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Why Did They Fail? Investigating The Eight Invalid Dimensions of Patient Safety Culture: Mixed Method Research

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Abstract

Resistance to adopting patient safety culture practices or technologies can hinder improvements in patient safety. This study contributes to enhancing the understanding of patient safety culture (PSC) assessment by identifying the specific factors that render some PSC dimensions invalid and offering actionable recommendations for improvement in healthcare settings. Primary data were gathered using a mixed method of explanatory sequential design, with quantitative data collection and analysis followed by qualitative data collection and analysis. The study was conducted in the leading Private Hospital XYZ, one of the private hospital groups internationally accredited with Joint Commission International with a 110-patient bed capacity. Among the 12 dimensions, only feedback communication about error, handoffs and transitions, and teamwork across units were determined to be valid and reliable. Therefore, eight dimensions, including communication openness, continuous improvement, frequency of error reported, management support, overall patient safety, supervisor/manager expectation, and staffing were explored further through a focus group discussion (FGD). Delving into quantitative and qualitative insights has identified critical nuances that extend beyond mere quantitative metrics. The qualitative insights gleaned from healthcare professionals through the FGD illuminated the nuanced human aspects of safety culture that traditional measurements may overlook.

Keywords: anonymous reporting, management of communication, mixed method, patient safety culture

Abstrak

***Mengapa Penilaiannya Gagal? Menyelidiki 8 Dimensi yang Tidak Valid dari Budaya Keselamatan Pasien: Penelitian* Mixed Method.** *Penolakan untuk mengadopsi praktik atau teknologi budaya keselamatan pasien dapat menghambat peningkatan keselamatan pasien. Penelitian ini bertujuan untuk meningkatkan pemahaman tentang penilaian budaya keselamatan pasien* (Patient Safety Culture [PSC]) *dengan mengidentifikasi faktor-faktor spesifik yang menyebabkan beberapa dimensi* PSC *tidak valid, dan memberikan rekomendasi yang dapat ditindaklanjuti untuk perbaikan di lingkungan pelayanan kesehatan. Data primer dikumpulkan dengan menggunakan* mixed method of explanatory sequential design, *dengan pengumpulan dan analisis data kuantitatif diikuti dengan pengumpulan dan analisis data kualitatif. Penelitian dilakukan di Rumah Sakit Swasta terkemuka XYZ, salah satu grup rumah sakit swasta yang terakreditasi internasional* Joint Commission International *dengan kapasitas 110 tempat tidur pasien. Diantara 12 dimensi, hanya dimensi* feedback communication about error, handoffs and transitions, *dan* teamwork across units, *yang memenuhi syarat valid dan reliabel. Oleh karena itu, 8 dimensi yaitu* communication openness, continuous improvement, frequency error reported, management support, overall patient safety, supervisor/manager expectation, *dan* staffing *didalami lebih lanjut dalam* focus group discussion (FGD). *Melalui penggalian wawasan kuantitatif dan kualitatif, telah terindentifikasi deskripsi penting yang melampaui metrik kuantitatif. Wawasan kualitatif yang diperoleh dari para profesional di bidang kesehatan melalui* FGD *telah menyingkap aspek-aspek budaya keselamatan yang bernuansa manusiawi, yang mungkin terlewatkan oleh pengukuran tradisional.*

Kata Kunci: *budaya keselamatan pasien, komunikasi manajemen, metode campuran, pelaporan anonim*

Introduction

A key determinant of healthcare system quality in healthcare facilities around the world is ensuring patient safety. One of the cornerstones for enhancing patient safety today is encouraging a positive patient safety culture (Zwijnenberg et al., 2016). Healthcare professionals

play a pivotal role in reducing risks and complications in their patient care. Patient safety culture (PSC) evaluations are required for healthcare institutions to fully comprehend the elements that require immediate concern, recognize the positive and negative aspects of the organization's safety culture, and help hospital units identify prevailing patient safety issues while comparing their findings with other hospitals (Azyabi et al., 2021; Basson et al., 2021; Campione & Famolaro, 2018). Enhancing PSC within the hospital unit will enable administrators, managers, and policymakers to benefit from higher standards, better patient outcomes, fewer mistakes, and a more cost-effective healthcare system (Alswat et al., 2017; Ammouri et al., 2015). PSC is the result of individual and collective perspectives, perceptions, capabilities, and practices that influence a company's dedication, approach, and proficiency in health and safety management. PSC can be transformed by fostering an atmosphere where mistakes and bad outcomes are dealt with openly (Zwijnenberg et al., 2016).

