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ORIGINAL RESEARCH

Influence of Core Competence on Voice Behavior of Clinical Nurses: A Multicenter Cross-Sectional Study

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Background: Voice behavior, referred to as a positive guarantee for organizational development, is influenced by several kinds of individual, collective and organizational features. However, the impact of individual competence on voice behavior is unclear. The aim of the present study was to investigate the status quo of core competence and voice behavior of clinical nurses and explore the impact of core competence on nurses' voice behavior.

Methods: A multicenter cross-sectional survey. A total of 1717 nurses were recruited from nine tertiary and secondary hospitals between March and June 2019. An online questionnaire, including socio-demographic variables, employee voice behavior scale and competence inventory for registered nurses, was used to investigate prohibitive and promotive voice behavior and core competence of clinical nurses. Pearson correlation and hierarchical multiple regression were performed in the data analysis.

Results: The mean score for prohibitive and promotive voice behavior of nurses were 3.46 (SD 0.77) and 3.46 (SD 0.88), respectively. The mean score for core competence was 2.46 (SD 0.77). Critical thinking/research aptitude was the most important predictor for both prohibitive and promotive voice behavior (each $p < 0.05$), but its influence on promotive voice behavior was greater ($p < 0.05$). Leadership was another significant predictor for prohibitive voice behavior ($p < 0.05$). Legal/ethical practice, teaching-coaching, professional development and shift work were other predictors for promotive voice behavior (each $p < 0.05$).

Conclusion: Clinical nurses experience modest levels of prohibitive and promotive voice behavior and their core competence is moderate. Core competence, especially critical thinking/research aptitude, impacts significantly on voice behavior of clinical nurses. Cultivating nurses' core competence could positively increase their voice behavior for organizational development.

Keywords: clinical site, core competence, cross-sectional survey, nurse, voice behavior

Introduction

Voice behavior is considered to be the behavior that identifies actual and potential issues and stimulates constructive responses for organizational change and improvement.[1] As an important organizational citizenship behavior, good voice behavior could promote the social and psychological context of organizations, facilitate effective use of organizational resources and maintain the organizational sustainability and fairness.[2] There is evidence that voice behavior breathes new

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vitality into organizations facilitating ongoing development. Several studies have indicated that voice behavior not only benefits organizations but also benefits individuals by alleviating job stress, optimizing the working environment and enhancing job performance.[3,4] A recent study found that individuals who raise their voice for innovative opinions and constructive suggestions are usually focused on their jobs and receive support from their leaders.[5] Despite the many advantages of voice behavior, there are obvious risks in raising one's voice, for instance, extraordinary personal stress, other employee's misunderstanding and interpersonal relationship issues.[6] As a result, the status quo of employee voice behavior and its contributing factors has become a research focus.

Voice Behavior and Its Predictors

Numerous studies have been conducted on the state of employees' voice behavior, however, there is a dearth of academic literature focusing on voice behavior of nurses. In total, only seven published articles reporting information about voice behavior among nurses were found, and three out of seven were in English. Islam et al studied 564 nurses from Pakistan and found that nurses experienced moderate levels of voice behavior.[7] Weiss et al tested 126 nurses and other health care professionals from the United States of America and found that they had low voice behavior.[8] Chang et al researched 247 nurses from Taiwan, but no conclusion on state of voice behavior was found.[9] It is difficult to outline the status of voice behavior among nurses based on the above researches. The nursing profession, accounting for the largest proportion of professionals in hospitals, is crucial to promoting clinical service of nurse teams and stable development of hospitals. Voice behavior of nurses with abundant clinical experience is realistic and practical, and could enhance hospital effectiveness.[10] Therefore, understanding the voice behavior of nurses is important, especially in countries with a large nursing workforce such as China.

The attention of researchers and administrators towards factors inspiring voice behavior has increased in recent years. Studies have revealed that individual characteristics, collective features and organizational factors play important roles in developing voice behavior of employees. Individual characteristics mainly include personality, cognition,[6] perceived self-efficacy[11] and self-esteem.[9] Employees showed more voice behavior if they were conscientious, extraverted and had high cognition ability. Self-efficacy and team-based self-esteem have emerged as positive contributors for employee voice behavior. Leadership is the main collective-level variable for supporting employee voice. Previous studies on leadership and voice behavior have demonstrated that ethical, paradoxical and goal-focused leadership directly affects prohibitive and promotive voice behavior of employees.[4,12] Organizational identification, as a primary organizational-level feature, leads to certain promotion of employee voice behavior.[13] Despite several influencing factors for voice behavior having been found, there is a paucity of evidence about the impact of individual ability on employees' voice behavior. Studies have indicated that individuals' strengths, competence and creativity, serving as subjective initiative, could autonomously stimulate employee's innovative thoughts and behavior for organizational reinvention and development.[14] Accordingly, it is important to study whether individual strengths and competence could positively influence nurses' voice behavior.

