Factors Predicting Safety Culture Among Nurses in Tertiary Care Hospitals, Thailand

Pakamas Boonyaphisompan, Thitinut Akkadechanunt, Wipada Kunaviktikul, Chawapornpan Chanprasit*

Abstract: Safety culture in healthcare settings is recognized as a critical issue as it enhances the care quality. This predictive study aimed to examine the safety culture and factors predicting safety culture among registered nurses working in four tertiary care hospitals in Thailand. Data were collected from 471 nurses using five research instruments: a demographic data form, the Hospital Survey on Patient Safety Culture, the Managers' Safety Commitment Scale, the Modified Gallup Q^{12} Employee Engagement Survey, and the Conditions of Work Effectiveness Questionnaire-II-Thai version. Descriptive statistics and stepwise multiple regression were adopted for data analysis.

The results revealed that the strength composites of safety culture were the feedback and communication about errors (92.63%) and organizational learning continuous improvement (89.57%), while the composites needing improvement were frequency of events reported (44.20%), staffing (40.70%), and non-punitive response to errors (38.93%). The significant predictive factors that explained 33% of the variance in safety culture included structural empowerment, management safety commitment, work engagement, and nurse working hours. Based on the research findings, nursing administrators should strive for an active reporting system for adverse events, particularly non-punitive responses to errors, and manage adequate staffing for patient safety. Critical safety information and necessary resources for nursing practices should be provided to overcome the challenges in their work and thus enhance their learning and growth.

Pacific Rim Int J Nurs Res 2022; 26(1) 37-49

Keywords: Nursing management, Nurse working hours, Nurse staffing, Safety commitment, safety culture, Structural empowerment, Thailand, work engagement

Received 8 June 2021; Revised 8 July 2021; Accepted 25 August 2021

Introduction

Safety culture in healthcare has captured much attention after healthcare organizations realized that as many as 98,000 patients died from medical errors in the US in a single year.[1] Errors are viewed as adverse

Pakamas Boonyaphisompan, *RN, PhD (Candidate),* *Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand. E-mail: pakamas.boonya@cmu.ac.th*
Correspondence to: Thitinut Akkadechanunt, *RN, PhD, Assistant Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand. E-mail: thitinut.a@cmu.ac.th*
Wipada Kunaviktikul, *RN, PhD, FAAN, Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand. E-mail: wipada.ku@cmu.ac.th*
Chawapornpan Chanprasit, *RN, PhD, Associate Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand.*
E-mail: chawapornpen.cha@cmu.ac.th

consequences of a complex system and culture failure rather than the fault of individual healthcare providers.[2] To enhance safety culture, regular assessment and evaluation of each composite of safety culture are required by accreditation organizations.[3] Following evaluation, managing and minimizing risks appropriately can improve or strengthen the safety culture.[4] In healthcare organizations, nurses play a vital role in ensuring patient safety due to the nature of their work, which involves ongoing patient monitoring and coordination of care.[4] They are required to be skillful in providing care to minimize human error, especially in tertiary care hospitals, which provide highly specialized and advanced medical care.

Safety culture has an impact on both patient safety and staff performance. It has been found to relate to safety outcomes in hospital settings, including medication errors, patient restraints, and pressure ulcers.[5] Additionally, safety culture also relates to safety performance, comprising safety compliance and safety participation, which reflects active commitment and involvement to safety among nurses.[6]

Science evidence concerning safety culture assessment has come through the Hospital Survey of Patient Safety Culture (HSOPSC) among nurses working worldwide in tertiary care hospitals. The positive percent responses of safety culture were varied and indicated needing improvement, ranging from 34.48 to 59.68%.[7-14] A study in a tertiary care hospital in Thailand also found safety culture needed improvement with a 45.66% positive response.[15] In addition, the areas needing improvement were different among those studies. Empirical research regarding factors that leads to a safety culture has been inconsistent in terms of the direction and magnitude of relationship and predictability.[7,16-21] The results of this study help expand the knowledge of safety culture and the predicting factors which should be taken into account when developing effective strategies or interventions for safety culture management.

Conceptual Framework and Literature Review

In 1999, patient safety moved to the forefront of health care based upon the Institute of Medicine (IOM) report, To Err is Human: Building a Safer Health System.[1] This report called attention to adverse events and patient safety in healthcare organizations. To promote patient safety, an understanding of safety culture is required. Safety culture refers to the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to and the style and proficiency of an organization's health and safety management.[22]

This study adopted Reason's concept of safety culture as a study framework. Reason categorized safety culture into four components: reporting culture, just culture, flexible culture, and learning culture.[2] Reporting culture is the willingness to report safety lapses and potential hazards. This willingness to report depends on just culture, an atmosphere of trust with the belief that the management will encourage and reward reporting or providing essential information and that discipline occurs based on risk-taking. Additionally, management patterns have shifted from the conventional hierarchical model to a flatter model, known as a flexible culture, where the manager respects the knowledge of the front-line worker. In a learning culture, the manager is expected to analyze reported information and then implement appropriate change to improve quality and safety.[2,23] Healthcare organizations may have different safety cultures, and such a culture is a necessary component for achieving a high quality of care. Nevertheless, the assessment of each safety culture component is essential for initially improving safety outcomes.