The Hospital Survey on Patient Safety Culture (HSOPSC) from the US Agency for Healthcare Research and Quality (AHRQ) is the most extensively used tool for evaluating patient safety culture in healthcare premises. HSOPSC examines how hospital workers perceive their institutions' principles, beliefs, and standards, as well as its reporting of events, communication, leadership, and management (Rockville et al., 2021).

Several factors can contribute to the wide variety of interpretations of PSC, such as organizational, cultural, and regional differences (Churruca et al., 2021). Organizational differences, such as leadership styles and institutional priorities, can shape the overall safety culture within a healthcare facility. Cultural differences can affect how patients and healthcare professionals perceive safety, communicate about risks, and engage in preventive measures. Regional disparities in healthcare resources and infrastructure can lead to uneven access to high-quality care. Hence, a comprehensive understanding of these factors and the development of strategies to bridge these gaps are crucial for fostering a consistent and robust patient safety culture (Kang et al., 2021).

Nevertheless, practicing a PSC has certain problems. Resistance to adopting PSC practices or technologies can hinder improvements in patient safety. Addressing this challenge requires fostering a culture that embraces change and innovation, with a focus on continuous improvement (Titi et al., 2021). Hierarchical structures within healthcare organizations may create power imbalances that hinder open communication and the sharing of safety concerns. Hence, a flattened hierarchy that encourages collaboration and open dialogue is essential for a robust patient safety culture (Kearns et al., 2021).

Doctors and nurses also have various viewpoints regarding the teamwork they engage in. In general, based on previous studies, doctors appear to be happier with doctor-nurse teamwork than nurses (Elliott-Mainwaring, 2022). Nurses reported that compared to doctors, it was more challenging for them to speak up, conflicts were not effectively resolved, more input was required in decision-making, and nursing opinion was not well appreciated. Disparate views on teamwork may also be a significant factor in nurses' discontent with their line of work, resulting in a major nursing shortage (Elliott-Mainwaring, 2022; Kearns et al., 2021). Gaining the trust of frontline healthcare professionals for them to discuss their perceived hurdles and potential solutions openly required some time (Sreeramoju et al., 2018). A culture that discourages reporting of errors or near misses can impede the identification and resolution of potential safety issues. Fear of blame, reprisals, or a perceived lack of organizational support may discourage healthcare professionals from reporting incidents (Kusumawati et al., 2019).

Quantitative research on patient safety culture

has been extensive; however, qualitative or mixed-methods studies in this field are limited. Hence, the primary goal of this study is to unravel the intricacies surrounding the dimensions of the PSC framework, shedding light on why some of its dimensions fell short of capturing essential aspects of patient safety culture. This research aims to explore further into the qualitative nuances that underlie the invalidity of some of PSC dimensions by employing a mixed-method research approach, specifically an explanatory sequential design. We use structured focus group discussions (FGDs) to glean valuable insights from healthcare professionals to understand the underlying causes of this invalidity and provide a comprehensive explanation for their shortcomings.

Methods

The primary data were gathered using a mixed method of explanatory sequential design with quantitative data collection and analysis followed by qualitative data collection and analysis (Creswell & Clark, 2017; Kaur, 2016; Toyon, 2021). The study was conducted in the leading Private Hospital XYZ, one of the private hospital groups with excellent service values, internationally accredited with Joint Commission International (JCI) with a capacity of 110 patient beds and has become a benchmark private hospital group compared to other private hospital groups in the vicinity.