Core Competence as a Predictor of Voice Behavior

The term competence has been widely recognized as an individual's ability and readiness by utilizing knowledge and skills to solve problems, complete tasks and achieve success. In the nursing context, the definition of competence is a comprehensive capability that embraces knowledge, skills and personal traits and viewpoints required to implement nursing functions and accomplish the requirements of hospital administrators.[15] As an important concept model for successful clinical performance, core competence identifies the deep rootedness of the essential cognitive, behavioral and social knowledge and skills for individual nurses and nursing team. It provides an effective framework for nurses and managers to evaluate, train and practice required work-related competencies.[16] Studies have indicated that core competence is necessary for nurses to provide safe and high quality of care in their clinical services, and furthermore, that a competent nursing workforce is critical to the success of national healthcare systems.[17] To date, numerous studies have been conducted to clarify core competence required for specific nursing roles and to develop corresponding evaluation measures. However, few have explored the contribution of core competence in nurses' organizational behaviors, such as voice behavior.

According to the Conservation of Resource Theory of Hobfoll,[18] individuals strive to obtain and sustain

valuable resources in order to enhance coping ability and self-efficacy. Hobfoll assumed that basic resources for employees included personal resources and relation resources, and that personal resources (knowledge, skills, physical energy and time) inspire employees' positivity, which encourages them to overcome difficulties and adversities. Core competence, representing the knowledge and skills for clinical care, can be considered as nurses' personal resources. Core competence has been found to directly affect nurses' self-efficacy.[19] Nurses with high self-efficacy tend to implement voice behavior as a coping strategy to keep and acquire additional resources in stressful situations.[20] Therefore, nurses' voice behavior can be determined by the advances of nurses' core competence.

The aims of this study were to investigate the state of voice behavior and core competence of nurses and explore the impacts of core competence on voice behavior.

Methods
Design and Sample
A multicenter cross-sectional study design was employed. As part of a larger study, entitled "Positive Personal Factors Associated with Clinical Performance of Clinical Nurses", this study reports findings regarding voice behavior and core competence. Impacts on psychological capital and spiritual care competencies will be reported elsewhere.

Nurse participants were recruited from nine hospitals, located in Hebei, China. These nine hospitals consist of five tertiary hospitals and four secondary hospitals. Convenience sampling was used. Nurse participants who were enrolled or registered, employed full-time and involved with direct patient care were invited to participate in the study. No exclusion criteria were set.

A post hoc analysis for calculating the achieved power of the sample was carried out by employing G*Power 3.1.9.7 software. Results showed that the sample (n = 1717) gained a statistically significant power of 100% in the regression model with either 17 predictors or two predictors at medium size effects ($f^2 = 0.15$).

Procedures
The study was implemented from March to June 2019. Researchers firstly contacted a local Nursing Association, affiliated with the Chinese Nursing Association, to obtain permission to recruit nurse members from the above nine hospitals. Then, an online questionnaire and explanatory statement were submitted to the local Nursing Association. Email was used by the local Nursing Association to distribute the invitation and questionnaire. During the investigation period, three reminder prompt emails were sent out to participants regarding the survey. The questionnaire took 15–20 minutes to complete.

Measurements
A socio-demographic questionnaire, Employee Voice Behavior Scale (EVBS) and Competency Inventory for Registered Nurses (CIRN) constituted the questionnaire. EVBS and CIRN are self-administered questionnaires which can be applied to online investigation.

Socio-Demographic Questionnaire
The socio-demographic questionnaire included gender, age, educational background, marital status, professional qualification, length of professional service, department, shift work and religion.