The Agency for Healthcare Research and Quality (AHRQ) developed the HSOPSC as an instrument to assess the perception of safety culture based on Reason[2] and further classified 12 composites.[24] The

frequency of events reported is part of reporting culture, whereas a non-punitive response to errors is just culture. A flexible culture has five composites: staffing, communication openness, teamwork within units, teamwork across units, and handoffs and transitions. Learning culture has five composites: feedback and communication about errors, organizational learning-continuous improvement, supervisor/manager expectations and actions promoting patient safety, management support for patient safety, and overall perception of patient safety. The HSOPSC is accepted and used in hospitals worldwide since it covers all essential ingredients of a safety culture.

Research concerning safety culture assessment with HSOPSC among nurses working in tertiary care hospitals in various countries[7-14] found that just culture, precisely the non-punitive response, and staffing, a composite under flexible culture were the areas needing improvement. Over half of the studies found the areas in need of improvement in other composites of a flexible culture, such as communication openness and teamwork within or across units. For learning culture, half of the studies indicated continuous organization learning as indicating an area of strength. A study in Thailand by Kamsawang et al.[15] found the areas needing improvement included just culture, reporting culture, and composites of flexible culture. Although several research studies assessed safety culture, the results of the strength or needing improvement of various composites were inconsistent.

Several factors had been found related to safety culture, including unit experience,[7,16] nurse working hours,[17] management safety commitment,[16] work engagement,[18-19] and structural empowerment.[20-21] Unit experience has a vital role in learning and developing professional skills and knowledge that lead to effective performance.[25-26] The safety culture of nurses is affected by the length of experiences they have at the current unit. A previous study[16] revealed that unit experience was a significant negative influencing factor of safety culture. Surprisingly, experienced nurses were more likely to score lower on safety culture.

According to the Thailand Nursing and Midwifery Council, nurses' number of hours per week should not exceed 48 hours.[27] Extended nurse working hours lead to fatigue, errors, miscommunication, and interpersonal problems resulting in less teamwork.[28] Empirical research indicates that extended nurse working hours have a significantly lower odds ratio for safety culture composites, including staffing and teamwork within units.[17]

Management safety commitment refers to nurses' perception of the degree to which their managers value and support safe working and are dedicated to employee and patient safety.[29] Nurses who perceive a high level of management safety commitment are more likely to follow safety protocol due to management support.[29] Findings from predictive research reveal a significant relationship between management safety commitment and safety culture and indicate that it is an essential predictor of safety culture.[16]

Work engagement is the individual's involvement and satisfaction with, as well as enthusiasm for, work.[30] When an employee perceives that their values, developmental goals, supervisor, and support systems are all in alignment, they will excel in their work, be satisfied with their job and be proud of their organization. They tend to stay with the organization and provide outstanding patient care.[18] Empirical research reveals a strong positive relationship between work engagement and safety culture.[18-19] Furthermore, work engagement is the most influential independent predictor of safety culture.[18]

Based on Kanter's[31] definition, structural empowerment is the ability to mobilize resources and achieve goals through access to information, resources, support, and opportunities to learn and grow at work. Nurses committed to the organization create a safety culture to ensure that they provide the highest quality of care.[32] Findings from descriptive research reveal a significant positive relationship between structural empowerment and safety culture.[20-21]

Study Aim

This study aimed to examine nurses' perceived safety culture and determine the predictability of safety culture and unit experience, nurse working hours, management safety commitment, structural empowerment, and work engagement among nurses in tertiary care hospitals.

Methods

Study Design: A cross-sectional design was used in this study research. This report followed STROBE cross sectional guidelines.

Sample and Settings: With Krejcie and Morgan formula at 95% confidence,[33] the sample size was 379 registered nurses (RNs) working at four tertiary care hospitals in Thailand. Forty percent was added for the possibility of a low response rate and missing data, resulting in a sample of 530 RNs in this study. Multi-stage sampling was applied. First, four tertiary care hospitals were randomly selected from four regions of Thailand, and then a proportional sampling method was used to recruit nurses from four clinical departments: surgical, medical, pediatric, and obstetrics and gynecology. The exclusion criteria were nurse administrators and nurses who were on vacation or study leave. The inclusion criteria were RNs working at least one year in the selected department.

Ethical Considerations: This study was approved by the Research Ethical Committee of the Faculty of Nursing, Chiang Mai University (IRB approval number: 2018-049) and then received permission from the research ethics committees of the four chosen tertiary care hospitals. The participants were assured of their privacy and the confidentiality of their information. They were also assured that all data would be analyzed anonymously and presented not individually but as a group. Participation was voluntary. Consent and agreement were obtained from the participants before data collection.

Instruments: There were five research instruments adopted in this study as follows.

1. A demographic data form was developed by the researcher to gather information on age, nursing unit, year of unit experiences, and nurse working hours per week.

