Research Article

THJPH

The Relationships among Hospital Characteristics, Transformational Leadership, Safety Culture and Accreditation Status of Community Hospitals under the Office of the Permanent Secretary, Ministry of Public Health

Siwaporn Bunsake [1], Charuwan Tadadej [2], Jutatip Sillabutra [3]

[1]Master of Science Program in Public Health Administration, Faculty of Public Health, Mahidol University. Thailand

[2]Department of Public Health Administration, Faculty of Public Health, Mahidol University. Thailand

[3]Department of Biostatistics, Faculty of Public Health, Mahidol University. Thailand

Correspondence: Charuwan Tadadej, E-mail: charuwan.tad@mahidol.ac.th

Received: March 19 2025; Revised: April 4 2025; Accepted: April 10 2025

Abstract

This study aims to investigate the relationship among hospital characteristics, transformational leadership, safety culture and accreditation status of community hospitals under the Office of the Permanent Secretary, Ministry of Public Health. The sample included 536 participants who were in charge of quality management. Data were collected via questionnaires and analyzed using descriptive statistics, chi-square test statistics, and binary logistic regression to assess the relationships and influences of hospital characteristics, transformational leadership and safety culture and the accreditation status of community hospitals.

The results indicated that directors of community hospitals scored highly in inspirational leadership (Mean = 4.05, S.D. = 0.69), and community hospitals demonstrated a high level of safety culture (Mean = 3.67, S.D. = 0.37). Both hospital level and safety culture were positively associated with the accreditation status of community hospitals (adjOR = 17.837, 6.189, p value = 0.000, 0.004). The F3-level hospitals were 17.837 times more likely to fail accreditation compared to hospitals at other levels (95%CI: 8.152, 39.025). Accredited hospitals were shown to have a safety culture that is 6.189 times higher than that of non-accredited hospitals (95%CI: 1.816, 21.095).

Keywords: Hospital characteristics, Transformational leadership, Safety culture, Accreditation status, Community hospitals

What was Know

- In hospital quality development, leadership plays a crucial role and affects quality management.
- Safety culture is essential for quality development as it serves as a foundation that influences staff behavior to prioritize patient safety.

What's New and Next

- Promoting transformational leadership among community hospital administrators can help develop the hospital's safety culture.
- Cultivating safety culture through strengthening transformational leadership can support development and sustainability of the community hospital accreditation status.

Introduction

Hospital accreditation is a crucial mechanism for developing healthcare systems to meet quality standards and patient safety.[1] In Thailand, the Healthcare Accreditation Institute (Public Organization) is the main body responsible for evaluating and accrediting hospital standards.[2] Statistics from 2020-2022 showed that community hospitals achieved Hospital Accreditation (HA) Level 3 certification at rates of 92.33%, 88.11%, and 92.41% respectively[3]. However, some community hospitals have failed to achieve or maintain accreditation status, affecting the quality of care and patient safety. This is reflected in medical complaint statistics showing 4,592 cases during 2015-2020, with total compensation payments exceeding 1.1 billion baht.[4]

Community hospitals are secondary healthcare facilities distributed across all districts. They play a vital role in rural healthcare delivery by encompassing health promotion, treatment, prevention, and rehabilitation. They serve as a link between primary and tertiary care[5], managing patient referrals and continuity of care. With the increasing number of patients at community hospitals, achieving accreditation has become crucial for building public confidence and reducing healthcare risks.

The World Health Organization has emphasized the importance of quality and patient safety, in healthcare facilities.[6] Thailand has responded by signing the 2nd Phase of the 3P Safety Policy Declaration (2024-2027), aiming towards the goal of "Thailand advancing towards a quality and safe healthcare system for all".[7]

Hospital directors play a crucial role in leading their organizations to successful accreditation, particularly through transformational leadership, which influences staff development and organizational awareness.[8] As of September 2022, while 673 community hospitals (89.61%) achieved accreditation, maintaining standards and ensuring continuous quality improvement remain challenging due to the complexity of healthcare systems and the involvement of numerous personnel.[9] Literature reviews indicate multiple factors affecting safety culture perception.[10, 11] Some community hospitals that achieved HA Level 3 certification have struggled to maintain standards. Continuous quality improvement is the challenging issue due to the complex, multi-step nature of healthcare systems, and involving numerous stakeholders. Therefore, this research aims to study the relationships among hospital characteristics, transformational leadership, safety culture, and accreditation status in community hospitals. Direct data collection from the sample group is necessary, as other research methods cannot serve as substitutes. The findings will be used to develop efficient and sustainable quality systems.