Employee Voice Behavior Scale (EVBS)
EVBS, developed by Liang et al,[21] contains 11 items and two dimensions: prohibitive voice behavior (6 items) and promotive voice behavior (5 items). A 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) was employed. The scores for prohibitive and promotive voice behavior were average scores of their included items. Higher scores represent higher levels of prohibitive and promotive voice behavior. The Cronbach's alphas in this study were 0.942 and 0.963, respectively.

Competency Inventory for Registered Nurses (CIRN)
CIRN was used to measure nurses' core competence.[22] This 55-item scale has seven metrics: critical thinking/research aptitude (CT, 8 items), clinical care (CC, 10 items), leadership (LD, 9 items), interpersonal relationship (IR, 8 items), legal/ethical practice (LE, 8 items),

professional development (PD, 6 items) and teaching-coaching (TC, 6 items). Nurses rated their competence from 0 (not competent at all) to 4 (very competent). Average scores less than 2 demonstrate low competence, average scores between 2 and 3 demonstrate moderate competence, average scores greater than 3 demonstrate high competence. This inventory had good validity and reliability in this study with the Cronbach's alpha ranging from 0.970 to 0.982.

Data Analysis

SPSS 22.0 was used. Descriptive analysis was employed to describe states for socio-demographic variables, voice behavior and core competence. Pearson correlation and Hierarchical multiple regression was used to evaluate the relationship between core competence and voice behavior. The Williams' *t*-test was conducted to compare different contributions of CT on prohibitive and promotive voice behavior.[23] Two-sided $p \leq 0.05$ was set as statistically significant.

Results
Socio-Demographic Characteristics

In total, 5000 online questionnaires were distributed, and 1717 responses were received with a response rate of 34.34%. Most of the nurses were female (93.1%), married (75.5%), had bachelor's degree (85.3%) and no religion (95.4%). The main age group was 21 to 40 years of age (90.2%). For work-related characteristics, the majority were senior nurses and nurse-in-charge (78.9%), had less than 15 years working experience (82.0%) and undertook shift work (63.9%). Over half of the nurses were from medical and surgical departments (52.5%). Detailed characteristics are shown in Table 1.

Status of Voice Behavior and Core Competence

Table 2 presents a descriptive analysis of nurses in terms of voice behavior and core competence. Mean scores for prohibitive and promotive voice behavior were 3.46 (SD 0.77) and 3.46 (SD 0.81) respectively, which indicates that nurses experienced moderate levels of prohibitive and promotive voice behavior. Mean scores for core competence and its seven metrics were 2.46 (SD 0.77), 2.25 (SD 0.81), 2.40 (SD 0.82), 2.48 (SD 0.82), 2.49 (SD 0.84), 2.65 (SD 0.84), 2.47 (SD

0.84) and 2.49 (SD 0.85), respectively. This demonstrates that nurses had average levels of core competence and their competence in LE was highest, while in CT, their competence was lowest.

Correlations Between Voice Behavior and Core Competence

Results of Pearson correlation are shown in Table 3. Both prohibitive and promotive voice behavior positively correlated with core competence and its seven metrics (each $p < 0.001$). Values for r ranged from 0.408 to 0.607, indicating voice behavior had medium correlations with core competence and its seven metrics.

Hierarchical Multiple Regression Analysis

Hierarchical multiple regression analysis was used to explore the influencing factors of voice behavior. The α_{enter} and α_{remove} were 0.05 and 0.10, respectively. Socio-demographic characteristics, core competence and its seven metrics were set as independent variables, while prohibitive and promotive voice behavior were dependent variables. In the first block, only socio-demographic variables were entered into the regression model. In the second block, core competence and its seven metrics were stepwise entered into the model.

Results for prohibitive voice behavior showed that, in the first model, 1.6% of the variance can be explained by socio-demographic variables ($F_{(9,1707)} = 4.156$, $p < 0.001$). CT was included in the second model, which increased the variance by 29.1% ($F_{(1,1706)} = 721.392$, $p < 0.001$). In the final model, LD was included and it can explain additional 1.1% of the variance ($F_{(1,1705)} = 26.875$, $p < 0.001$). However, only CT and LD were statistically included in the final model ($F_{(11, 1705)} = 73.928$, $p < 0.001$, $R^2 = 0.323$, Adjusted $R^2 = 0.319$), indicating that nurses with high competencies in CT and LD experienced more prohibitive voice behavior (Table 4).

