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Team Psychological Safety and Voice of Nurses in Affiliated Hospitals of Guangxi University of Chinese Medicine, the People's Republic of China

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ABSTRACT

OBJECTIVE To explore team psychological safety and voice of Chinese nurses and examine the relationship between team psychological safety and the voice of nurses in China.

METHODS A descriptive correlational study was conducted among 417 nurses who had worked at least one year in three affiliated hospitals of Guangxi University of Chinese Medicine, the People's Republic of China. Data was collected using a set of questionnaires consisting of Demographic Data Form, Team Psychological Safety Climate Scale (TPSCS), and Employee Voice Scale (EVS). The validity of the research instruments was tested by the original authors of the questionnaires. The Cronbach's alpha coefficients of the TPCSC and EVS were 0.96 and 0.91, respectively. Descriptive statistics and Spearman's Rank-order Correlation were used to analyze the data.

RESULTS The nurses perceived both team psychological safety and voice of nurses at a moderate level. Team psychological safety and voice had a strong positive correlation ($r = 0.51$, $p < 0.01$). The dimensions of speak one's mind freely, respect each other, interpersonal risk-taking, and mutual trust were found to be positively associated with voice ($r = 0.38$, $r = 0.48$, $r = 0.16$, and $r = 0.47$, $p < 0.01$, respectively).

CONCLUSIONS When nurses perceive psychological safety in their team, they are more likely to express ideas, information, opinions, and make cooperative contributions to the work unit and to the hospital. These findings can help guide hospitals and nursing administrators in developing strategies to improve team psychological safety which will lead to an increase in the voice of nurses.

KEYWORDS team psychological safety, voice, Chinese nurses

INTRODUCTION

Nurses constitute the majority of healthcare professionals and work closely with patients; they are responsible for observing and detecting early signs of unsafe conditions of patients (1). Having nurses be willing to speak up about behavior that violates safety rules and potential mistakes is essential to enhancing patient safety and quality of care as well as to preventing patient harm, e.g., medication errors, infection, and other sentinel events (2). It has been reported that most critical adverse events are the consequence of the failure of healthcare professionals to speak up, events which eventually result in harm to the patient (3). However, speaking up can be challenging for nurses. They may be reluctant to voice their opinions about work-related issues because they believe that open discussion or sharing their thoughts could adversely affect their position. They are concerned that they would appear to be a problematic person, or that their suggestions and

ideas would not result in any changes (4). Furthermore, when nurses are involved in adverse events, they become secondary victim and can become greatly affected by a series of psychological and psychosomatic symptoms such as anxiety, remorse, symptoms of depression, difficulty sleeping, and fear of future errors. If these feelings or symptoms are not properly addressed, they tend to negatively affect interpersonal relationships as well as the quality of communication in the workplace (5).

Furthermore, in a healthcare team, nurses' voice plays a significant role in improving team performance (6). Providing opportunities for nurses to share ideas and speak up about work-related concerns can increase their job satisfaction, reduce burnout rate, and thereby reduce the turnover of nurses (7). In recent years, nurses' voice has drawn extensive attention because of the benefits to patients, nurses, and the entire organization. Thus, encouraging nurses to express their voice in the organization is important and needs to be given more attention.

Voice is challenging-promotive extra-role behavior that is intended to improve the status quo (8). It could be future-oriented promotive expressions that aim at making innovative and constructive suggestions for change, or prohibitive expressions that focus on pointing out existing or potential harmful practices in the organization (9). In nursing, voice includes an array of behaviors in which nurses proactively speak up about concerns, report potential mistakes, and make suggestions related to patient safety and improving the workplace status quo (10). Nurses' voice has been studied in previous research; however, the findings have yielded different results. Studies conducted in the context of Chinese nursing have reported low to moderate levels of nurses' voice (11-13). The voice of nurses can be affected by various factors, e.g., personality (12), leadership behavior (14), and team psychological safety (15). Recent research has primarily explored associations between voice and individual differences or interpersonal factors, while rarely paying attention to the influence of psychological antecedents of promotive and prohibitive voice. Voice is intentional behavior. According to the theory of planned behavior, its occurrence may be contributed to by a variety of psychological antecedents (9).

