

PATIENT SAFETY CULTURE IN PERSPECTIVE OF MILLENNIALS: CASE STUDY IN A MALAYSIAN PRIVATE HOSPITAL

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ABSTRACT – This case study investigated the nature of patient safety culture in a Malaysian private hospital. This was accomplished by studying the general perception of patient safety with a survey questionnaire and insights from open comments. The Donabedian framework of quality was used to further analyse the nature of patient safety culture from the perspective of millennials. Findings from the interviews were triangulated with data from observations and document reviews, which were interpreted based on the High Reliability Organisation (HRO) principles. They revealed that the structures and concerns in the practice environment regard the artificial intelligence (AI) system, human capital management, and manpower, while processes such as communication, teamwork and collaboration issues, and training and improvements are vital. Patient safety culture outcomes which depend on structures and processes, indicated the need for improvements in the frequency of events reported. The main implication of this study is that to raise standards of care to those in an HRO and in a complex care environment, a paradigm shift from current reactive standards towards a more proactive safety system, based on flexibility and stability, would be necessary. This requires a strong case organisation to note appropriate structures and processes affecting eventual outcomes.

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INTRODUCTION

Safety culture is the product of individual and collective beliefs, values, attitudes, perceptions, competencies, and patterns of behaviour that make up an organisation's commitment to quality and patient safety (The Joint Commission, 2017). Healthcare organisations in many countries, including Malaysia, are facing various challenges including patient safety and reliable care. Previous research into safety culture stressed the importance of continuous evaluation and a deeper understanding of challenges to improve it. A significant portion of patient safety research was derived from healthcare organisations in developed countries. In Malaysia, according to the Ministry of Health's patient safety statistics on private and government hospitals from 2016 to 2018, cases of medical harm in patient safety increased by 100%. These cases included wrong-site surgery, retention of foreign objects, blood transfusion errors, medication errors, and patient falls.

Healthcare organisations must be highly reliable. Some authors suggested using High Reliability Organisation (HRO) concept to analyse and explain adverse events in healthcare institutions that limit our understanding of factors that contribute to safe care. Explanations of a harmful incident cannot be restricted to system performance or the theory's linear models: principles of HRO were not developed to address the complexity and uniqueness of the healthcare system (Hollnagel, 2015). To address issues of the HRO, the Donabedian model for quality care was used to examine the structure, processes, and outcomes of a healthcare institute (a private hospital). Structure elaborates the perspective of where care is provided, such as physical layout or hospital buildings, staff, budget allocations, and equipment. Care delivery is actions that take place in the hospital. The outcome is described as the results or products of care, such as health outcomes, changes in lifestyle, attitude, and knowledge related to the quality of life. Donabedian postulated that the structure affects care processes, which in turn affects outcomes. Based on this model, the hospital's organisational structures and staff characteristics influence patient safety practices, which also affects safety-event reporting by employees (Bainbridge, Bryant, & Seow, 2017; Hansez & Chmiel, 2010). There is a great interest in effective, sustainable solutions that incorporate high-reliability principles towards improved quality outcomes.

LITERATURE REVIEW

The degree of harm that patients experience has been well-documented since 1999, through several watershed papers. The most widely-read is 'To Err is Human,' published in the U.S (Institute of Medicine, 2004). Patients must be kept safe within an increasingly interdependent system of global healthcare providers. More than 13,000 different diseases, injuries, and syndromes are recognised, and most are difficult to treat (Gawande, 2014). Complex patient comorbidity is

accompanied by a progressively elaborated sociotechnical environment, which strains healthcare systems (Hollnagel, 2015).

Patient safety issues arise due to ineffective communication, poor teamwork (Rosen et al., 2018), unbalanced heavy assignments, and employee fatigue (Hall, Johnson, Watt, Tsipa, & O'Connor, 2016). Poor adherence to guidelines and standard operating procedures and shortcuts should be preventable issues (Lawton et al., 2012). Ensuring patient safety is vital in improving quality healthcare. Patient safety creates a healthy environment and reduces the risk of unnecessary healthcare-related harm to an acceptable minimum (The Joint Commission, 2017). Embedded within the concept of patient safety is an ingrained safety culture, which is a vital component of quality health services. Safety culture is the product of individual and group values, attitudes, perceptions, competencies, and behavioural patterns of expertise in a healthcare organisation (Martinez et al., 2013).