For promotive voice behavior, socio-demographic variables explained 2.3% of the variance ($F_{(9,1707)} = 4.534$, $p < 0.001$), in which only shift work was a significant predictor for promotive voice behavior in the first model. CT, TC and LE entered the second, third and fourth models and improved explanation of the variance by 35.3% ($F_{(1,1706)} = 967.614$, $p < 0.001$), 0.5% ($F_{(1,1705)} = 13.447$, $p < 0.001$) and 0.3% ($F_{(1,1704)} = 6.918$, $p < 0.001$), respectively. PD was included in the

Table I Characteristics of Nurses (N = 1717)

Socio-Demographic Characteristics	N (%)
Gender	
Male	118 (6.9)
Female	1599 (93.1)
Age (years)	
≤20	4 (0.2)
21–25	214 (12.5)
26–30	496 (28.9)
31–35	560 (32.6)
36–40	278 (16.2)
41–45	69 (4.0)
46–50	57 (3.3)
51–55	26 (1.5)
56–60	13 (0.8)
Education background	
Diploma	11 (0.6)
Associate degree	221 (12.9)
Bachelor degree	1464 (85.3)
Master degree and higher	21 (1.2)
Marital status	
Single	406 (23.6)
Married	1297 (75.5)
Others	14 (0.8)
Professional qualification	
Nurse	293 (17.0)
Senior nurse	685 (39.9)
Nurse-in-charge	670 (39.0)
Associate chief nurse	56 (3.3)
Chief nurse	13 (0.8)
Length of professional service (years)	
≤5	517 (30.1)
6–10	506 (29.5)
11–15	384 (22.4)
16–20	143 (8.3)

(*Continued*)

Table I (Continued).

Socio-Demographic Characteristics	N (%)
21–25	68 (4.0)
26–30	57 (3.3)
31–35	33 (1.9)
36–40	5 (0.3)
≥41	4 (0.2)
Departments	
Medical	491 (28.6)
Surgical	410 (23.9)
Gynaecology	77 (4.5)
Paediatric	89 (5.2)
Emergency	111 (6.5)
Operating room	34 (2.0)
Intensive Care Unit	124 (7.2)
Outpatient services	67 (3.9)
Others	314 (18.3)
Shift work	
No	619 (36.1)
1–4 times per month	253 (14.7)
> 4 times per month	845 (49.2)
Religion	
No	1638 (95.4)
Yes	79 (4.6)

final model, which explained another 0.2% of the variance ($F_{(1,1703)} = 4.915$, $p < 0.001$). Therefore, shift work, CT, TC, LE and PD were significant predictors of promotive voice behavior ($F_{(11, 1705)} = 82.341$, $p < 0.001$, $R^2 = 0.386$, Adjusted $R^2 = 0.381$). 38.1% of the variance can be explained by shift work, CT, TC, LE and PD. Reduced shift work and LE could improve nurses' promotive voice behavior. Moreover, higher CT, TC and PD positively promote nurses' behavior in promotive voice (Table 4).

Williams' *t*-test showed that influences of CT on prohibitive and promotive voice behavior were significantly different ($t = -4.044$, $p < 0.001$). Contributions

Table 2 States of Voice Behavior and Core Competence (N = 1717)

Variables	Mean	SD	Range
Voice behavior			
Prohibitive voice behavior	3.46	0.77	1–5
Promotive voice behavior	3.46	0.81	1–5
Core competence			
Critical thinking/research aptitude	2.25	0.81	0–4
Clinical care	2.40	0.82	0–4
Leadership	2.48	0.82	0–4
Interpersonal relationship	2.49	0.84	0–4
Legal/ethical practice	2.65	0.84	0–4
Professional development	2.47	0.84	0–4
Teaching-coaching	2.49	0.85	0–4
Total score	2.46	0.77	0–4

Table 3 Correlation Between Voice Behavior and Core Competence (N = 1717)

	Prohibitive Voice Behavior		Promotive Voice Behavior	
	r	p	r	p
Critical thinking/research aptitude	0.551	<0.001	0.607	<0.001
Clinical care	0.496	<0.001	0.515	<0.001
Leadership	0.504	<0.001	0.511	<0.001
Interpersonal relationship	0.487	<0.001	0.502	<0.001
Legal/ethical practice	0.420	<0.001	0.408	<0.001
Professional development	0.456	<0.001	0.494	<0.001
Teaching-coaching	0.452	<0.001	0.494	<0.001
Total score	0.520	<0.001	0.544	<0.001