2. *The Hospital Survey on Patient Safety Culture* (HSOPSC) was developed by the Agency for Healthcare Research and Quality (AHRQ)[24] to assess safety culture in health care organizations. This instrument consists of 42 closed questions measuring 12 safety culture composites under Reason's four components. Nine of 12 composites used agreement response options with a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree" (e.g., people support one another in this unit), and the other three composites used frequency response options ranging from 1 "never" to 5 "always" (e.g., we are given feedback about changes put into place based on event reports). The safety culture was determined by the combined percentage of positive responses with "strongly agree/agree" or "most of the time/always" in the positively worded items and "strongly disagree/disagree" or "never/rarely" responses for the negatively worded items. AHRQ sets the cutoff level scores than 75% positive responses as an area of strength. Areas needing improvement could be identified as those composites that have lower than 50% positive response.[34] The construct validity of each safety culture ranged from .23-.60.[24]

3. *The Managers' Safety Commitment Scale* (MSCS) was developed by Feng et al.[16] It is a one-item visual analog scale asking nurses to evaluate their immediate nursing manager's commitment to safety. The possible scores ranged from 0 to 10, and higher scores indicated higher levels of management safety commitment.

4. *The Modified Gallup Q[12] Employee Engagement Survey* was developed by Gallup Inc[30] to assess work engagement and translated into Thai by Gallup Inc. It

has 12 items using 6-response options from 1 "strongly disagree" to 5 "strongly agree" with the sixth unscored response option of "don't know/does not apply" (e.g., I know what is expected of me at work). The overall work engagement was the sum of all item scores. The possible score ranges from 12 to 60. Higher scores indicate higher levels of engagement. The meta-analytic convergent validity of the instrument has been reported as 0.91.[30]

5. *The Conditions of Work Effectiveness Questionnaire-II* (CWEQ-II) was developed by Laschinger, Finegan, and Shamia[32] based on Kanter's theory[31] to assess structural empowerment. It comprises six components: access to opportunity, access to support, access to information, access to resources, formal power, and informal power. It was translated into Thai using back-translation by Laimek.[35] The 19-item questionnaire has a 5-point rating scale from 1 "none" to 5 "a lot" (e.g., How much challenging work do you have in your present job?). The total empowerment score was the summation of all scores. The possible score ranges from 6-30. A score of less than 14 is described as low, 14 to 22 as moderate, and 23 to 30 as high. The construct validity of the CWEQ-II was .87.[21]

The English language HSOPSC and the MSCS were translated to Thai by the researchers with the permission of the authors. Both instruments were translated using Brislin's back-translation technique.[36] Two bilingual experts translated the Thai instruments to English, then three researchers reviewed and compared the back-translated versions with the original versions to assure semantic equivalence. The Thai versions of the instruments were then tested for their reliability, with 20 RNs not included in the main study. The HSOPSC-Thai version Cronbach's alpha coefficient in the pilot study was .77, and for the main study, .86. The test-retest reliability coefficient within two weeks of the Thai version of the MSCS was .96.

The researchers slightly modified the Thai version of the Gallup Q^{12} Employee Engagement Survey to fit the hospital context with the permission of Gallup Inc. The content validity was evaluated by a panel of three nursing administration experts. The I-CVI and the S-CVI were 1. Then the Modified Thai version of Gallup Q^{12} Employee Engagement Survey and the CWEQ-II were pilot-tested for their reliabilities with 20 RNs not included in the main study. The Cronbach's alpha coefficients for the pilot test were .86 and .88, respectively, and for the main study were .87 and .90, respectively.

Data collection procedures: After getting ethical approval and permission from the four tertiary care hospitals, the data were collected from September to October 2019. The research coordinators distributed the 530 questionnaire packages to the RNs who met the inclusion criteria. Each package comprised an information sheet, informed consent form, questionnaires, and a returning envelope with a request note for participation and completion of the questionnaires. A research coordinator from each hospital collected and kept the signed consent forms separately from the questionnaires before returning them to the researcher with 490 questionnaires. All questionnaires were edited and checked for accuracy and missing data. Finally, a total of 471 questionnaires (88.87%) were verified for analysis.

Data Analysis: Descriptive statistics were used to analyze the safety culture, while stepwise regression analysis was carried out to determine factors influencing safety culture. The data were tested and met normality, linearity and homoscedasticity assumptions, and multicollinearity before the analysis process.

Results

The characteristics of the participants are presented in **Table 1**. Their average age was 34, with a range of 22-59 years. Two-thirds of RNs worked in the surgical and medical departments. The average years of unit experience were 9.99. The average nurse working hours was 58.67 hours per week.