Most studies reviewed perceptions and changes in specific healthcare settings and the response to improvement strategies (Aboshaiqah & Baker, 2013; Basson, Montoya, Neily, Harmon, & Watts, 2018; Jones, Podila, & Powers, 2013). However, appropriate research methodologies for the assessment of patient safety culture demands more research since there is a piece of weak evidence for good or positive patient safety culture. Most studies in HRO's management suggested the improvement of quality and patient safety, in specific hospital units and departments (Mazzocato, Savage, Brommels, Aronsson, & Thor, 2010). Research pieces of evidence demonstrated the need for improving patient safety through enhanced teamwork, psychological factors, and organisational culture, using well-structured strategies, is evident (Weller, Boyd, & Cumin, 2014). In addition, there is limited evidence to support the impact of costly policies on patient safety outcomes (Morello et al., 2013).

METHODOLOGY

This research adopted a single case study approach, providing data and perspective from different contexts (Creswell & Creswell, 2018). A case study design is an examination of a single unit, such as one organisation, which can include a few subjects, with many variables. The aim of this research is to understand the nature of patient safety culture, from a millennial's perspective.

A single case study was intended to provide data on patient safety and practices within this hospital. The site acting for the case study and this research was a private hospital in Malaysia. There were about 404 front-line employees from all professions and genders. The largest workforce in this hospital was millennials (77%). About 20% of the employees fell under Gen X and 2% are Baby Boomers. Millennial employees with one to two years of service comprised the largest population (205, 66%), followed by those with at least five years of service (63, 20%); those with two to five years (43) accounted for 14% of the population.

Data collection method and analysis

Four types of data collection methods were applied; questionnaire survey, open-ended interviews, observations, and document reviews. The goal of the research is to retrieve relevant information, but not necessarily 'representativeness'. Purposeful sampling was conducted on frontline staff for a semi-structured questionnaire survey which delivered 231 respondents (75% response rate). Based on the survey, a number of patient safety issues were highlighted. The open comments of the survey questionnaire of 39 respondents were classified into several categories: staffing (16), documentation (6), poor standardisation of workflow (9), organisational improvement (6), and communication (2). Within the survey, the dimensions yielding a high positive response rate were clinical manager expectations, management support, and organisational learning. Dimensions needing improvement were overall perception, feedback and communication, teamwork within units, and interaction openness. Five dimensions received poor ratings: nonpunitive response to errors, staffing, teamwork in units, frequency of events reported, and handoff and transition.

Therefore, based on the comments raised in the survey questionnaire, the research continued with open-ended interviews to investigate further critical issues. A pilot focus group (n=3) of millennials (a nurse, a medical doctor, and a clinical manager) tested the appropriateness of interview questions formulated. Millennials (nurses, medical doctors, and clinical managers) at the hospital born between 1981 and 1996 were interviewed until data saturation was achieved (n=30). During field interview research, midway through the interviews, the researcher reviewed relevant documents that could assist the fieldwork - key performance indicators (KPIs) (bed occupancy rate, staffing level percentage, training hours). The research concluded with six sets of observations (which complemented the interviews) on a group of millennials during their in-patient care, to assess the existence of best practices in transfer and handover performed, as well as document reviews.

Data analysis

The triangulation of data from an open-ended section of the survey questionnaire, the open-ended interviews, observations, and document reviews were performed with the help of Atlas.ti 8 software. The data analysis was based on an interpretive phenomenological analysis (IPA) approach, involving a systematic and staged process. The aim was to understand the meaning of the interview's content, rather than measuring the frequency of verbalisations (Miller & Barrio Minton, 2016). HRO practices were interpreted within the structures, processes, and outcomes of a Donabedian model of quality care.