Team psychological safety, defined as a shared belief in a team (16), allows members to express their thoughts freely, to have respect for each other's opinions and ways of doing things, to be able to speak up without worry about offending others or creating interpersonal issues and to have trust in other team members (17). Previous research on psychological safety has focused on exploration at the individual or organizational level. Psychological safety in the context of nursing should focus on the nursing team as the team members are influenced by the same set of team structures (16). In a psychologically safe team, nurses can effectively develop and maintain supportive and trusting interpersonal relationships. They are encouraged to proactively speak up about work-related concerns, to voice constructive suggestions, and to raise objections without fear of offending others (18). Most studies conducted in China on the levels of nurses' team psychological safety reported inconsistent findings, ranging from low to moderate (19-21). Extensive reviews of nursing research literature have shown that team psychological safety is important and has been found to be associated with the voice of nurses. To date, however, there have been no studies conducted on the nursing profession in China. There is a clear need to explore team psychological safety and voice and the relationship among nurses in China.

METHODS

Study design

A descriptive correlational study was conducted to determine the level of team psychological safety and voice among Chinese nurses and to explore the relationship between team psychological safety and voice.

Study setting, participants

The present study was conducted in three university hospitals in Guangxi Zhuang Autonomous Region, the People's Republic of China. The population of this study included 2,926 nurses who were currently working at affiliated

hospitals of the Guangxi University of Chinese Medicine. Yamane's formula (22) was used to calculate the sample size with a statistical significance level of .05. In consideration of the possible loss of participants, an additional 20% was added to the calculated sample size. A total of 422 questionnaires were distributed to nurses, of which 420 were returned. Of those, 417 completed questionnaires (99.29%) were included in the data analysis. We used a proportional stratified random sampling method to determine the number of participants from each department in the three hospitals. The participants were selected by a simple random sampling method from the list of names of nurses in each hospital. The inclusion criteria were: 1) nurses who had worked for their hospital for at least one year, and 2) nurses who worked in inpatient or outpatient departments and who provided direct nursing care to patients. The exclusion criteria were 1) individuals in the position of head nurse, nurse supervisor, or director of the nursing department, 2) nurses on maternity leave, sick leave, vacation, or continuing education, and 3) nurses who had participated in the reliability test.

Data collection

Data collection was done using a set of questionnaires consisting of three parts 1) the Demographic Data Form, developed by the researcher, which contained items about age, gender, marital status, educational level, working department, professional title, and working experience, 2) the Team Psychological Safety Climate Scale (TPSCS), developed by Wu and Chen (17), which consisted of 16 items and four dimensions: ability to speak one's mind freely, respect for each other, interpersonal risk-taking, and mutual trust (each dimension contained four items), and 3) the Employee Voice Scale (EVS), developed by Liang et al. (9), which consisted of 10 items and two dimensions: promotive voice (five items) and prohibitive voice (five items). All items of the TPSCS and EVS were rated on a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree." The higher the score of both TPSCS and EVS, the higher level of nurses' team psychological safety and voice. The validity of the research instruments was tested by the original authors of those instruments. The reliability of both instruments was tested among 15 nurses in three hospitals. The Cronbach's alpha coefficient of the TPSCS was 0.96 and the dimensions of speak one's mind freely, respect each other, interpersonal risk-taking, and mutual trust were 0.93, 0.81, 0.93, and 0.83, respectively. The Cronbach's alpha coefficient of EVS was 0.91 and the dimensions of promotive voice and prohibitive voice were 0.75 and 0.89, respectively.

The data collection was conducted in March and April 2020. After obtaining permission for data collection, the researchers distributed the packages of questionnaires, including informed consent forms, to each participant. Research coordinators selected by the directors of the nursing departments were responsible for collecting the completed questionnaires in sealed envelopes and depositing them in designated boxes after two weeks and returning them to the researcher. The researcher checked the questionnaires for completeness before data analysis.