Materials and Methods

1. Study design and sample size

This research is an analytical cross-sectional survey. The study population consisted of 751 community hospitals under the Office of the Permanent Secretary, Ministry of Public Health. The research required a sample size of 536 hospitals. Participants were required to meet the following criteria: (1) Quality supervisors working in community hospitals as assigned by the hospital director, (2) Having at least one year of work experience. Exclusion criteria were community hospitals that had not yet opened inpatient services and those that had been operating for less than 3 years.

The sample size was determined using Daniel and Cross, 2013's formula[12] as follows:

$$n = \frac{Nz^2pq}{d^2(N-1)+z^2pq} \text{ x design effect}$$

The population of community hospitals (N) is 751 Hospitals. The proportion of community hospitals that received hospital quality certification was 89.61 percent (p) is 0.89, 1-p (q) is 0.11, the level of confidence (Z) is 1.96, and the precision (d) is 0.03. The calculated sample size was 268 community hospitals. To reduce inter-group variance and increase estimation accuracy, as well as to ensure that the sample data analysis accurately reflects the entire population, the

sample size was multiplied by a design effect of 2, derived from Hathairat Kosiyaporn's study.[13] The final calculated sample size was 536 community hospitals.

2. Data collection and data analysis

The questionnaires, along with sets of documents individually addressed, were mailed to 536 community hospitals. Each participant received two envelopes: one for the questionnaire and the other for the consent letter, ensuring the protection of personal information. Data was collected from December 2023 to January 2024. A total of 536 out of 536 participants (100%), completed the questionnaires for data analysis.

3. Research Instruments

The instrument was a self-administered questionnaire consisting of six parts. Part 1: Personal characteristics: gender, age, educational level, duration of work experience in community hospitals, current position, and profession. Part 2: Hospital Characteristics including health region, province, hospital level, and number of beds. Part 3: Community Hospital Accreditation Status: 3.1 Not accredited: This refers to hospitals that achieved accreditation status 0; step 1; and step 2 certification (including hospital their certification has expired). 3.2 Accredited: This refers to hospitals that have achieved step 3 certification; reaccreditation; and Advanced HA certification. Part 4: Perception of Transformational Leadership of Community Hospital Directors. The researcher developed 16 questions based on Bass and Avolio's concept.[16] These are closed-ended opinion questions using a 5-point rating scale from highest (5) to lowest (1). The scores were categorized as follows: the highest level (4.50 – 5.00), the high level (3.50 – 4.49), the moderate level (2.50 – 3.49), the low level (1.50 – 2.49), and the lowest level (1.00 – 1.49). Part 5: Patient Safety Culture Questionnaire. We used the Hospital Survey on Patient Safety Culture (HSOPSC) from the Agency for Healthcare Research and Quality (AHRQ). The experts from Healthcare Accreditation Institute of Thailand translated English version into Thai version. The questionnaire uses a 5-point Likert scale. The level of scores were categorized as follows: the highest level (4.50 – 5.00), the high level (3.50 – 4.49), the moderate level (2.50 – 3.49), the low level (1.50 – 2.49), and the lowest level (1.00 – 1.49). And part 6: Suggestions: This section was an open-ended question section for participants to provide recommendations.

Content validity was reviewed and approved by three experts in Hospital Accreditation in the community. The variables of transformational leadership and safety culture scales showed Cronbach's alpha coefficients of 0.976 and 0.868, respectively.

4. Statistical Analysis

The statistics software packages, SPSS version 18, was used to process data through descriptive and inferential statistics. The relationships between independent variables were examined using Chi-square test statistics to check for multicollinearity. And binary logistic regression analysis, with statistical significance set at less than 0.05.

Results

1. The general characteristics of participants in community hospitals

These participants were quality supervisors in community hospitals. The majority were female (82.28%), aged between 26 and 64 years, with an average age of 48.08 years. Most held bachelor's degrees (56.90%). They had 21 to 30 years of working experience. The majority worked as quality coordinators (36.93%) and were professional nurses (63.25%) (Table 1).