Methodological rigour

Reliability relates to the ability of others to accurately replicate the research study, which Yin (2014) believed is of particular importance. In this study, reliability was achieved through the development of key documents, such as the case study protocol and interview guide. A database was created that contained all data for this study, including transcripts, Excel sheets used for analysis, and diagrammatic representations. Another healthcare expert reviewed codes, themes, and interpretations as forms of validation.

FINDINGS AND INTERPRETATION

Structure issues: Human capital and manpower

Staffing shortfalls in the clinical area was the most significant concern in patient safety, particularly by the six interviewees (DR2, MX2, MX1, DR1, DR3, N15).

“I see that we are struggling due to understaffing and lack of experienced nursing staff. The new staff comes in without any experience, but by the time they become familiar with the work and get used to patient safety standards and expectations, they leave. It is distressing for us to have our patients in the hands of inexperienced nurses.” (DR1)

The lack of registered nurses resulted in a decrease in quality standards and the degree of interaction between patients and staff (Bridges, Griffiths, Oliver, & Pickering, 2019). When hiring is executed precipitously, the risk of bringing inexperienced workers onto the team can be expected. Untrained healthcare workers are also more likely to make errors that could affect patient safety: complications and infection rates rise, and medication errors occur. These errors may involve administering an incorrect dose to the wrong patient. Patient length of stay can also negatively affect these issues. Healthcare organisations must keep in mind that hiring incompetent workers may threaten patient safety, as expressed by DR1. Hiring talented healthcare workers enhances patient satisfaction and quality of care, resulting in improved safety culture. However, the culture will not improve if staff turnover is high. A millennial doctor (DR3) said that new employees leave every two to three years, which could be related to salary issues.

“I think the most critical point is that we are losing our staff. Our staff members are leaving every two or three years. Old staff are not all happy with the current working situation.” (DR3)

Staff experience can equate with patient safety. The inexperienced staff puts the hospital at risk and renders it more vulnerable to errors; this is a highly demanding, complex environment involved with matters of patient safety. Working in such a fast-paced acute care setting requires energy and constant alertness, and a team of qualified staff to oversee the needs of fragile, compromised, very ill people, often with unpredictable symptoms. Reliable staff is a cohesive work team, responsible for quality patient care. Document review and surveys showed that almost 80% of millennial staff in this specific hospital have fewer than two years of experience.

A problem linked with staffing issues is having to perform overtime with frequently being on call. Staff is working extended hours, which is linked to increased incident reports (Son, Lee, & Ko, 2019). Staff making errors are likely to be affected by burnout, dissatisfaction with the profession, poor quality of care, and leaving the job (Dewa, Loong, Bonato, & Trojanowski, 2017). The contributory relationship between staff-to-patient ratios and patient safety involves a heavy workload and high stress. Six sets of observations carried out in the in-patient units showed a lack of skilled nursing staff, high patient to staff ratio, and difficult task-based assignments. A doctor (DR1) in the interview mentioned the nurse-to-patient ratio:

“The number of staff members to the number of patients, with so little experience, is just impractical.” (DR1)

Overall nursing workload as a function of imbalanced staff-to-patient ratio was linked to adverse patient outcomes as well. Determining adequate staffing is essential, along with good supervision considering patient acuity, availability of mixed staff, and task distribution (Needleman et al., 2011). The omission of care, poor documentation, inadequate assessment, and education are linked to lack of personalised care (Ball, Murrells, Rafferty, Morrow, & Griffiths, 2014) or cubicle nursing (total patient care).

“We cannot practice cubicle nursing, even though we can do more task-based nursing that way. If seniors must follow rounds and do medications, then we do all the running around. Especially documentation.” (NUR4)

Task-based assignments can be more efficient but can lead to more errors with patient safety. Nurses may lack proper guidance with the training and staffing ratios, which is again dependent on task-based assignments (LoPresti et al., 2020).