Data analysis

Data analysis was conducted using the Statistical Package for the Social Sciences Statistics (SPSS Statistics 23.0). Descriptive statistics (frequency, percentage, mean, standard deviation) were used to analyze demographic data and the team psychological safety and voice. Kolmogorov-Smirnov Z (KS) was used to test the data distribution. As the data distribution violated the assumption of normality, Spearman's rank correlation coefficient was used to analyze the correlation between variables. Based on Grove, Burns, and Gray (23), a positive value signified a direct correlation, a negative value indicated an inverse correlation. Correlation coefficient (r) values < 0.30 represented a weak correlation, 0.30 > r < 0.50 signified a moderate correlation, and r > 0.50 indicated a strong correlation. A p-value of less than 0.05 was considered statistically significant.

Ethical considerations

The research was approved by the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University, Thailand (IRB certificate of approval number 013/2020). Permission for data collection was obtained from the directors

of the nursing departments in the three hospitals. All participants were given information and a thorough explanation of the study. They agreed to participate in this study and signed informed consent forms. Information regarding the participants was kept confidential and their identities were not disclosed. Only code numbers were used for questionnaire follow-ups.

RESULTS

As displayed in Table 1, the mean age of the participants was 30.79 (SD = 5.98), and most (60.43%) were between 22 and 30 years of age. Almost all the participants were female (97.60%), and most (60.19%) were married. A majority (71.22%) held a bachelor's degree in nursing, and 58.27% worked in a medical and surgical department. About half (53.72%) had obtained the professional title of Senior Nurse. Most of the participants (73.86%) had working experience of between 2 to 10 years, while the others had over 10 years' experience.

As shown in Table 2, nurses perceived the level of overall team psychological safety as moderate (mean = 3.47, SD = 0.49). The four dimensions, including speaking one's mind freely (mean = 3.41, SD = 0.56), interpersonal risk-taking (mean = 3.12, SD = 0.54), and mutual trust (mean = 3.57, SD = 0.67) were perceived as moderate, but the dimension of respect each

Table 1. Demographic characteristics of the participants (N = 417)

Demographic Characteristics	Frequency (n)	Percentage (%)
Age (years) (mean = 30.79, SD = 5.98, range = 22-58)		
22-30	252	60.43
31-40	134	32.13
41-50	27	6.48
>50	4	0.96
Gender		
Female	407	97.60
Male	10	2.40
Marital Status		
Married	251	60.19
Single	163	39.09
Divorced	3	0.72
Educational Level		
Diploma	2	0.48
Associate Degree	117	28.06
Bachelor Degree	297	71.22
Master Degree	1	0.24
Working Department		
Medical Department	153	36.69
Surgical Department	90	21.58
Outpatient Department	64	15.35
Operating Room	31	7.43
Obstetrics-Gynecology Department	30	7.19
Pediatrics Department	19	4.56
Intensive Care Unit	17	4.08
Emergency Room	13	3.12
Professional title		
Senior Nurse	224	53.72
Nurse-in-Charge	104	24.94
Junior Nurse	76	18.22
Associate Chief Nurse	11	2.64
Chief Nurse	2	0.48
Working Experience (mean = 8.65, SD = 6.62, range = 2-37)		
2-10	308	73.86
11-20	81	19.42
21-30	22	5.28
> 30	6	1.44

Table 2. Descriptive statistics for study variables (N = 417)

Variable	Mean	SD	Level
Team Psychological Safety			
Overall team psychological safety	3.47	0.49	Moderate
Speak one's mind freely	3.41	0.56	Moderate
Respect each other	3.77	0.75	High
Interpersonal risk-taking	3.12	0.54	Moderate
Mutual trust	3.57	0.67	Moderate
Voice			
Overall voice	3.66	0.51	Moderate
Promotive voice	3.81	0.59	High
Prohibitive voice	3.52	0.57	Moderate

other was perceived as high (mean = 3.77, SD = 0.75). The overall voice and the prohibitive voice as perceived by nurses were rated as moderate (mean = 3.66, SD = 0.51; mean = 3.52, SD = 0.57, respectively), while the promotive voice was rated as high (mean = 3.81, SD = 0.59).