Table 1 The General characteristics of participants in community hospitals (n = 536 hospitals)

The General characteristics of participants	Frequency	Percent
Sex		
Male	95	17.72
Female	441	82.28
Age (Year)		
26-30	15	2.80
31-40	77	14.37
41-50	211	39.37
51-64	233	43.47
Mean ± S.D. = 48.08 ± 7.79, Min = 26, Max = 64		
Educational attainment		
Bachelor's degree	305	56.90
Master's degree	217	40.49
Professional's Degree	14	2.61

Table 1 The General characteristics of participants in community hospitals (n = 536 hospitals) (cont.)

The General characteristics of participants	Frequency	Percent
Duration of employment (Year)		
1-2	9	1.68
3-5	17	3.17
6-10	42	7.84
11-15	49	9.14
16-20	58	10.82
21-30	226	42.16
> 30	135	25.19
Median = 29, Min = 1, Max = 58, Mean ± S.D. = 23.74 ± 9.57		
Position of Work		
Head of Quality Center	230	34.95
Person responsible for quality work assigned by the hospital director	144	21.88
Quality Coordinator	243	36.93
Other	41	6.23
Professional		
Medical Physician	38	7.09
Registered Nurse	339	63.25
Pharmacist	76	14.18
Dentist	39	7.28
Other	44	8.21

2. The characteristics of community hospitals

The majority of hospitals were located in Health Region 1 (11.57%). They were located in the upper northern region. The majority (65.11%) of community hospitals were medium-sized (F2 level) They service capacity size were 31 to 60 beds (43.84%) (Table 2).

Table 2 The characteristics of community hospitals (n = 536 hospitals)

The characteristics of community hospitals	Frequency	Percent
Health Region		
- Health Region 1	62	11.57
- Health Region 2	27	5.04
- Health Region 3	31	5.78
- Health Region 4	42	7.84
- Health Region 5	36	6.72
- Health Region 6	42	7.84
- Health Region 7	45	8.40
- Health Region 8	56	10.45
- Health Region 9	56	10.45
- Health Region 10	44	8.21
- Health Region 11	46	8.58
- Health Region 12	49	9.14
Hospital Level		
- M2	43	8.02
- F1	349	65.11
- F2	75	13.99
- F3	69	12.87
Number of beds		
- < 30 beds	139	25.93
- 30 – 60 beds	235	43.84
- 61 – 90 beds	92	17.16
- > 90 beds	70	13.06

3. The accreditation status of community hospitals

The majority of community hospitals (73.88%), were certified ~~as~~ with accreditation status. The duration of an accreditation period was 10-12 years (34.34%).

4.The levels of transformational leadership in community hospitals

The assessment of an overall transformational leadership level in the community hospital directors indicated the high level (4.05 ± 0.69). When examining individual dimensions, idealized influence had the highest mean score (4.13 ± 0.72), followed by inspirational motivation (4.08 ± 0.79), individualized consideration (4.02 ± 0.67), and intellectual stimulation (3.96 ± 0.74), respectively.

5. The safety culture levels in community hospitals

The overall safety culture of community hospitals demonstrated the high level (3.67 ± 0.37). When examining each ten individual dimensions, the continuous organizational development showed the highest mean score (4.13 ± 0.72), followed by the feedback and error communication (4.09 ± 0.57), and the supervisor/manager expectations and actions promoting patient safety (4.03 ± 0.60), respectively. Whereas it was found that Staffing had the lowest average (2.74 ± 0.56), Hospital handoffs and transitions (2.82 ± 0.45), and non-punitive error management approaches (3.61 ± 0.83).

6. The relationship among hospital characteristics, transformational leadership, safety culture, and accreditation status in community hospitals

This study revealed that hospital level, number of beds, and safety culture were significantly associated with the accreditation status. Hospital level and safety culture demonstrated statistically significant positive correlations with community hospital accreditation status. The F3-level hospitals were 17.837 times more likely to fail accreditation compared to hospitals at other levels (95%CI: 8.152, 39.025). Accredited hospitals were shown to have a safety culture that is 6.189 times higher than that of non-accredited hospitals (95%CI: 1.816, 21.095) (Table 3) Whereas transformational leadership had no significant association with the accreditation status in community hospitals.