Table 1 Demographic characteristics of participants (n = 471)

Demographic characteristics	Frequency (n= 471)	Percentage (%)
Gender		
Female	462	98.08
Male	9	1.92
Age (years) (Mean = 34.00 years, SD = 8.85 years, range 22-59)		
< 25	91	19.32
26-30	126	26.75
31-40	138	29.29
41-50	88	18.68
> 50	28	5.94
Clinical department		
Surgery	165	35.03
Medicine	152	32.27
Pediatric	87	18.47
Obstetrics and gynecology	67	14.23
Unit experience (years) (Mean = 9.99 years, SD = 8.09, range 1-34 years)		
1-5	184	39.10
6-10	119	25.30
11-15	50	10.60
16-20	59	12.50
>20	59	12.50
Nurse working hour (hours) (Mean = 58.67, SD = 13.91, range 40-104 hours)		
40-48	172	36.52
>48	299	63.48

The findings illustrated that the overall safety culture had the potential for improvement (66.94%). The areas of strength were feedback and communication about errors (92.63%), organizational learning – continuous improvement (89.57%), teamwork within units (78.25%), and management support for patient safety (75.47%). Teamwork is the composite of flexible culture, where others are composites of learning culture. Further, the areas needing improvement included the frequency of events reported (44.20%), staffing (40.70%), and non-punitive response to errors (38.93%) (**Table 2**).

Table 2 Percentage of positive response, range, and levels of safety culture composites (n=471)

Safety Culture Composites	Percent Positive Response	Range	Level
Overall safety culture	66.94		
Reporting culture			
Frequency of events reported (O)	44.20	(41.50-46.10)	Needing improvement
Just culture			
Non-punitive response to errors (U)	38.93	(28.70-50.30)	Needing improvement

Table 2 Percentage of positive response, range, and levels of safety culture composites (n=471) (Cont.)

Safety Culture Composites	Percent Positive Response	Range	Level
Flexible culture			
Staffing (U)	40.70	(20.00-73.20)	Needing improvement
Communication openness (U)	68.80	(58.40-87.90)	-
Teamwork within units (U)	78.25	(48.80-91.50)	strength
Teamwork across units (H)	71.50	(46.70-89.40)	-
Handoffs & transitions (H)	54.60	(45.60-64.80)	-
Learning culture			
Feedback and communication about error (U)	92.63	(90.70-93.60)	strength
Organizational learning-continuous improvement (U)	89.57	(88.50-91.50)	strength
Supervisor/manager expectations and actions promoting patient safety (U)	74.73	(50.70-86.20)	-
Management support for patient safety (H)	75.47	(53.90-87.50)	strength
Overall perceptions of patient safety (O)	73.90	(54.40-93.00)	-

O = outcome

U = unit level

H= hospital level

Based on the correlations for study variables, shown in **Table 3**, management safety commitment, work engagement, and structural empowerment had a moderate and statistically positive relationship with safety culture. In addition, unit experience had a low and significantly positive relationship with safety culture. In contrast, nurse working hours had a low and significant negative relationship with safety culture.

Table 3 Descriptive statistics and correlations for study variables (n = 471)

Variables	Mean	SD	Range	1	2	3	4	5	6
1. Safety culture	44.05	3.92	34.17-54.92	-					
2. Unit experience	9.99	8.09	1.00-39.00	.09*	-				
3. Nurse working hours	58.67	13.91	40.00-104.00	-.14**	-.19**	-			
4. Management safety commitment	8.61	1.41	4.00-10.00	.37**	.04	-.08*	-		
5. Work engagement	42.67	5.90	23.00-60.00	.49**	.05	-.05	.37**	-	
6. Structural empowerment	21.00	2.77	11.00-29.00	.53**	.13**	-.08*	.39**	.70**	-

*p <.05, ** p<.01

As shown in **Table 4**, stepwise regression analysis in the prediction model found four significant predictors: structural empowerment, work engagement, management safety commitment, and nurse working hours. The predictive model was statistically significant and accounted for 33.00 % of the nurse perception of safety culture variance. Structural empowerment was the best predictor accounting for 32.00% in explaining the variation of safety culture.

Table 4 The stepwise multiple regression analysis for variables predicting safety culture (n = 471)

Model	b	SEB	ß	R^2	R^2 Change	SEE	F change
Structural empowerment	.45	.08	.32**	.336	.330	3.20	58.92
Management safety commitment	.46	.12	.17**				
Work engagement	.13	.04	.20**				
Nurse working hours	-.03	.01	-.09*				

* p <.05. ** p<.01.

Discussion

This study found that nurses in tertiary level hospitals perceived the strength of safety culture in learning culture at a unit level, including the composite of feedback and communication about errors. For the hospital level, organizational learning-continuous improvement and management support for patient safety were prominent. A possible explanation for the strength of both individual and organizational levels may be the continuous quality improvement process from the hospital accreditation and reaccreditation process every two to three years by the Healthcare Accreditation Institution (HAI), which has been adopted in all four tertiary hospitals.

Nurses have had to comply with Thai patient safety goals (PSGs) since 2006 and integration into Patient and Personnel Safety Goals (2P Safety) since 2017.[37] Whenever an error occurs, nurses and their supervisors will discuss and analyze the incidents to introduce changes to improve quality and safety care. Furthermore, all hospitals have developed a risk management and safety system to report and monitor incidents. Once an incident is reported, the risk management committees will review it and provide feedback appropriately. Therefore, this process has led to positive changes in organizational learning-continuous improvement, which is fundamental to learning culture.[2]

At the unit level, the category of flexible culture, staffing was an area needing improvement. This result is consistent with eight out of nine studies.[7-15] Nurses felt that their nursing units had inadequate staff allocation to provide patient safety and quality of care. The majority of participants in this study (63.48%) worked more than 48 hours per week which is more than the Thai regulation.[27] These working hours highlight the critical shortage of nurses in tertiary care hospitals that may threaten patient safety.