As presented in Table 3, the results revealed a strong positive correlation between overall team psychological safety and voice (r = 0.51, p <.01). Additionally, the dimensions of speak one's mind freely, respect each other, interpersonal risk-taking, and mutual trust were significantly and positively associated with voice (r = 0.38, r = 0.48, r = 0.16, and r = 0.47, p < 0.01, respectively).

Table 3. Correlations among study variables (N = 417)

Team psychological safety	Voice
Overall	0.51**
Speak one's mind freely	0.38**
Respect each other	0.48**
Interpersonal risk-taking	0.16**
Mutual trust	0.47**

** p <.01

DISCUSSION

The results of the current study demonstrate that the nurses perceived team psychological safety at only a moderate level. This result is consistent with the results of Zou and Chen (21) and Yuan et al. (20), but not with the results of Yan and Kang (19) which reported a low level of team psychological safety. Some possible explanations for this divergence are explored below. First, the professional status of nursing may influence nurses' perception of team psychological safety. Healthcare exists as a well-entrenched status and hierarchical culture in which individuals with higher professionally-derived status seem to perceive a higher level of team psychological safety (24). In China, the professional status of nurses is generally reflected in the hierarchical division of the ladder of the nurse management system. Based on educational background, working experience, and work performance, nurses have been classified into five levels from novice to expert, namely, junior nurse, senior nurse, nurse-in-charge, associate chief nurse, and chief nurse (25). Promotion to each level involves correspondingly rigorous assessment and evaluation criteria. In a nursing team, nurses with higher professional status generally act as the backbone of the team. In addition to providing patient care services, they also assume responsibility for mentoring junior nurses, carrying out scientific research projects, and monitoring clinical nursing quality, and thus have more right to speak up than other members of the team. In the present study, 71.94% of the participants were in a relatively low professional status (junior nurses and senior nurses); only 3.12% were in a high professional status (associate chief nurses and chief nurses). Most of the nurses (308) had working experience of between 2-10 years and had developed teamwork to some degree, but not to the highest level. This could explain the moderate level of team psychological safety.

Second, the familiarity between team members may be an enabler of team psychological safety. Due to the interdependent nature of nursing work, nurses in a team usually com-

municate, collaborate, and share information with their team members in routine work face to face, which is bound to create familiarity among team members and to enhance their trust and tacit understanding of relationships (26). To some extent, the degree of cultivation of familiarity between team members is based on the level of stability of the team. When new members regularly join a team, team stability will be negatively affected and the building and maintenance of team psychological safety will become challenging (27). When nurses are employed by a hospital, they are assigned to different clinical nursing units according to each unit's workforce demand. To ensure the stability of the nursing team, nurses continue in their unit of initial assignment after that and are rarely transferred to other units. Our study found that the participants' average length of working with their current team was 8.65 years which indicates sufficient team composition stability to allow the team's psychological safety to develop.

Another finding of this study was that nurses perceived the overall voice as being at a moderate level. This is consistent with the results of Wang and Zu (11), while inconsistent with the result of a study conducted by Yi et al. (12) which reported a low level of nurses' voice. The first reason for this finding in the present study is related to organizational factors. The participants in this study were nurses working in tertiary hospitals. Compared to lower-level hospitals, tertiary hospitals pay more attention to the cultivation of nurses' voice, focusing more specifically and comprehensively on aspects of voice platform establishment, voice training project implementation, and environment creation (28). Hospital managers provide opportunities for nurses to voice their concerns through various channels, e.g., regular forums, seminars, quality control circles, questionnaires, and suggestion boxes, which are designed to encourage nurses to participate in the process of decision-making (29). Furthermore, the non-punitive system related to nurses reporting adverse events creates a psychologically secure environment that encourages nurses to proactively report patient safety issues. In practice, however, despite the establishment of a non-punishment nursing adverse events reporting system, the willingness of nurses to report adverse events appears to be lower than would be expected. The reason may be that the system is not fully implemented and/or that the name of the person reporting an event is not kept confidential (12).