Table 4 Hierarchical Multiple Regression Models for Prohibitive Voice Behavior and Constructive Voice Behavior (N = 1717)

Dependent Variables	Independent Variables	B	Bete	t	p
Prohibitive voice behavior	Critical thinking/research aptitude	0.387	0.407	12.236	< 0.001
	Leadership	0.161	0.172	5.184	< 0.001
Promotive voice behavior	Shift work	−0.034	−0.058	−2.867	0.004
	Critical thinking/research aptitude	0.521	0.518	17.736	< 0.001
	Teaching-coaching	0.114	0.118	2.486	0.013
	Legal/ethical practice	−0.127	−0.131	−3.333	0.001
	Professional development	0.110	0.113	2.217	0.027

Note: The results in Table 4 are based on the final models of hierarchical regression analysis.

of CT on promotive voice behavior were significantly larger than that on prohibitive voice behavior.

Discussion

Given the positive contributions of voice behavior on individual performance and organizational development, exploring voice behavior and its influencing factors on clinical nurses will help nurse managers and hospital administrators better understand voice behavior of nurses and give them tangible targets for developing effective interventions. In the present study, we found that nurses experienced moderate levels of prohibitive and promotive voice behavior. Critical thinking/research aptitude was the main predictor of prohibitive and promotive voice behavior. Impacts of critical thinking/research aptitude on promotive voice behavior were more significant than for prohibitive voice behavior.

Few previous studies related to voice behavior in nursing were found. This study identified that clinical nurses had moderate levels of prohibitive and promotive voice behaviors, which added new proofs to the evidence on nurses' voice behavior. Our findings were consistent with several studies undertaken in other populations from developing countries.[24,25] However, studies conducted

among employee participants from developed countries reported high levels of voice behavior.[26] According to the literature, prohibitive and promotive voice behaviors of clinical nurses were mild to moderate. This may be attributed to the fact that nurses experienced high levels of work-related stress, psychological burnout and low organizational commitment. Studies have revealed that working long hours, shift work and work overload, as work-related stressors, directly contribute to burnout, job dissatisfaction and poor clinical performance of nurses and negatively affect their voice self-efficacy and behavior.[27] Nurses with low organizational commitment have less identification with hospitals and their goals and tend to be negative in promoting clinical service.[28] Their involvement in voice behavior for hospital development is also deficient. Therefore, nurse managers and hospital administrators should value nurses' voice behavior and develop effective interventions to encourage nurses to raise their voice.

In this study, nurses showed moderate levels of core competence, with the highest competence in legal/ethical practice and the lowest competence in critical thinking/research aptitude. Although the scores of critical thinking/research aptitude, professional development and clinical care of the study were similar to the findings of past studies, the total scores and other three metrics of core competence were dissimilar. Blomberg et al investigated 303 Norwegian operating theatre nurses and reported that nurses had high levels of ethical decision-making, clinical leadership and cooperation and consultation, while their competences in direct clinical practice, professional development and critical thinking were modest.[29] Wu et al undertook a nationwide survey including 11,337 Chinese nurses from 92 tertiary hospitals and found that 81.13% of nurses had high clinical competence.[30] The differences in the scores of core competence and its metrics may be caused by varying specialty settings and hospitals. Studies indicated that nurses from different levels of hospitals and specialty areas face different working environments, management systems, organizational goals, responsibilities and opportunities.[31,32] The requirements for nurses' core competence to complete job demand and overcome challenges and adversities differ in various settings and conditions. Core competence has a significant association with nurses' job performance, job satisfaction and high quality of clinical care service.[33] Nurse managers need to investigate core competence of nurses from

different departments and hospitals and develop pertinent measures to promote their core competence.

In examining factors predicting voice behavior, an interesting finding was that critical thinking/research aptitude was the main influencing factor for both prohibitive and promotive voice behaviors, and its impact on promotive voice behaviors was greater. According to Liu et al,[22] critical thinking/research aptitude in the context of nursing is considered as being able to form decisions after a process of purposeful thinking and logical analyses, and figure out more ways to solve clinical issues by searching resources and integrating research findings. Nurses who have higher-order critical thinking and research ability would be good at collecting multiple sources and making advanced decisions. They could propose suggestions and ideas for hospital development after open-minded thinking and reflective reasoning. Moreover, nurses tend to display more promotive and constructive voice as they think scientifically and reason logically.[34] A review has demonstrated that critical thinking and research aptitude leading individuals to take appropriate and effective actions is a key competent for final success.[35]

In this study, leadership was another predictor of prohibitive voice behavior. Leadership is a term used to describe individuals' management ability. It does not only imply personal qualities, such as forward thinking, decision making and problem solving, but also connotes interpersonal skills, notably the competency to organize teamwork.[36] Nurses who experience high levels of leadership usually accept constructive criticism and take appropriate actions before rigorous assessment of their abilities, which could encourage them to offer more prohibitive voice.

