluctance stemming from a punitive culture had led to suboptimal reporting of incidents and a lack of post-correction quality improvement assessments, leading to a series of ongoing challenges that require targeted interventions at the Vietnam National Children's Hospital.

Aside from the three factors that required further improvement, all nine dimensions of patient safety culture were rated as positive (>75%). A 2015 study conducted on 328 healthcare workers in Alexandria, Egypt (80.0%)¹⁵; a 2013 study in Palestine with 1,460 healthcare workers¹⁷; and a 2013 study on 498 nurses in Saudi Arabia¹⁶ yielded similar results, with the most prominent positive factors being 'Teamwork and collaboration within the same department/unit,' 'Support for patient safety management,' and 'The attitudes and actions of department managers.' A comparable study conducted by Alshammari et al. (2024) in Saudi hospitals corroborated this finding, with "Teamwork within units" emerging as the highest-rated dimension among nurses.²⁰ Moreover, "Feedback and communication about errors" and "Staffing" were also rated positively, suggesting that institutional efforts to establish structured communication channels and ensure adequate workforce distribution were relatively effective.²⁷

The overall patient safety culture score in this study was 60.4%, aligning with prior research findings; this result was consistent with the study by Thu, et al.⁸; and higher than the findings in Japan (51.75%)²⁸, Taiwan (52.9%)²⁸, and the Netherlands (52.2%)²⁹, but lower than the study conducted in the United States (62%)²⁹. Differences in safety culture scores across healthcare systems may be attributed to variations in hospital management structures, leadership approaches, and national patient safety policies. Ahmed et al. (2023) noted similar challenges in Pakistan, where staffing shortages and high workloads were key concerns.¹⁹ These findings underscore the importance of robust governance frameworks and resource allocation in fostering a sustainable culture of patient safety.³⁰

Additionally, concerns were raised regarding "Handoffs and transitions," a domain in which, despite an overall positive response rate exceeding 80%, many staff members reported apprehensions about incomplete or inaccurate information transfers. Inefficient handoff processes increase the likelihood of medical errors and compromise patient care continuity. Nwosu et al. (2022) underscored the significance of open communication and well-structured handoff procedures in mitigating these risks.²⁶ To enhance patient safety, hospitals must prioritize the standardization of handoff protocols and implement electronic medical record systems to streamline information transfer.

Addressing punitive responses to errors, improving incident reporting practices, and fostering a culture of continuous learning remain imperative. Healthcare institutions must implement nonpunitive reporting policies, provide comprehensive patient safety training, and leverage technology-driven solutions to monitor and analyze safety incidents.³¹ Additionally, strong leadership and a commitment to transparent communication are essential to cultivating a responsive and proactive safety culture.

In conclusion, while several dimensions of patient safety culture were rated positively, significant areas remain in need of improvement. Strengthening error reporting systems, enhancing learning mechanisms, and optimizing interdepartmental communication are crucial steps toward fostering a safer and more efficient healthcare environment. By prioritizing patient safety as an institutional objective, healthcare systems can improve clinical outcomes and establish a workforce dedicated to delivering high-quality, patient-centered care.

V. Conclusion

Our study, conducted on 286 healthcare workers at the Central Pediatrics Hospital, revealed that the overall Patient Safety Culture score was relatively low, achieving only 60.4%. Nine out of twelve patient safety culture dimensions were assessed as positive factors. Areas identified as needing improvement included "Nonpunitive response to errors" (50.7%), "Frequency of events reported" (41.2%), and "Organizational learning" (67.8%). Consequently, it is recommended to enhance training on patient safety for all staff, particularly clinical personnel, and to encourage open communication and reporting of medical errors to improve the quality of healthcare services.

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