Another reason for the relatively higher level of voice among tertiary hospital nurses may be related to demographic factors. In the current study, the mean period of work of the participants was 8.65 years, so they had accumulated a certain level of work experience through day-to-day practice, making it easier for them to detect work-related problems, raise constructive suggestions and brainstorm new ideas. As other studies have shown, the longer an employee works in their post, the greater the frequency of their voice (13). Another possible factor is education level. In this study, 71.22% of the nurses held a bachelor's degree compared to 42.1% of nurses in primary and secondary hospitals (28). That higher level of education makes the nurses more likely to participate in the operation and management of decision-making and to put forward viewpoints reflecting their values and using their influence (11). Another demographic factor that might have had a lowering effect on the voice of nurses was professional titles. Almost 70 percent of the nurses in this study were clinical nurses. In that capacity, they focus more on routine work than on proposing their ideas for preventing adverse events in their unit which may have led to the only moderate level of voice.

As anticipated, the results of this study suggest that team psychological safety is moderately positively associated with the voice of nurses. That is consistent with the results of a study conducted in the Netherlands by Alingh et al. (15), which indicated that when nurses feel psychologically safe in their team, they will more frequently speak up about patient safety issues. Voice is a discretionary and intentional behavior; due to the associated potential benefits and risks, individuals may consider in advance whether the consequences will be positive or negative before speaking up (30). Team psychological safety creates a favorable

context that allows individuals to evaluate the voice outcomes (31). In a psychologically safe environment, the team tolerates and encourages team members to express themselves frankly. Additionally, the team affords enough respect and trust to team members' suggestions and opinions, even if they hold objections. For that reason, team members are more willing to believe that it is safe for them to speak out without risk of possible punishment or of bringing about interpersonal risks when they voice challenges to the current status (32). In a healthcare team, for the team to work effectively, team members must accept and encourage diversity of opinions from others, respect and appreciate each other's roles, and respect each other's talents, beliefs, and professional contributions (33). When employees feel they are respected by others, they experience a psychological change of control beliefs (proactive motivation of "can-do") and a positive mood (proactive motivation of "energized-to") which then motivates voice (34). Healthcare team members openly discuss information, concerns, and opinions about safety-related issues through discretionary, change-oriented, and assertive communication which contributes to the prevention of adverse patient events (35). In summary, team psychological safety reduces concern that voice may lead to negative consequences and results in nurses being more confident and willing to use their voice in the team.

LIMITATIONS OF THE STUDY

This study was conducted in three university hospitals in China which are all tertiary public hospitals. Due to differences in organizational characteristics and structure, some of the study findings may not apply to other levels of hospitals or other types of healthcare organizations. Future research is needed to replicate this study in other levels of hospitals and other types of healthcare organizations in China. Additionally, qualitative and other types of research related to this topic are needed to explore the contributing factors for and barriers to voice among nurses in their workplace which could contribute to expanding insights relevant to the voice of nurses in the Chinese context.