Structure issue: System with artificial intelligence

The system which is not linked to each other (asynchronous) are the very factors affecting patient safety. Respondent DR3 succinctly expressed the view below.

“Our systems are not talking with each other. I wait for hours for medical insurance claims before I can perform a procedure on my patient. I am answerable to my patient. Our mission is serving with heart, but how can I help with my heart if the system doesn't allow me to do so. (DR3)”

The millennial participant in this interview perceives that a good system can monitor patient needs. AI is useful in detecting errors and preserving patient safety (Shojania et al., 2001).

Observation showed the hospital has adopted expensive equipment such as automated early warning scoring systems (AEWS) in all units. This detects early deterioration of patients and facilitates alerts to the rescue team and doctors. Adaption of infrastructure such as AEWS promotes patient safety culture by enhancing the hospital's escalation protocols that improve clinical workflow. NUR6 and DR3 spoke about the use of various equipment to help in the prevention of harm, such as computerised medication orders, a centralised fetal monitoring system, barcoding for patient identification, and a robotic medication dispensing system.

“We have a Computerised Physician Order Entry for medication safety. Our automatic dispensing machine helps in cutting our work and checking the drugs because the pharmacy has done it once, and we must ensure it is correct before dispensing. We also have Automatic Early Warning Scoring System with auto alert for concerned doctors, team leaders, and code team, which will alert us when the patient is deteriorating.” (NUR6)

Artificial intelligence (AI) played an essential role in alerting healthcare workers about the safety of the patient. Identifying patients at risk for clinical deterioration with an automated system is vital for prioritising resources in a hospital setting. The automated early warning system has similar capabilities with medical predictions (Arnold et al., 2019). Thus, the prevention of harm with AI is associated with the adoption of a correct technology system code.

Process issue: Communication

Millennials experience communication gaps with preceding generations, and have difficulty expressing themselves; they think the older generation prefers direct conversation:

“We do have some communication gaps between age groups. Handphones are banned in the clinical area by senior staff and management. They feel we are using handphones for illegal purposes. But to me, we can mute certain functions and keep active notifications from a specific group. Even our doctors prefer to use handphones. I can write a short message regarding the patient if it is not urgent and he may reply whenever time allows him, rather than shouting on the phone and creating a disturbance.” (NUR16)

Millennial nurses and doctors are seen browsing handphones during handover and clinical rounds. A smartphone is shown to be effective in health consultations with the use of social networking apps (Hassan & Minato, 2018). They can create distractions in healthcare that can harm patient safety; thus, guidelines to minimise these distractions must be guarded (Vearrier, Rosenberger, & Weber, 2018). Millennials prefer social media to communicate, as they feel it is convenient and fast:

“I prefer to send a WhatsApp message in the group chat. It's up to the unit manager to take some action. Usually, she is the one who will ask us to write the report or an explanation.” (NUR 7)

Healthcare staff is expected to speak up about concerns relating to patient safety in order to help prevent errors and adverse patient outcomes. A staff member who expresses a patient safety concern may cause a superior to become defensive and face negative repercussions. However, millennial nurses also have difficulty speaking up:

“We are not encouraged to speak up to a superior. Even in school, we keep quiet most of the time. Sometimes we speak about significant issues that are serious. But we instead stay quiet if the problem is not too big. I have faced problems for bringing up issues beyond my manager.” (NUR 17)

There is a positive relationship between speaking up and patient safety (Nacioglu, 2016). However, difficulty with this is a contributing factor with errors and adverse events (Okuyama, Wagner, & Bijnen, 2014). Most healthcare staff, irrespective of their hierarchical position, can feel reluctant to speak up about certain issues (Okuyama et al., 2014; Lyndon et al., 2012). Many factors contribute to this, as related to upbringing. Poor reporting is attributed to the perception

of speaking up as a risky, low-gain venture (Okuyama et al., 2014). In HRO, an inquisitive attitude while challenging inappropriate behaviours with those of higher authority must be encouraged (Hines et al., 2008).