7. The influence of hospital characteristics, transformational leadership, and safety culture on accreditation status in community hospitals

From the logistic regression analysis, the variables with the strongest influence on accreditation status were hospital level and safety culture. Both factors demonstrated statistically significant positive correlations with successful accreditation. This study highlights the importance of developing a strong safety culture and allocating appropriate resources based on hospital level to achieve successful accreditation in community hospitals (Table 4).

Table 3 Analysis of Factors Associated with Accreditation Status in Community Hospitals (n = 536 hospitals)

Characteristics of community hospitals	Mean (SD) accredited (%) n = 499	Not accredited (%) N = 37	P^a
Health Region			
Northern	85 (15.86)	4 (0.75)	0.315
Central	103 (19.22)	6 (1.12)	
Eastern	40 (7.46)	2 (0.37)	
North Eastern	181 (33.77)	20 (3.73)	
Southern	90 (16.79)	5 (0.93)	
Hospital Level			
M2	20 (3.73)	23 (4.29)	0.000**
F1	337 (62.87)	12 (2.24)	
F2	74 (13.81)	1 (0.19)	
F3	68 (12.69)	1 (0.19)	
Number of beds			
< 30 beds	112 (20.90)	27 (5.04)	0.000**
31 - 60 beds	227 (42.35)	8 (1.49)	
61 - 90 beds	91 (16.98)	1 (0.19)	
> 90 beds	69 (12.87)	1 (0.19)	
Transformational Leadership			
a low level	8 (1.49)	2 (0.37)	0.146
a moderate level	76 (14.18)	9 (1.68)	
a high level	260 (48.51)	15 (2.80)	
a highest level	155 (28.92)	11 (2.05)	
Safety Culture			
a low level	9 (1.68)	2 (0.37)	0.001**
a moderate level	51 (9.51)	11 (2.05)	
a high level	384 (71.64)	21 (3.92)	
a highest level	55 (10.26)	3 (0.56)	

SD, standard deviation; a Chi-square test

Table 4 Results from Binary Logistic Regression Analysis

	AOR (95% CI)	*p*
Health Region (X1)	0.888 (0.657- 1.201)	0.442
Hospital Level (X2)	17.837 (8.152 – 39.025)	0.000**
Transformational Leadership	0.612 (0.302 – 1.242)	0.174
(X3)	6.189 (1.816 – 21.095)	0.004**
Safety Culture (X4)	0.001	0.000**
Constant		

AOR, Adjusted Odds Ratio; CI, Confidence Interval

Discussion

In this research, hospital level (F3) and safety culture showed significant relationships with the accreditation status of community hospitals, which aligns with previous research by Wardhani et al.[22] indicating that hospital size influences accreditation outcomes.[22] Larger community hospitals (F1, F2 levels) with greater bed capacity showed a higher likelihood of achieving accreditation. The results showed that F3-level hospitals were 17.837 times more likely to fail accreditation compared to hospitals at other levels. This finding reflects the significant challenges smaller hospitals encounter in achieving and maintaining accreditation due to resource limitations, staffing constraints, and inadequate preparedness for quality system development.[20, 22]

The overall safety culture in community hospitals under the Office of the Permanent Secretary, Ministry of Public Health was found to be at a high level. Interestingly, accredited hospitals demonstrated a safety culture that was 6.189 times higher than non-accredited hospitals, reflecting the critical role of safety culture in achieving and maintaining accreditation status.[10, 11, 22]

This finding aligns with the Healthcare Accreditation Institute's standards[2] which emphasize establishing clear safety policies as a fundamental foundation for sustainable quality development. This is consistent with Wagner et al.[22] who found that safety culture is an effective predictor of quality outcomes, and El-Jardali et al.[23] who confirmed that improving safety culture directly contributes to the success of hospital accreditation processes. Similarly, research by Braithwaite et al.[24] identified a positive relationship between strong safety culture and higher rates of successful accreditation.