CONCLUSIONS

To our knowledge, the present study is the first to explore the relationship between team psychological safety and voice in the context of Chinese nursing. The results highlight that both team psychological safety and voice of nurses need to be improved. The evidence to date regarding the benefits of team psychological safety and voice of nurses in healthcare suggests that further exploration is indispensable necessary to determine the identify enablers of these two variables. Additionally, the results expand understanding of the positive correlation between team psychological safety and voice, which provides basic information and has practical implications for nursing management in China. Interventions that facilitate nurses' team psychological safety should be implemented to motivate their voice in the workplace. For example, team leaders, as the anchors of the nursing team, could have dialogues that include deep listening, share their insights with team members, and avoid early evaluation to them overly hasty evaluation of new ideas and suggestions. Additionally, the team leader's leadership behavior was found to be an important influence on team psychological safety. Positive leadership behaviors, such as inclusiveness, trustworthiness, and ethical leadership, can facilitate team members' psychological safety (36). By contrast, if a leader behaves in an authoritarian or unsupportive manner or if they take a defensive stance, the feeling of psychological safety of team members will be diminished (24). Additionally, the non-judgmental listening of leaders can enhance nurses' team psychological safety (37). Establishing a foundation of open communication, mutual trust, and respect through team-based activities is needed to facilitate the psychological safety of nurses of different hierarchical status (38). Leaders who devote themselves to developing strategies and designing interventions, e.g., changing behaviors and providing support, are key to facilitating psychological safety in nursing teams.

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CONFLICTS OF INTEREST

None

REFERENCES

1. Okuyama A, Wagner C, Bijnen B. Speaking up for patient safety by hospital-based health care professionals: a literature review. BMC Health Serv Res. 2014;14:1-8.
2. Noort MC, Reader TW, Gillespie A. Speaking up to prevent harm: A systematic review of the safety voice literature. Saf Sci. 2019;117:375-87.
3. Weiss M, Kolbe M, Grote G, Spahn DR, Grande B. Why didn't you say something? Effects of after-event reviews on voice behaviour and hierarchy beliefs in multi-professional action teams. Eur J Work Organ Psychol. 2017;26:66-80.
4. Eriguc G, Ozer O, Turac İS, Songur C. Organizational silence among nurses: a study of structural equation modeling. Int J Bus Humanit Technol. 2014;4:150-62.
5. Busch IM, Moretti F, Purgato M, Barbui C, Wu AW, Rimondini M. Psychological and Psychosomatic Symptoms of Second Victims of Adverse Events: a Systematic Review and Meta-Analysis. J Patient Saf. 2020;16:e61-e74.
6. Krenz H, Burtscher MJ, Grande B, Kolbe M. Nurses' voice: the role of hierarchy and leadership. Leadersh Health Serv. 2020;33:12-26.
7. Holland PJ, Allen BC, Cooper BK. Reducing burnout in Australian nurses: The role of employee direct voice and managerial responsiveness. Int J Hum Resour Manag. 2013;24:3146-62.
8. Van Dyne L, LePine JA. Helping and voice extra-role behaviors: Evidence of construct and predictive validity. Acad Manag J. 1998;41:108-19.
9. Liang J, Farh CI, Farh JL. Psychological antecedents of promotive and prohibitive voice: A two-wave examination. Acad Manag J. 2012;55:71-92.
10. Mannion R, Davies HT. Cultures of silence and cultures of voice: the role of whistleblowing in healthcare organisations. Int J Health Policy Manag. 2015;4:503.
11. Wang YP, Zu XJ. Influence of voice behavior and core self-evaluation on career growth among emergency nurses. J Nurs Sci. 2018;33:63-7. [Chinese]
12. Yi KG, Ding SQ, Liu ZN, Xie JF, Qin CX, Zheng F, et al. Study of the correlationship between nurses' voice behavior and proactive personality. Nurs J Chin PLA. 2016;33:1-6. [Chinese]
13. Zhao SL, Yang QF, Yang Q. Influence of organizational climate on the voice behavior of nursing staff in operating room. Hosp Manag Forum. 2018;35:70-3. [Chinese]
14. Erkutlu H, Chafra J. Leader's integrity and employee silence in healthcare organizations. Leadersh Health Serv (Bradf Engl). 2019;32:419-34.
15. Alingh CW, van Wijngaarden JD, van de Voorde K, Paauwe J, Huijsman R. Speaking up about patient safety concerns: The influence of safety management approaches and climate on nurses' willingness to speak up. BMJ Qual Saf. 2019;28:39-48.
16. Edmondson AC. Psychological safety and learning behavior in work teams. Adm Sci Q. 1999;44:350-83.
17. Wu ZP, Chen FT. [The scale development of team psychological safety climate in the Chinese cultural context]. Chin J Manag. 2011;8:73-80. [Chinese]
18. Pfeifer LE, Vessey JA. Psychological safety on the healthcare team. Nurs Manage. 2019;50:32-8.
19. Yan MQ, Kang L. [Relationship between team psychological safety climate and occupational coping self-efficacy among clinical nurses]. J Nurs Sci, 2017;33:59-61. [Chinese]
20. Yuan XL, Zhang HZ, Zhou MF. [Correlation study on team psychological safety and resilience of medical staff]. Hosp Manag Forum. 2017;34:63-6. [Chinese]
21. Zou ZZ, Chen S. [Effect of team psychological safety on perceptions of benefits of nurses from operating room]. Hosp Manag Forum. 2016;33:53-6. [Chinese]
22. Yamane T. Statistics: An introductory analysis. New York: Harper & Row; 1973.
23. Grove SK, Burns N, Gray J. The practice of nursing research: Appraisal, synthesis, and generation of evidence. St. Louis: Elsevier Health Sciences; 2012.
24. Nembhard IM, Edmondson AC. Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. J Organ Behav. 2006;27:941-66.
25. Shi YL, Li JP. Research progress of hierarchical division in nursing ladder management in China. Chin Nurs Res. 2016;3:109-12.
26. O'Donovan R, McAuliffe E. A systematic review exploring the content and outcomes of interventions to improve psychological safety, speaking up and voice behaviour. BMC Health Serv Res. 2020;20:101.
27. O'Leary DF. Exploring the importance of team psychological safety in the development of two interprofessional teams. J Interprof Care. 2016;30:29-34.
28. Chen F, Wan K, Hu YQ, Zuo B, Wang DH. [Study on the current situation and influencing factors of nurses' voice behavior in 2A-level hospitals]. J Nurs Adm. 2020;20:131-4. [Chinese]
29. Huang S, He Y, Zhou H, Zhang L. [Impact of leader rapport management on organizational trust and voice behavior of nursing staff]. J Nurs Sci. 2016;31:51-3. [Chinese]
30. Liu W, Zhu R, Yang Y. I warn you because I like you: Voice behavior, employee identifications,