The findings revealed areas needing improvement with non-punitive response to errors (just culture) and the frequency of events reported (reporting culture). In tertiary care hospitals, patients require complex treatment and specialty care, where nurses must focus on bedside nursing care more than reporting near-miss, no harm, or potential harm incidents. Some of them may worry about their performance evaluation which is tied to incident reports. This study's findings were consistent with other studies where the frequency of events reported scored as a needing improvement composite.[7-14]

For another composite of flexible culture at the unit level, nurses perceived teamwork as an area of strength. It seemed that teamwork, support, and collaboration in team activity among nurses in tertiary care hospitals were strong, although staffing was perceived as inadequate in this study. These results are similar to the findings of three studies in China, the Philippines, and Oman.[7,12,14]

Predictors of Safety Culture among Nurses in Tertiary Care Hospitals

The results of this study reveal that structural empowerment was the strongest predictor of safety culture. Empowered nurses are more likely to have a high commitment to their organization, and they

perceived autonomy and self-efficacy in their workplace, enhancing the safety culture.[32] The result was consistent with the study of Armellino,[20] where structural empowerment had a positive relationship with eight out of twelve safety culture composites. Due to the study context of two university hospitals and two medical education centers, nurses were educated and regularly updated for quality management and patient safety goals. In addition, they were required to develop quality and safety projects and create innovations to improve patient safety and quality of care.[37]

Management safety commitment affects safety culture through the nurse manager's demonstration as a role model of safety practices. Nurse managers of these hospitals establish and reinforce safe practice through supervision by encouraging nurses to assess patient risks from admission through discharge, including handover and morning conferences, and apply quality tools, such as quality walk rounds and nursing alarm signs. In doing so, nurses can perceive these safety efforts and commitments from their managers. Similarly, Feng et al.[16] also found that management safety commitment was an essential predictor of safety culture.

Work engagement is another predictor of safety culture. Engaged nurses are likely to have a greater psychological commitment to their work and a higher sense of autonomy.[30] Active nurses tend to pay attention to facilitate patient safety improvement. This finding was consistent with a study by Collier and Fitzpatrick,[19] which showed that work engagement had a high positive relationship with safety culture. A tertiary care hospital survey by Thorp et al.[18] showed that staff with a higher baseline engagement had a more robust safety culture. A positive change in engagement in the previous year was correlated with more robust safety culture in the next two years.

Nurse working hours had a weak negative relationship with safety culture. Most worked more than the regulation hours and felt there was an inadequate workforce to handle the workload. They perceived staffing as an area needing improvement. This result was consistent with Wu et al.,[17], who explored the impact of nurse working hours on safety culture in Japan, the US, and Taiwan. Adverse outcomes from long working hours may cause negative attitudes toward work and organizational commitment that leads to negative safety culture. Notably, long nurse working hours resulting from a worldwide nursing shortage are the main contributing factors to unfinished care.[38]

Unit experience was found to have a slightly low relationship with safety culture and was not a safety culture predictor. This finding was contrary to Feng et al.,[16] in that unit experience was a negative predictor of safety culture. Most of the nurses (64.40%) in this study had been working less than ten years. Novice and expert nurses participate in the hospital accreditation process that values patient safety and quality care in their daily work. The more experienced can further improve safety measures and develop a distinct perception of safety culture.[39]

Our study demonstrated that four variables explained only 33.00% of the variance. Thus, other potential variables influenced the safety culture among nurses in tertiary care hospitals. Williams[40] revealed that nurses' organizational commitment, job satisfaction, and their managers' transformational leadership styles were significant predictors of perceived patient safety culture in an acute care hospital, accounting for 66.60% of the variance in safety culture. Therefore, the nurses' organizational commitment, job satisfaction, and manager's transformational leadership style might be significant factors that could predict safety culture among nurses in tertiary care hospitals and be further examined.

Limitations

This study was a cross-sectional study that limits nurses' perception of safety culture, which may change over time. The study examined the perception of safety culture from nurses in tertiary care hospitals in Thailand, which might not be generalizable to other hospital levels.

Conclusions and Implications for Policy and Nursing Administration

The results of this study provide essential information for policymakers to raise awareness of safety culture, especially for the perceived weakness composites. It also highlights patient and personnel safety as the outcome indicators of a quality health care organization.

Hospital and nurse administrators should review the needing improvement composites of safety culture, including frequency of events reported, staffing, and non-punitive responses to errors, and then develop strategies to promote incidence reporting with non-punitive responses and manage adequate nursing staff to ensure the safety culture of the organization.

The development of interventions for improving safety culture should focus on structural empowerment, the strongest predictor of safety culture. Providing critical safety information and necessary resources for nurses and managing their challenging work will enhance their learning and growth. Subsequently, other variables like management safety commitment and work engagement should also be placed for significant attention.