Process issue: teamwork and collaboration

Two participants in the interview mentioned patient safety being affected during a busy time. When too many things are happening simultaneously, staff can inadvertently overlook some tasks, with the chances of mistakes becoming higher.

“However, sometimes we are faced with staff shortages, patient deterioration, too many doctors on rounds at the same time, and a chaotic unit, so we do make mistakes.” (NUR 6)

Comments on the survey confirmed that morning duty is more chaotic, with many procedures happening at the same time. Irrespective of the existence of teamwork, if this is the case, then patient safety may be overlooked. By not being able to organise work processes by team members into a set of clearly defined behaviours, the work processes may not be reliable (Hines et al., 2008). The unorganised workflow creates a distraction, especially during medication rounds (Getnet & Biftu, 2017). By analysing the six comments in the survey, it is evident that this hospital has higher chances of a distraction during medication rounds. High levels of concern have been found to be equivalent to high chances of failure, so certain steps can prevent disasters with relevant ‘antidotes’. (Yip & Farmer, 2015).

A similar concern exists in the maternity area with a high number of induction cases, as stated in the survey. Three observations revealed identical findings to the chaotic unit in the morning in three different areas, with staff disorganised while performing procedures. Achieving high reliability is viable if work processes, such as rounds, proper operating room scheduling, clinic appointment scheduling, induction case scheduling, and creating quiet zones are optimised. All risks should be studied, including processes to avoid even more risks, creating a higher chance of becoming a model HRO (Hines et al., 2008).

Generally, statements from the interview indicate good teamwork within hospital units. Poor collaboration and communication during healthcare delivery contribute to adverse patient events (Sacks et al., 2015; Salas & Rosen, 2013; Weller, Boyd, & Cumin, 2014). However, in the hospital setting, teamwork is a concern: work to complete a procedure is task-oriented or functionally-based. Nursing care is an efficient way of completing a complicated task by a few nurses. Yet, it can deviate from being patient-centered, leading to patient safety issues. This factory-line approach is fragmented, and the nurse-patient relationship cannot flourish. It also limits experiential learning by juniors that curb critical thinking in holistic patient care. Challenging teamwork across the hospital is stated below:

“I work in the medical ward and need to send my patient to x-ray. If, for example, the unit is busy, and I raise the concern, the department will not volunteer to come and take the patient even if they are free. If we ask for help from our shift coordinator, he or she might send somebody from other areas to help, but usually, the staff is not happy to be deployed. Similarly, I also do not like to be sent somewhere.” (NUR19)

Open comments in the survey indicated that staff and other units appear hostile during patient transfer. Effective partnership for patient safety requires collaboration, patient-centredness, adequate resources, support, acknowledgment of participating roles and abilities. Teamwork training is a transformative method for improved safety and quality healthcare. TeamSTEPPS is recommended for enhanced teamwork (Brock et al., 2013; Staines, Lécurveux, Rubin, Baralon, & Farin, 2019).

Engagement is a crucial factor in maintaining patient safety. However, this hospital seems to hire new nurses after two years of being engaged in patient safety activities, as stated by MX1:

“We usually wait for them to become experts in their units, after about two years, and depending on their interest, we will include them.” (MX1)

Millennial staff must be involved in change measures via training for patient safety (Myers & Sadaghiani, 2010; Pellegrini de Paur, Santos Costa, & St Germain, 2018).

Process issue: training and improvement

Organisation leaning is considered essential, given that this hospital has many new graduate nurses who are inexperienced, as mentioned by DR1:

“The quality of nurses cannot fit in the system immediately. They lack hands-on training. I am amazed that they often don't understand the medical terms we are using. They don't know many drugs. How can they be a safe practitioner?” (DR1)

The document review shows that consistently scoring above expected target hours, despite staffing problems, is a strength. The staff orientation programme shows an excellent comprehensive orientation to newcomer staff. MX1 explained two types of training: internal and external. Internal training is run by the education team, including online courses and assessments. External training is arranged outside, with an accredited organisation. Staff is given three months

to complete this before the probationary period ends. Training must be protected to empower staff to support patient safety (Reid, 2016). Staff must be trained to work in a more integrated environment by assessing safety in a broad context, according to unit policies.