Examining the specific dimensions of safety culture revealed that continuous organizational development scored highest (Mean = 4.13, S.D. = 0.72), followed by feedback and error communication (Mean = 4.09, S.D. = 0.57). These high-scoring dimensions indicated that accredited hospitals have successfully implemented systems for continuous improvement and open communication about errors, which are essential components of a robust safety culture. Conversely, staffing had the lowest average (Mean = 2.74, S.D. = 0.56), followed by hospital handoffs and transitions (Mean = 2.82, S.D. = 0.45), and a non-punitive approach to error management (Mean = 3.61, S.D. = 0.83). These lower scores suggest areas where even accredited hospitals continue to face challenges, particularly in maintaining adequate staffing levels and ensuring smooth care transitions.

The significant relationship between safety culture and accreditation status confirms Sammer et al.[11] finding that safety culture positively impacts healthcare organizations by enhancing patient care outcomes. Similarly, Weaver et al.[10] found that organizations with high safety culture achieve continuous and sustainable quality development. This culture is not merely a compliance requirement but serves as the foundation for all quality improvement initiatives, fostering an environment where staff prioritize patient safety in their daily practices.

However, transformational leadership did not show a direct significant relationship with accreditation status in this study, it scored highly (Mean = 4.05, S.D. = 0.69) across all hospitals. This suggests that transformational leadership might contribute to creating a positive safety culture, which in turn influences accreditation status. This indirect relationship warrants further investigation in future studies.

The influence of hospital characteristics and safety culture on accreditation status aligns with Anuwat Supachutikul's study.[20] The study found that higher-level hospitals typically have better personnel and resource readiness, making quality development more effective. The current study extends this understanding by demonstrating that safety culture, when embedded across all departments, significantly increases the likelihood of successful accreditation.

Our findings emphasize that safety culture is not a one-time initiative but a continuous process requiring sustained efforts to build understanding, participation, and commitment from all stakeholders. Hospitals aiming to achieve and maintain accreditation should focus on developing a robust safety culture. Particularly in areas identified as challenging, such as staffing adequacy, care transitions, and non-punitive error management approaches.

Conclusion

This study identified hospital level, number of beds, and safety culture as key factors associated with accreditation status in community hospitals under the Office of the Permanent Secretary, Ministry of Public Health. This study highlights hospital level and safety culture as key factors influencing accreditation outcomes. Larger hospitals with stronger safety cultures are more likely to achieve accreditation, reinforcing the need for targeted improvements in these areas. Larger and higher-level hospitals typically have greater resource readiness and infrastructure, facilitating quality system development. Additionally, safety culture plays a crucial role in improving quality patient care. Hospitals that prioritize safety culture, ensuring both patient and staff safety, can effectively reduce medical risks and errors.

To achieve successful accreditation, safety culture should be embedded across all departments, from management to operational staff. Patient safety culture is not a one-time initiative but a continuous process that requires sustained efforts to build understanding, participation, and commitment from all stakeholders. The impact of this study on public health systems spans multiple dimensions: economic benefits through reduced medical errors and associated costs, more equitable distribution of quality healthcare services particularly in smaller community hospitals, and health workforce development through safety skills training.

Ethical Approval Statement

Ethical approval was obtained from the Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University, on November 14, 2023 (Approval Number: COA-MUPH-2023-139).

Author Contributions

SB designed the study and developed the research instrument under the supervision of CT, and JS. SB conducted the pre-test, reliability test, and data collection under CT's supervision. SB performed the initial statistical analysis following guidance from JS. CT and JS guided SB in manuscript writing, while CT reviewed and edited the final manuscript. All authors read and approved the manuscript before submission for publication.

Acknowledgements

The authors would like to express their sincere gratitude to all quality supervisors working in community hospitals under the Office of the Permanent Secretary, Ministry of Public Health.

Source of Funding

This research did not receive any external funding.

Conflicts of Interest

The authors declare no conflicts of interest related to this study.