Our study found that teaching-coaching and professional development were positive predictors of promotive voice behavior, while legal/ethical practice and shift work negatively influenced promotive voice behavior. Teaching-coaching reflects nurses' capacity in coaching junior nurses to orient to new working environments and teaching patients and families to learn useful disease-related knowledge. Professional development indicates nurses' self-learning ability for ongoing personal and professional growth.[22] Nurses who are adept at teaching-coaching and professional development clearly understand themselves, professional organizations and working conditions. They tend to take promotive voice to actively display personal strengths and demonstrate self-competence. Legal/ethical practice is generally considered as nurses' ability to

perform legally and ethically according to hospitals' policy and social regulations.[37] Studies show that high legal/ethical requirements lead nurses to think deeply and practice cautiously, which may affect their enthusiasm in voicing novel strategies for hospital development.[38] Shift work has been identified as a work-related stressor, which is significantly associated with burnout, turnover and reduced self-efficacy.[39] The greater the frequency of shift work in nurses' work, the less voice behavior is generated.

Several limitations should be considered before interpreting the findings of this study. First, a cross-sectional study design inhibited the investigation of causal relationship between variables. Prospective follow-up design is recommended to test how core competency changes affect voice behavior in future studies. Second, convenience sampling limits generalization of our findings and random sampling is recommended. Third, although there were a large number of responses in this study, the response rate was not high. Therefore, innovative measures to improve the response rate need to be considered before data collection. Organizing online explanatory meetings, acquiring participants' preferences on the kinds of investigating methods and extending the time for questionnaire submission may contribute to a better response rate. Additionally, this survey only explored the relationship between voice behavior and core competence. Effects of other influencing factors (eg personal traits, coping styles, burnout, cultural, social and organizational variables) on voice behavior need to be investigated in future.

Implication for Nurse Management

Evidence shows that voice behavior positively influences clinical nurses' job performance, quality of clinical service and organizational development.[2,4] In this study, nurses experienced moderate levels of voice behavior, which indicates that more concern needs to be raised regarding voice behavior among clinical nurses. Nurse managers and hospital administrators should carefully consider the value of nurses' voice and measure their voice behavior by employing appropriate scales.

As found in this study, core competence, especially critical thinking/research aptitude, affects the development of voice behavior. Studies have recommended that core competence for nurses is an essential factor for high quality of care and long-term professional development, and critical thinking/research aptitude could increase nurses' confidence and coping strategies for dealing with difficulties and

frustrations. Nurse managers need to clarify the crucial competencies for nurses from various backgrounds. Effective interventions (eg competency education and training program, organizational support intervention) should be developed to enhance nurses' core competence and further promote their voice behavior. Moreover, self-help methods (eg internet-based, phone-based and book-based methods) are recommended to be used to deliver developed interventions. Finally, nurse managers need to pay more attention to nurses' work arrangements. Effective management strategies should be adopted to reduce the impact of shift work.

Conclusion

Understanding the core competence and voice behavior of clinical nurses is important in promoting the qualities of nurse teams and clinical service. Our study found that nurses experienced moderate levels of voice behavior and core competence and nurses' core competence significantly influenced their voice behavior. Our initial findings emphasize the important effect of core competency on voice behavior in nurses. Nurse managers should take effective interventions to promote nurses' core competence, especially critical thinking and research aptitude, to advance their voice behavior in clinical practice.

Ethical Approval

Human Research Ethics Committee of Hebei University provided ethical approval for conducting this study. This study was conducted in accordance with the Declaration of Helsinki. The Local Nursing Association permitted researchers to survey their nurse members. Data were collected anonymously and held confidentially. Nurses who submitted the questionnaire were considered to have agreed to participate in the study.

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Disclosure

The authors report no conflicts of interest in this work.

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