Acknowledgments

The authors would like to thank all participants who willingly participated in this study and to extend special thanks to AHRQ, Gallup Inc., Feng, and Laimek for the permission to use all the instruments.

References

1. Kohn LT, Corrigan JM, Donaldson MS, editors. To err is human: building a safer health system. Washington (DC): National Academies Press (US); 2000. doi:10.17226/9728.
2. Reason J. Human error: models and management. Br Med J. 2000;320(7237):768-70. doi: 10.1136/bmj.320.7237.768.
3. Damayanti RA, Bachtiar A. Outcome of patient safety culture using the hospital survey on patient safety culture (HSOPSC) in Asia: a systematic review with meta-analysis. Proceedings of the International Conference on Applied Science and Health [Internet] 2019 August; [cited 2021 Aug 19];4:849-63. Available from: https://publications.inschool.id/index.php/icash/article/view/431
4. Kirwan M, Matthews A, Scott PA. The impact of the work environment of nurses on patient safety outcomes: a multi-level modeling approach. Int J Nurs Stud. 2013;50(2):253-63. doi: 10.1016/j.ijnurstu.2012.08.020.
5. Wang X, Liu K, You LM, Xiang JG, Hu HG, Zhang LF, Zheng J, Zhu XW. The relationship between patient safety culture and adverse events: a questionnaire survey. Int J Nurs Stud. 2014;51(8):1114-22.doi: 10.1016/j.ijnurstu.2013.12.007.
6. Chaboyer W, Chamberlain D, Hewson-Conroy K, Grealy B, Elderkin T, Brittin M, McCutcheon C, Longbottom P, Thalib L. Safety culture in Australian intensive care units: establishing a baseline for quality improvement. J Crit Care. 2013; 22(2):93-102. doi: 10.4037/ajcc2013722.
7. Ammouri AA, Tailakh AK, Muliira JK, Geethakrishnan R, Al Kindi SN. Patient safety culture among nurses. Int Nurs Rev. 2015; 62(1):102-10. doi: 10.1111/inr.12159.
8. Fassarella CS, Camerini FG, Henrique DDM, Almeida LFD, Figueiredo MDCB. Evaluation of patient safety culture: comparative study in university hospitals. Rev Esc Enferm USP. 2018;52:e03379. doi: 10.1590/S1980-220X2017033803379.
9. Fassarella CS, Silva LDD, Camerini FG, Figueiredo MDCAB. Nurse safety culture in the services of a university hospital. Rev Bras Enferm. 2019; 72(3):767-73. doi: 10.1590/0034-7167-2018-0376.
10. Okuyama JHH, Galvão TF, Crozatti MTL, Silva MT. Health professionals' perception of patient safety culture in a university hospital in São Paulo: a cross-sectional study applying the Hospital Survey on Patient Safety Culture. Sao Paulo Med J. 2019;137(3):216-22. doi: 10.1590/1516-3180.2018.0430140319.
11. Rajalatchumi A, Ravikumar TS, Muruganandham K, Thulasingam M, Selvaraj K, Reddy MM, Jayaraman B. Perception of patient safety culture among healthcare providers in a tertiary care hospital, South India. J Nat Sci Biol Med. 2018;9(1): 14-8. doi: 10.4103/jnsbm.JNSBM_86_17.