At stage one (quantitative method), this study used the second version of HSOPSC contains 42 items measuring 12 dimensions, consisting of blaming response (three questions), communication openness (three questions), continuous improvement (three questions), feedback and communication about error (three questions), frequency of events reported (three questions), handoffs and transitions (four questions), management support for patient safety (three questions), overall perceptions of patient safety (four questions), staffing (four questions), supervisor/manager expectations and actions promoting patient safety (four questions), teamwork across units (four questions), and teamwork within unit (four questions) (Rockville et al., 2021). We shared the questionnaire with the target population within the hospital, consisting of 8 general practitioners, 83 specialist doctors, and 169 nurses and midwives. The SmartPLS™ version 4.0 was chosen because it offers a bootstrapping option to verify significance when performing the partial least square-structural equation modeling (PLS-SEM) analysis. Each dimension of PSC is assessed by statistical methods in the form of mean, standard deviation, and maximum-minimum value. The research questionnaire uses a Likert measurement scale of 1 to 5 for the answer options for each question, ranging from 1, "strongly disagree," to 5, "strongly agree." Data processing with this approach provides two types of output, the outer or measurement model that describes the relationship between indicators and their variables to confirm the reliability and validity of each indicator used in the model using indicator reliability (outer loading), construct reliability (Cronbach's alpha and composite reliability), convergent validity (average variance extracted/AVE), and discriminant validity (heterotraitmonotrait [HTMT] ratio) to ensure every indicator in this research model is accurate and dependable for measuring each construct (Hair et al., 2019, 2022, 2024).

In stage two (qualitative method) to collect qualitative data, two semi-structured in-depth interviews within the FGDs were conducted for the dimension to collect qualitative data. During stage one of analysis was regarded as invalid. Participants for the interviews were selected purposively using a critical case sampling approach. The participants for FGD consisted of 10 participants with 3 specialist doctors, 2 general practitioners, 2 head nurses, and 3 nurses/midwives. The questions are listed in Table 1. Interview responses were noted contemporaneously, and the interview notes were confirmed with the interviewees at the end of the interviews. All the FGDs were conducted in Bahasa Indonesia, with each FGD lasting around 120–150 min.

Table 1. Semi-Structured Interview Questions

Interview Questions
1. On a scale of 1–10, how important do you think it is to assess this dimension, and why is it important/not important?
2. What are the difficulties in the process of assessing this dimension?
3. How do you think implementation in the unit can be improved?
4. How is day-to-day implementation in the unit, and what are the difficulties experienced?

Table 2. Demographic Data of Participants

Baseline Characteristic	Total (N = 260)	
	n	%
Gender		
Female	198	76.2
Male	62	23.8
Profession		
Specialist Doctor	83	31.9
General Practitioner	8	3.1
Midwives/Nurses	169	65.0
Number of incidents reported		
0 incident	76	29.2
1–2 incident	147	56.5
>3 incident	37	14.2
Length of employment		
< 1 year	47	18.1
1–5 year	137	52.7
> 5 years	76	29.2
Per-week working hours		
20–39 hours/week	47	18.1
40–59 hours/week	88	33.8
> 60 hours/week	125	48.1

Results

The demographic data of the 260 eligible participants are presented in Table 2. The result of the description of the PSC dimension is described in Table 3. Of a total of 12 dimensions, eight indicators were eliminated because the indicators did not meet the requirements for validity. Only teamwork within units (TWU), feedback communication about error (FCE), teamwork across units (TAU), and handoffs and transitions (HT) are determined to be valid and reliable.

The result of the reliability and validity test of the PSC dimensions are described in Table 4, with only four dimensions proven to be valid. In the second stage, two semi-structured in-depth interviews within the FGDs for the eight dimensions, i.e., communication openness, continuous improvement, frequency of error reported, management support, overall patient safety, supervisor/manager Expectation, and Staffing were identified as invalid during the quantitative stage.

Blaming Response. During the FGD, the study found that the average dimension importance rating from participants was 8.05 out of 10. Regarding the question of the difficulty of rating the questionnaire by respondents, 30% of respondents felt that the dimension was irrelevant because their status in the organizational structure is as partners not workers. The difficulty of implementation in the field is the absence of an anonymous reporting system

(100%) because they are afraid of being considered complainers/snitches (30%) and presumptuous (20%), can be scolded later by their seniors (40%), and a sense of reluctance towards coworkers (10%). All FGD participants suggested the implementation of an anonymous reporting system that focused on the accuracy of reporting.