References

1. Healthcare Accreditation Institute (Public Organization). Hospital and Healthcare Standards 5th Edition. Nonthaburi: Healthcare Accreditation Institute; 2022. (In Thai)
2. Healthcare Accreditation Institute (Public Organization). Annual Report 2022. Nonthaburi: Healthcare Accreditation Institute; 2022. (In Thai)
3. Healthcare Accreditation Institute (Public Organization). Statistics of HA Accredited Hospitals [Internet]. 2022. . Available from: https://www.ha.or.th/TH/statistical-information/. access 15 January, 2024. (In Thai)
4. National Health Security Office. Report on Initial Financial Assistance Payment Section 41 [Internet]. 2020. Available from: https://www.nhso.go.th/. access 15 January, 2024 . (In Thai)
5. Ministry of Public Health. Service Plan Development Plan 2023-2027. Nonthaburi: Ministry of Public Health; 2022.
6. World Health Organization. Global patient safety action plan 2021-2030: towards eliminating avoidable harm in health care. Geneva: World Health Organization; 2021.
7. Ministry of Public Health. Global Patient Safety Declaration 2022. Nonthaburi: Ministry of Public Health; 2022.
8. Bass BM, Riggio RE. Transformational leadership. 2nd ed. New York: Psychology Press; 2006.
9. Healthcare Accreditation Institute (Public Organization). Healthcare Accreditation Status Report 2022. Nonthaburi: Healthcare Accreditation Institute; 2022.
10. Weaver SJ, Lubomksi LH, Wilson RF, Pfoh ER, Martinez KA, Dy SM. Promoting a culture of safety as a patient safety strategy: a systematic review. Ann Intern Med. 2013;158(5):369-74.
11. Sammer CE, Lykens K, Singh KP, Mains DA, Lackan NA. What is patient safety culture? A review of the literature. J Nurs Scholarsh. 2010;42(2):156-65.
12. Daniel WW, Cross CL. Biostatistics: a foundation for analysis in the health sciences. 10th ed. New York: John Wiley & Sons; 2013.
13. Kosiyaporn H, Suphanchaimat R, Julchoo S, Phaiyarom M, Sinam P. Factors and mechanisms related to health risk communication among migrant workers in Thailand: a

case study of surveillance, public health and social measures in COVID-19 epidemic [Internet]. Bangkok: Foundation for International Health Policy Development, Ministry of Public Health; 2021 Sep 14. Available from: https://kb.hsri.or.th/dspace/handle/11228/5439?show=full&locale-attribute=th. access 24 March, 2025.

14. Sammanant J. Factors affecting hospital accreditation and quality development: a case study of a hospital in Nonthaburi Province [dissertation]. Pathum Thani: Thammasat University; 2017.
15. Petchsawang S, Jittanoon P. Relationship between transformational leadership and work efficiency of hospital personnel. Journal of Nursing Science and Health. 2021;44(2):118-28. (In Thai)
16. Bass BM & Avolio BJ. Improving organizational effectiveness through transformational leadership. Newbury Park, CA; Sage; 1994.
17. Khianpho R. Factors influencing patient safety culture as perceived by professional nurses at Phrae Hospital. Journal of Boromarajonani College of Nursing, Uttaradit. 2021;13:147-59. (In Thai)
18. Chaodorn T. Factors affecting quality development of community hospitals that passed service quality accreditation [thesis]. Nonthaburi: Sukhothai Thammathirat Open University; 2018. (In Thai)
19. Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of leadership style towards quality of care measures in healthcare settings. Healthcare. 2017;5(4):73.
20. Supachutikul A. Patient Quality and Safety: Concepts, Principles and Implementation. Nonthaburi: Healthcare Accreditation Institute; 2018. (In Thai)
21. Bass BM. Two decades of research and development in transformational leadership. Eur J Work Organ Psychol. 1999;8(1): 9-32.
22. Wardhani V, van Dijk JP, Utarini A. Hospitals accreditation status in Indonesia: associated with hospital characteristics, market competition intensity, and hospital performance? BMC Health Serv Res. 2019;19:372.
23. El-Jardali F, Jamal D, Dimassi H, Ammar W, Tchaghchaghian V. The impact of hospital accreditation on quality of care: perception of Lebanese nurses. Int J Qual Health Care. 2008; 20(5): 363-71.

24. Braithwaite J, Greenfield D, Westbrook J, Pawsey M, Westbrook M, Gibberd R, et al. Health service accreditation as a predictor of clinical and organisational performance: a blinded, random, stratified study. Qual Saf Health Care. 2010; 19(1): 14–21.