12. Ramos RR, Calidgid CC. Patient safety culture among nurses at a tertiary government hospital in the Philippines. Appl Nurs Res. 2018;44:67-75. doi: 10.1016/j.apnr.2018.09.007.
13. Ribeliene J, Blazeviciene A, Nadisauskiene RJ, Tameliene R, Kudreviciene A, Nedzelskiene I, Macijauskiene J. Patient safety culture in obstetrics and gynecology and neonatology units: The nurses' and the midwives' opinion. J Matern Fetal Neonatal Med. 2019;32(19):3244-50. doi: 10.1080/14767058.2018.1461831.
14. Zhang L, Thungjaroenkul P, Chitpakdee B. Perceived leader-member exchange and patient safety culture among nurses in tertiary hospitals, Kunming, the People's Republic of China. Nursing J. 2019;46(2):210-23. Available from: http://cmuir.cmu.ac.th/jspui/handle/ 6653943832/66267
15. Kamsawang N, Supamanee T, Jitpakdee B. Perception of registered nurses towards patient safety culture. Buddhachinaraj Med J. 2017;34(3):330-41 [in Thai]. Available from: https://he01.tci-thaijo.org/index.php/BMJ/article/view/122894/93549
16. Feng XQ, Acord L, Cheng YJ, Zeng JH, Song JP. The relationship between management safety commitment and patient safety culture. Int Nurs Rev. 2011;58(2):249-54. doi: 10.1111/j.1466-7657.2011.00891.x.
17. Wu Y, Fujita S, Seto K, Ito S, Matsumoto K, Huang CC, Hasegawa T. The impact of nurse working hours on patient safety culture: a cross-national survey, including Japan, the United States, and Chinese Taiwan using the Hospital Survey on Patient Safety Culture. BMC Health Serv Res. 2013;13(1):394. doi: 10.1186/1472-6963-13-394.
18. Thorp J, Baqai W, Witters D, Harter J, Agrawal S, Kanitkar K, Pappas J. Workplace engagement and workers' compensation claims as predictors for patient safety culture. J Patient Saf. 2012;8(4):194-201.doi:10.1097/PTS.0b013e3182699942.
19. Collier SL, Fitzpatrick JJ, Siedlecki SL, Dolansky MA. Employee engagement and a culture of safety in the intensive care unit. J Nurs Adm. 2016;46(1):49-54. doi: 10.1097/NNA.0000000000000292.
20. Armellino D, Quinn Griffin MT, Fitzpatrick JJ. Structural empowerment and patient safety culture among registered nurses working in adult critical care units. J Nurs Manag. 2010;18(7):796-803.doi:10.1111/j.1365-2834.2010.01130.x.
21. Armstrong KJ, Laschinger H. Structural empowerment, magnet hospital characteristics, and patient safety culture: making the link. J Nurs Care Qual. 2006;21(2):124-32. doi: 10.1097/00001786-200604000-00007.
22. Health and Safety Commission. ACSNI Human Factors Study Group third report: organising for safety (Third report). Great Britain: HM Stationery Office; 1993. 100p.
23. Jones KJ, Skinner A, Xu L, et al. The AHRQ Hospital Survey on Patient Safety Culture: a tool to plan and evaluate patient safety programs. In: Henriksen K, Battles JB, Keyes MA, et al., editors. Advances in patient safety: new directions and alternative approaches (Vol. 2: culture and redesign). Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Aug [cited 2021 Aug 19]. 22p. Available from: https://www.ncbi.nlm.nih.gov/books/NBK43699/
24. Sorra JS, Nieva VF. Hospital survey on patient safety culture (Prepared by Westat, under contract no. 290-96-0004) [Internet]. AHRQ publication no. 04-0041. Rockville, MD: Agency for Healthcare Research and Quality; 2004. [cited 2021 Aug 19]. 66p. Available from: https://www.ahrq.gov/sites/default/files/publications/files/nhguide.pdf
25. Eraut M. Learning from other people in the workplace. Oxf Rev Educ. 2007;33(4):403-22. doi: 10.1080/03054980701425706.
26. Lacerenza, CN, Marlow SL, Tannenbaum SI, Salas E. Team development interventions: evidence-based approaches for improving teamwork. Am Psychol. 2018;73(4):517-31. doi: 10.1037/amp0000295.
27. Thailand Nursing and Midwifery Council [TNMC]. Nurse Nursing and Midwifery Council Announcement: nursing working hours for patient safety. [Internet]. [cited 2021 Aug 19]. Available from: https://www.tnmc.or.th/images/userfiles/files/H002.pdf [in Thai]
28. Hoffman AJ, Scott LD. Role stress and career satisfaction among registered nurses by work shift patterns. J Nurs Adm. 2003;33(6):337-42. doi:10.1097/00005110-200306000-00006.
29. McGonagle AK, Essenmacher L, Hamblin L, Luborsky M, Upfal M, Arnetz J. Management commitment to safety, teamwork, and hospital worker injuries. J Hosp Adm. 2016;5(6):46-52. doi: 10.5430/jha.v5n6p46.

30. Harter JK, Schmidt FL, Hayes TL. Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. J Appl Psychol. 2002; 87(2): 268-79. doi: 10.1037/0021-9010.87.2.268.
31. Kanter RM. Men and women of the corporation: new edition. New York: Basic books; 2008. 416 p.
32. Laschinger HKS, Finegan J, Shamian J. The impact of workplace empowerment, organizational trust on staff nurses› work satisfaction and organizational commitment. Health Care Manage Rev. 2001;26(3):7-23. doi: 10.1097/00004010-200107000-00002.
33. Krejcie RV, Morgan DW. Determining sample size for research activities. Educ Psychol Meas. 1970;30(3):607-10. doi: 10.1177/001316447003000308.
34. Sorra J, Franklin M, Streagle S. Survey User's guide nursing home survey on patient safety culture. Rockville, MD: Agency for Healthcare Research and Quality; 2008 Sept [cited 2021Aug 19]. 57p. Available from: https://www.ahrq.gov/sites/default/files/publications/files/nhguide.pdf
35. Laimek S. The influence of work environment and structural empowerment on job satisfaction among Thai nurses [Doctoral dissertation]. [Madison, WI]: University of Wisconsin-Madison; 2014. 168 p.
36. Brislin RW. The wording and translation of research instruments. In: Lonner WJ, Berry JW, editors. Field methods in cross-cultural research. Beverly Hills, CA: Sage Publications, 1986. pp. 137-64.
37. Hospital Accreditation Institution (Public organization). Patient safety goals: SIMPLE. Nonthaburi: Famous and Successful; 2018 (in Thai).
38. Gurková E, Zeleníková R, Friganovic A, Uchmanowicz I, Jarošová D, Papastavrou E, Žiaková K. Hospital safety climate from nurses' perspective in four European countries. Int Nurs Rev. 2020;67(2):208-17. doi: 10.1111/inr.12561.
39. Tomazani A, Rocha PA, Sauza S, Anders JA, Malfussi HFC. Patient safety culture at neonatal intensive care units: perspectives of the nursing and medical team. Rev Esc Enferm USP. 2016:50(5);756-62. doi: 10.1590/0104-1169.3624.2477.
40. Williams JC. Nurses' organizational commitment, job satisfaction, and perception of their managers' leadership style as predictors of perception of patient safety culture [Doctoral dissertation]. [Minneapolis, MN]: Capella University; 2014. 197 p.