> *"In practice, most of my friends in the field are afraid to speak up. They do not want to be blamed. Moreover, if we report other people, as I said earlier, we will even be considered snitches."* (P1)

> *"We do not have an anonymous reporting system, so when writing, it could be considered blaming or accusing. Moreover, if we report about a higher-level party, we feel reluctant. If we report something about someone else and we are found out, we can be confronted by a specialist or senior."* (P4)

Communication Openness. The average dimension importance rating from participants was 8.15 out of 10. Specifically, 30% of respondents felt they did not know who the higher authority being referred to in this dimension was because their status was as partners and not workers so they could not answer the question.

> *"I am a partner, not a worker. Therefore, the question of who the higher authority is unclear. Is it the medical committee? Is it the director of the hospital? It is not applicable for specialists."* (P3)

Continuous Improvement. The average dimension importance rating from participants was 9.0 out of 10. In particular, 30% of respondents felt that they had never received information about incidents in the hospital and the form of follow-up, and thus could not answer questions in this dimension. Participants suggested management communication regarding the improvements made (60%) and review of workloads when replacing existing Standard Operating Procedures (SOPs) (10%).

> *"From me, sometimes new SOPs do not have proper follow-up evaluations. It made our difficulties not properly conveyed. Next thing we know, another incident has occured, and we are wrong again."* (P5)

> *"Implementation of new SOPs is sometimes not accompanied by a new assessment of workload."* (P7)

Frequency of Error Reported. The average dimension importance rating from participants was 6.3 out of 10. No difficulties were encountered during the assessment, although all participants admitted that they did not contribute at all to current incident reporting. The difficulty of implementation in the field is the absence of an anonymous reporting system (100%). Participants suggested providing communication media for the trendline of incidents seen, the number of incidents in shifts and units (70%), and the need for socialization of posters or videos of what events need to be reported (near-miss, risk, incident, and sentinel).

> *"Management can re-socialize and periodically type of near-miss and incident that? It needs to be reported. There needs to be a real form of socialization about the improvements that occurred due to the latest trend of near-miss and incidents so that people have the motivation to report them."* (P3)

Management Support. The average dimension importance rating from participants was 9.1 out of 10. No difficulties were encountered during the assessment; however, all participants felt that they did not receive management support in running the PSC. Participants suggested a form of regular management communication regarding various management activities and changes made and a review of the necessity of the current middle management.

> *"Cannot say anything good because the support is not felt and cannot be observed."* (P2)

Table 3. Descriptive PSC Dimension

Dimension	Average (%)
Teamwork Within Unit	95.23
Feedback Communication about Error	93.19
Teamwork Across Unit	91.46
Handoffs and Transitions	75.85
Blaming Culture	42.51
Communication Openness	60.35
Continuous Improvement	74.14
Frequency Error Reported	58.21
Management Support	59.38
Overall Patient safety	48.44
Supervisor/Manager Actions	78.42
Staffing	42.44

Table 4. Reliability and Validity of PSC Dimension

	Outer Loading	Cronbach's alpha	CRA	CRC	AVE
TWU	0.658	0.696	0.706	0.818	0.533
FCE	0.586				
TAU	0.839				
HT	0.808				

Abbreviation: Feedback Communication about Error (FCE), Handoffs and Transitions (HT), Teamwork Across Units (TAU), and Teamwork Across Units (TWU).

"There needs to be a form of management communication when there is an incident and what kind of improvement has been and will be made in the future." (P10)

Overall Patient Safety. The average dimension importance rating for participants was 8.05 out of 10. Regarding the question of difficulty in rating the questionnaire by respondents, 40% found it difficult to answer because of double negative questions. The difficulty of implementation is due to the difficulty in accessing SOPs in the field because it was considered confidential documents (30%), SOPs between units can be different (30%), and the current SOPs are no longer suitable for working conditions (40%). All FGD participants suggested the need for SOP uniformity between units, SOP updates, and the implementation of a mentorship system for new workers.