All incident reports in this hospital must have a root cause analysis, irrespective of the nature of the impact, as stated by MX4:

“Every report has a detailed investigation and root cause analysis. We do these analyses for all cases. Post analysis, we inform the staff and all staff regarding the problem and what are the solutions we think of. We also keep them updated on the progress of the improvement.” (MX4)

The involvement of a multidisciplinary team in the analysis facilitates new ways to investigate, learn, and improve (Hibbert et al., 2018). Moreover, creating a culture of improvement with more reports on near-misses is a good sign of the HRO (Hines et al., 2008), but which is lacking in this hospital:

“No, I will not report the incident that I managed to prevent.” (NUR18)

Interviewees felt hospital accreditation contributed to the improvement of healthcare quality. The impact of accreditation led to the improvement of a patient safety culture. Certification can similarly impact patient safety in a positive way (Melo, 2016). Quality projects continue, with respondents stating they are part of a multidisciplinary quality improvement. This indicates that the hospital has adopted safety standards from accreditation bodies, and are engaged in analyses and policies pertaining to them. While standards are vital, measuring them is equally important (Melo, 2016).

Outcome issue: Frequency of event reported

The outcome metric to measure patient safety is assessing the frequency of events reported (Morello et al., 2013) The survey and document review of KPI indicates that the patient safety culture still needs improvement. To increase reporting, its significance needs greater awareness on the part of staff members. It appears that the reporting of near-misses has been very poor:

“No, if I managed to rectify the mistake and it does not harm the patient, I do not inform the doctor, for example, because it's useless for him.” (NUR2)

Near-misses are an excellent tool for mistakes to be avoided without actual harm to the patient. An opportunity is lost if it is not reported. To become an innovative HRO, near-misses can remediate gaps in patient safety (Landon, Weaver, & Fitch, 2016). Many organisations have a 'good catch program' to award the staff for reporting near-misses, thereby increasing potential error reporting. This hospital is less reactive in-patient safety culture in terms of how it reports, as shown in the survey results. Reporting harmful errors, which are intercepted before occurring, indicates good use of feedback. Low responses in this study imply that potential harm may be hidden, although reporting every incident indicates an organisation preoccupied with potential failure (Yip & Farmer, 2015).

DISCUSSION

A Donabedian model of quality was used to assess quality parameters as either a structure, process, or outcome measure (Donabedian, 1989). The practices and principles of the HRO were benchmarked on existing performance and practices. The structure was conceptualised as the features and the system that influence the situation in the practice environment. These structural issues affect how stakeholders operate as well. In this case study, structural findings were addressed by two categories. Firstly is 'human capital and manpower,' and secondly is a 'system with artificial intelligence.' Processes are conceptualised as predictive, preventive, and reactive in nature. Processes are actions in the preservation of patient safety. HROs highlight predictive abilities in harm prevention, referring to prediction and prevention of potential dangers before damage occurs. Measurement of outcome is a significant part of the culture; it helps to improve and avoid mistakes towards adverse outcomes. Instead of auditing at the end, to ensure the structure and product are defect-free of error, this should be available in real-time for HROs. The availability of a process to eliminate the chance of such defects occurring is a positive sign.

Structure needs the right people to do the right job

Structure needs human capital, manpower, and resources (with competence, skills, knowledge, and experience) to handle patients. Inadequate staff, task assignments, and personnel experience send a strong message of structural integrity. The creation of a safe environment requires sufficient staff. Manpower alone is insufficient to protect patient safety in the HRO. Patient safety culture is not achievable if inadequate staffing is unable to detect patient deterioration (Unruh & Zhang, 2012). Knowledge and experience ensure that skilled people are hired and trained for patient safety. High staff turnover will incur a cost on nursing training and patient safety (Waldman et al., 2010).