and transformational leadership. Leadersh Q. 2010;21:189-202.
31. Bienefeld N, Grote G. Speaking up in ad hoc multiteam systems: Individual-level effects of psychological safety, status, and leadership within and across teams. Eur J Work Organ Psychol. 2014;23:930-45.
32. Miao R, Lu L, Cao Y, Du Q. The high-performance work system, employee voice, and innovative behavior: The moderating role of psychological safety. Int J Environ Res Public Health. 2020;17:1150.
33. Babiker A, El Husseini M, Al Nemri A, Al Frayh A, Al Juryyan N, Faki MO, Assiri A, Al Saadi M, Shaikh F, Al Zamil F. Health care professional development: Working as a team to improve patient care. Sudan J Paediatr. 2014;14:9.
34. Ng TW, Hsu DY, Parker SK. Received respect and constructive voice: The roles of proactive motivation and perspective taking. J Manag. 2019; 0149206319834660.
35. Lee SE, Choi J, Lee H, Sang S, Lee H, Hong HC. Factors influencing nurses' willingness to speak up regarding patient safety in East Asia: A systematic review. Risk Manag Healthc Policy. 2021;14:1053.
36. Aranzamendez G, James D, Toms R. Finding antecedents of psychological safety: A step toward quality improvement. Nurs Forum (Auckl). 2015;50:171-8.
37. Cave D, Pearson H, Whitehead P, Rahim-Jamal S. CENTRE: creating psychological safety in groups. Clin Teach. 2016;13:427-31.
38. Campbell AR, Layne D, Scott E, Wei H. Interventions to promote teamwork, delegation and communication among registered nurses and nursing assistants: An integrative review. J Nurs Manag. 2020;28:1465-72.