"There is a gap in field knowledge between new workers and old workers. New workers find it difficult to access SOPs. Even though the existing SOPs are general, they do not describe detailed workflows." (P1)

"SOPs are difficult to access because they are part of confidential documents." (P9)

"The policies can differ between units, depending on the discretion of each head nurse. It is a good idea to make the SOP unified and structured clearly." (P2)

Supervisor/Manager Expectation. The average dimension importance rating from participants was 5.9 out of 10. The difficulty of implementation in the field is apparent because 30% reported that they do not know who their current direct supervisor is and 70% felt the absence of a clear chain of command with often different instructions from various levels of middle management. The lack of clarity as to who is the direct supervisor caused respondents to be confused as to which personnel

should be assessed in this dimension. Respondents suggested creating a chain of command policy at the operational and managerial levels.

> *"It is necessary to create a clear communication flow for providing instructions."* (P8)

> *"There are often different instructions from various levels of middle management. My direct supervisor is actually the head nurse. But sometimes the head of the medical department and the head of nursing also come directly to give different instructions."* (P9)

Staffing. During the FGD, it was found that the dimension is considered as most important (mean 10 out of 10). Regarding the question of the difficulty of rating the questionnaire by respondents, 80% of respondents did not know what was meant by temporary staff in the question because the status of workers in the first two years of their work was contract workers and not permanent workers. The difficulty of implementation in the field is that long working hours (>40 hours/week) are considered normal in hospitals. Demographic data showed 81.9% of workers worked >40 hours/ week. The respondents suggested the Human Resources Division conduct workload analysis in various work units immediately.

> *"Here I feel that working hours of 50–70 hours per week have become normalized. Even though according to Manpower National Rules, we should only work 40 hours."* (P4)

> *"Yes, manpower workload analysis needs to be evaluated immediately. This normalization of long working hours is unhealthy, but in this hospital is considered normal."* (P6)

Discussion

The study's findings highlight the vitality of employing a variety of techniques to evaluate patient safety culture, particularly if the findings are intended to lead to improvements. For instance, issues with service delivery were mentioned in practically all interview answers. If the quantitative results were the only data used to inform change, the management might be misinformed into believing that safety culture was viewed favorably. High workload is another issue identified in the interviews as being significant. Thus, improvement initiatives focus more intently on reducing excessive workload and recalculation of current load based on updated SOPs.

The importance of establishing a mechanism for anonymous incident reporting with continuous assessment and improvement of the interventions was also noted (Collins et al., 2020; Creswell & Clark, 2017). Implementation of the anonymous reporting system with training was associated with a statistically significant increase in the rate of reported medical errors (Farag et al., 2019). Leaders need to encourage interdisciplinary collaboration indirecttly with anonymous reporting by fostering open communication between different healthcare disciplines, ensuring responsibility for PSC is embedded at all levels of an organization, and rewarding healthcare workers who actively contribute to creating a safer and more empathetic care environment (Basson et al., 2021). One of the most common issues was a lack of awareness of best practices within the team and unwritten hierarchies within the team (Etherington et al., 2021).

The importance of implementing a mentorship system for new workers is also highlighted. Mentorship is a vital component of the personal and professional success of new employees due to the unique challenges and opportunities presented (Rohatinsky & Jahner, 2016). Mentorship is a feasible approach to supporting newcomers that results in more efficient and effective integration, enculturation, and higher levels of retention. This knowledge transfer is essential for ensuring that healthcare practitioners are well-equipped to

navigate complex situations and make informed decisions related to patient safety (Wahyudyasa et al., 2023). Mentors play a pivotal role in shaping the attitudes and behaviors of mentees. Through mentorship, a culture of patient safety can be ingrained within the organizational fabric, influencing how individuals approach their work and prioritize patient safety initiatives. The mentorship system contributes to creating a psychologically safe learning environment. Healthcare professionals are more likely to engage in proactive safety behaviors and report errors in an environment where they feel supported and encouraged to learn from their experiences (Farag et al., 2019; Helo & Moulton, 2017).