Structure needs a system for prediction and prevention of harm

Interviews revealed the inevitability of humans accidentally harming others, which signifies that there is enhanced patient safety with the use of AI. The need for proper systems challenges the traditional concept of relying only on humans and shifts the focus to enhanced safety in these times. Previous studies supported the use of AI in detecting errors (Shojania et al., 2001). AEWS equipment is available here and is efficient in the timely detection of a deteriorating patient. An early warning system works well with trained healthcare providers who have predictive qualities (Arnold et al., 2019). AEWSs increase communication and documentation, compared to manual early warning scores (Robb & Seddon, 2010).

Processes are predictive in nature

To simulate the HRO, hospital processes must contain elements of a predictive modality. High occurrence of concern means high chances of failure; therefore, preoccupation with failure is simultaneously needed (Yip & Farmer, 2015). Parush and colleagues, Worthington, Abbott, Frank, & Ed (2017) revealed situational awareness through clinical leaders and safety matters with multidisciplinary teams to raise safety concerns (Brass, Olney, Glimp, Lemaire, & Kingston, 2018).

Processes are reactive in nature

Events surrounding patient safety can be reactive. Monitoring near-misses with awards is more appropriate than attributing the culture for only maintaining patient safety. (The Joint Commission on National Patient Safety Goals, 2017). Approaches that emphasise relationships, communication, and creativity are ideal for improvement (Pellegrini de Paur et al., 2018). The key ingredient is to assess and react with the help of digitalisation. Sensing that millennials prefer technology, reporting in a simple format enables tracking and feedback as requisite.

Outcome is tangible and intangible

The outcome should have tangible and intangible results for patient care. Tangibles measure outcomes such as frequency of events reported, and overall perception of patient safety culture. Intangibles are contextualised from a viewpoint with conferring resources. An intangible, such as knowledge, is specific to the patient and staff but is considered relevant. In measuring quality, decoupling from the core intention of patient safety creates an intangible audit culture (Bromley & Powell, 2012).

Outcome is predictive and retrospective

The outcome of care is predictive and retrospective, as patient safety is usually measured retrospectively. In this case, key performance indicators are similar. HROs should use predictive outcome measures: big data analytic capability must predict the outbreak of disease.

CONCLUSION

This paper is based on research that examined patient safety from the perspective of millennials. The methodological approach contributed to the literature on the Donabedian model for quality care by providing evidence of the impact of good structure and process on optimal outcomes for patient safety. The key contributions of this research revolve around the structure, process, and outcome framework of the Donabedian model: 1) structures, in this case, consist of the right people doing the right job to maintain patient safety, and emphasise harm prediction and prevention; (2) processes must be linked to actions which predict, prevent and react to patient safety issues; (3) and tangible outcomes must consider intangibles which can help improve the nature of patient safety culture. The Donabedian model posits that the process depends on reliable structures, that must be continuously improved to capture intangible outcomes. Adherence to patient safety culture provides the best defence for the community at large and a specific hospital population. The correct structure in the healthcare organisation can utilise the team's workforce strengths. With proper coordination, a catastrophic event such as the COVID 19 pandemic, creates a better-equipped HRO to manage patients, communicate important information to all departments, and analyse problems and potential damage.

Research limitation

This case study was unique to its setting and cannot be generalised to other populations and healthcare organisations. Adaptation of this study in different contexts demands scrutiny. These distinctive recommendations include strategies as to the type of hospital studied. Organisations in other countries may also have a perception of culture different from that in Malaysia, which has its values and cultural, geographic, and socioeconomic characteristics.

Suggestion for future research

This case study cannot be generalised to other healthcare organisations; recommendations include strategies of the type studied. Future research could assess mixed methods and multiple case studies and include intangible aspects, such as burnout and staff satisfaction as part of the conceptualisation of structure, process, outcomes of patient safety culture.

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DECLARATION CONFLICT OF INTEREST

The authors wish to declare that there is not conflict of interest in sharing of information and evidences within this publication.

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