ปัจจัยทำนายวัฒนธรรมความปลอดภัยของพยาบาลโรงพยาบาลตติยภูมิ ประเทศไทย

ผกามาศ บุญญาภิสมภาร ฐิติณัฏฐ์ อัคคะเดชอนันต์ วิภาดา คุณาวิกติกุล ชวพรพรรณ จันทร์ประสิทธิ์*

บทคัดย่อ: วัฒนธรรมความปลอดภัยในสถานบริการสุขภาพเป็นประเด็นที่มีความสำคัญในการยกระดับคุณภาพการดูแล การศึกษาเชิงทำนายนี้มีวัตถุประสงค์เพื่อศึกษาวัฒนธรรมความปลอดภัย และปัจจัยทำนายวัฒนธรรมความปลอดภัยของพยาบาลที่ปฏิบัติงานในโรงพยาบาลตติยภูมิ 4 แห่งในประเทศไทย รวบรวมข้อมูลจากพยาบาลจำนวน 471 คนโดยใช้ เครื่องมือในการวิจัย 5 เครื่องมือได้แก่ แบบเก็บข้อมูลทั่วไป แบบสำรวจวัฒนธรรมความปลอดภัยของผู้ป่วยในโรงพยาบาล แบบวัดความมุ่งมั่นในความปลอดภัยของหัวหน้าหอผู้ป่วย แบบสำรวจความผูกพันของบุคลากรแกลลัพคิว12 ฉบับดัดแปลง และแบบสอบถามสภาพการทำงานที่มีประสิทธิภาพฉบับภาษาไทย วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติถดถอยเชิงพหุคูณแบบขั้นตอน

ผลการวิจัยพบว่าองค์ประกอบของวัฒนธรรมความปลอดภัยที่มีความเข้มแข็งได้แก่ การให้ข้อมูลย้อนกลับและการสื่อสารเกี่ยวกับข้อผิดพลาด (ร้อยละ 92.63) และการพัฒนาการเรียนรู้ขององค์กรอย่างต่อเนื่อง (ร้อยละ 89.57) ส่วนองค์ประกอบที่จำเป็นต้องได้รับการพัฒนา ได้แก่ ความถี่ในการรายงานอุบัติการณ์ (ร้อยละ 44.20) การจัดอัตรากำลัง (ร้อยละ 40.70) และการไม่กล่าวโทษเมื่อทำผิดพลาด (ร้อยละ 38.93) การเสริมสร้างพลังอำนาจเชิงโครงสร้าง ความมุ่งมั่นในการจัดการความปลอดภัย ความผูกพันในงานของพยาบาล และชั่วโมงการทำงานพยาบาล เป็นปัจจัยทำนายที่สามารถอธิบายความแปรปรวนในวัฒนธรรมความปลอดภัยได้ร้อยละ 33 จากผลการวิจัยนี้ ผู้บริหารทางการพยาบาลควรให้ความสำคัญกับระบบการรายงานอุบัติการณ์ไม่พึงประสงค์ โดยเฉพาะการไม่กล่าวโทษเมื่อเกิดความผิดพลาด และการบริหารจัดการอัตรากำลังให้เพียงพอ เพื่อความปลอดภัยของผู้ป่วย พยาบาลควรได้รับข้อมูลด้านความปลอดภัยที่สำคัญและทรัพยากรที่จำเป็นสำหรับการปฏิบัติงานพยาบาล เพื่อที่จะสามารถจัดการงานที่ท้าทาย และนำไปสู่การส่งเสริมการเรียนรู้ และความเจริญก้าวหน้า

Pacific Rim Int J Nurs Res 2022; 26(1) 37-49

คำสำคัญ: ความมุ่งมั่นในการจัดการความปลอดภัย อัตรากำลังทางการพยาบาล วัฒนธรรมความปลอดภัย การเสริมสร้างพลังอำนาจเชิงโครงสร้าง ประเทศไทย ความผูกพันในงาน

ผกามาศ บุญญาภิสมภาร *นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่*
E-mail: pakamas.boonya@cmu.ac.th
ติดต่อที่: ฐิติณัฏฐ์ อัคคะเดชอนันต์ *ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ E-mail: thitinut.a@cmu.ac.th*
วิภาดา คุณาวิกติกุล *ศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่*
E-mail: wipada.ku@cmu.ac.th
ชวพรพรรณ จันทร์ประสิทธิ์ *รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ E-mail: chawapornpen.cha@cmu.ac.th*