Standardized procedures facilitate effective communication among healthcare team members. A shared understanding of SOPs ensures that all team members are on the same page, promoting seamless communication and collaboration in patient care. SOP uniformity simplifies training and onboarding processes for new staff members. When procedures are consistent across units, it becomes easier to train healthcare professionals, reducing the learning curve and ensuring a quicker integration into the patient safety culture (Caruso et al., 2016; Rohatinsky & Jahner, 2016). The importance of implementation of SOP uniformity between units and regular SOP is also highlighted. When realized and materialized as a component of an effective management system, SOP helps cultivate transparent functions, implement error prevention measures, facilitate corrective actions, and transfer knowledge and skill (Barbé et al., 2016). Standardizing operating procedures across different units ensures consistency in healthcare practices. This consistency is vital for minimizing variations in patient care processes and promoting a standardized approach to safety protocols (Lymperopoulos et al., 2015). SOP uniformity contributes to the reduction of error rates by providing clear, standardized guidelines for healthcare professionals. The likelihood of errors and deviations from established safety protocols decreases when procedures are consistent (Helo & Moulton, 2017).

Effective teamwork is essential for safe, high-quality healthcare. Hospital leadership must identify barriers disrupting teamwork within the unit (Etherington et al., 2021; McEwan et al., 2017; Nygren et al., 2021; Welp et al., 2016). One of the most common issues was a lack of awareness of best practices and unwritten hierarchies within the team. Hospital leadership needs to encourage increasing familiarity with team members. The human resources team can help by creating an interprofessional lounge facilitating a collaborative team culture (Etherington et al., 2021). Effective teamwork is essential for safe, high-quality healthcare. Hospital leadership must identify barriers disrupting teamwork within the unit (Etherington et al., 2021; McEwan et al., 2017; Nygren et al., 2021; Welp et al., 2016). Various viewpoints exist among doctors and nurses regarding the teamwork they engage in (Welp et al., 2016). In general, based on previous studies, doctors seem to be happier with doctor-nurse teamwork than nurses. Previous findings imply that several problems could be to blame for the differing overall evaluation of collaboration. Nurses said that compared to doctors, it was more challenging for them to speak up, conflicts were not effectively resolved, more input was required in decision-making, and nursing opinion was not well appreciated.

Disparate views on teamwork may also be a significant factor in nurses' discontent with their line of work, which has resulted in a major nursing shortage (Nygren et al., 2021). Studies on improving team functioning in health care focus on three types of interventions: training, tools, and organizational (re)-design. Training is divided into principle-based (subcategories: crew resource management based training and team strategies and tools to enhance performance and patient safety [TeamSTEPPS]), method-based (simulation-based training), and general team train-

ing. Tools are instruments that could be implemented relatively independently to structure (subcategories: situation, background, assessment, and recommendation (SBAR), (de)briefing checklists, and rounds), facilitate (through communication technology), or trigger teamwork (through information provision and monitoring). Organizational (re)design focuses on intervening in structures, which will consequently improve team functioning (Buljac-Samardzic et al., 2020). Hospital leadership needs to encourage interdisciplinary collaboration by fostering open communication between different healthcare disciplines, ensuring that responsibility for infection prevention is embedded at all levels of an organization, and rewarding healthcare workers who actively contribute to creating a safer and more empathetic care environment. Regular team meetings and brainstorming sessions are needed to provide opportunities for constructive dialogue, while leaders must prioritize active listening and empathy in addressing team concerns (Sandoval, 2022; Welp et al., 2016).

Conclusion

In conclusion, our investigation into the eight dimensions of patient safety culture using a mixed-method research approach has shed light on the multifaceted factors contributing to their invalidity. By delving into both quantitative and qualitative insights provided by healthcare professionals through Focus Group Discussions, we have uncovered critical nuances that extend beyond mere quantitative metrics. The qualitative insights gleaned from healthcare professionals through Focus Group Discussions have illuminated the nuanced human aspects of safety culture, which traditional measurements may overlook. These findings not only explain why these dimensions fell short of capturing essential aspects of patient safety culture but also offer a pathway for improvement. As we strive for a more consistent and robust patient safety culture in healthcare, we must address the underlying causes and develop strategies that bridge these validity gaps.

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