RESEARCH

Open Access

Status and influencing factors of nurses' organizational silence in general hospitals in eastern coastal cities of China

Xiangyan Lv[1†], Yujia Gu[2], O. Mensah Solomon[4†], Ying Shen[5], Yaxin Ren[6] and Yehong Wei[3,5*]

Abstract

AIMS This study investigated the status and influencing factors of organizational silence among 624 nurses in general hospitals in eastern coastal cities of China.

Methods This study followed STROBE guidelines. During the period from January to April 2024, the researchers investigated 624 clinical in-service nurses in terms of general information, employee silence behavior, work engagement, and peer support, and analyzed the related factors affecting nurses' organizational silence.

Results The total average score of nurses' organizational silence was (33.88 ± 6.88), and the total score of work engagement was (69.23 ± 10.76); The total score of the colleague support scale was (90.02 ± 13.72), which was at the medium level. Univariate analysis showed that the scores of organizational silence of 610 nurses had statistical differences in departments, employment methods and professional titles ($P < 0.05$); Pearson correlation analysis showed that nurses' work engagement (r=-0.530, $P < 0.05$), perceived colleague support a scale (r=-0.530, $P < 0.05$), colleague support B scale (r=-0.363, $P < 0.05$) were negatively correlated with organizational silence; Multiple linear regression analysis showed that department (β'value = 0.256, P = 0.001), employment mode (β'value = 0.115, P = 0.001), professional title (β'value = 0.741, P = 0.023), working years (β'value = 1.1110, P = 0.000), work engagement (β'value6.182, P = 0.000), colleague support scale A (β'value = 0.198, P = 0.003), and scale B (β'value = 0.485, P = 0.001) were the main influencing factors of nurses' organizational silence behavior.

Conclusions In this study, nurses' organizational silence is at the medium level, and nursing workers with low outpatient service, contract system, professional title and working years, less work investment and poor support from colleagues are prone to silence behavior.

Keywords Nurses, Organizational silence, Work engagement, Research on nursing management

†Xiangyan Lv and Yujia Gu contributed equally to this work.

*Correspondence:
Yehong Wei
yehong8720@163.com
¹Nursing department, The Second Affiliated Hospital of Zhejiang Chinese Medical University, Hangzhou 311500, China
²College of Nursing, Zhejiang Chinese Medical University, Hangzhou 310053, China
³No. 318 Chaowang Road, Gongshu District, Hangzhou City, Zhejiang Province 310000, China
⁴ International education college, Zhejiang Chinese Medical University, 310053 Hangzhou, China
⁵ Department of Intensive Care, The Second Affiliated Hospital of Zhejiang Chinese Medical University, 311500 Hangzhou, China
⁶ Department of Orthopedics, The Second Affiliated Hospital of Zhejiang Chinese Medical University, 311500 Hangzhou, China

Lv *et al. BMC Nursing*   (2024) 23:757

Page 2 of 8

Background

Organizational silence refers to the phenomenon that employees choose not to express their views or not to report even though they know that some problems or information have an important impact on the organization. In the medical field, especially the silence of nurses' organizations, this phenomenon shows that when facing the problems in clinical work, even if nurses have their own views and opinions, they may choose to retain or filter their own views due to a variety of factors [1]. In recent years, with the development of medical and health services, scholars have constantly proposed that there is silence in the nursing team [2]. It is reported that 91.2% of nurses have experienced organizational silence, and 61.6% of nurses choose silence when facing important problems [3]. This silence not only hurts nurses' career growth and job satisfaction but also has a far-reaching impact on patients' safety and medical effects. It has gradually become one of the key factors affecting medical quality and teamwork. Organizational silence among nurses can hinder career advancement, job satisfaction, and ultimately affect patient safety and medical outcomes. It has emerged as a significant factor influencing medical quality and teamwork.

In recent years, with the continuous improvement of social requirements for medical quality, medical institutions have paid more and more attention to the overall efficiency of nursing services. In this context, nurses' communication skills and attitudes become particularly critical, which directly affect the quality of medical service [3]. Research shows that [4], faced with unreasonable phenomena at work, nurses often choose to be silent because of fear of affecting the relationship between colleagues or suffering from occupational adverse effects. This behavior mode seriously hinders the flow of information within medical institutions and the timely resolution of problems. In addition, the formation of organizational silence is often closely related to institutional culture, leadership style, career path planning, and other factors [5]. In a stressful and fast-paced medical environment, nurses may choose to remain silent because of authoritarianism in the institutional culture or the competitive relationship between colleagues [6]. The influence of this culture and environment makes nurses lack the willingness or courage to put forward suggestions for improvement when facing the problems of patient care.

To further investigate and resolve the issue of nurses' organizational silence, this study will employ a purposive sampling method to examine the various factors influencing nurses' organizational silence in the Chinese medical environment, including the specific performance of culture, psychology, and organization. This research aims to evaluate and measure the frequency and intensity of organizational silence among nurses. Through this investigation, the effects of the work environment, job level, department type, employment form, working years, support from colleagues, and work engagement on the behavior of nurses who remain silent were investigated. The degree of association between these characteristics and organizational silence was also assessed.

In the past, many scholars have studied the factors related to organizational silence, but most of them are concentrated in specialized hospitals or some special departments [13, 14]. In specialized hospitals or special departments, the research of organizational silence may be more focused on specific areas, such as medical safety, patient care quality and so on. In general hospitals, the causes and manifestations of organizational silence may be more complex and diverse due to more departments and departments involved. To further explore and solve the problem of nurses' organizational silence, this study plans to use the convenient sampling method to analyze the various factors affecting nurses' organizational silence in the Chinese medical environment, including the specific performance of culture, psychology, and organization. The purpose of this study is to assess and quantify the prevalence and severity of nurses' organizational silence. This study analyzed the baseline data of nurses' working environment, job level, Department type, employment form, working years and so on to determine the correlation between nurses' Silence Behavior and nurses' working environment; At the same time, according to previous work experience, work engagement and peer support and other factors have a certain impact on nurses' silence behavior. Therefore, this study intends to determine the correlation strength between these factors and organizational silence by analyzing the impact of work engagement and peer support on nurses' silence behavior. This will help to reveal the challenges faced by nurses in their career and how these challenges affect their communication style and professional ethics.

Objects and methods
Participants

Using the convenient sampling method, clinical in-service nurses from general hospitals in eastern coastal cities of China were selected as the research subjects. The inclusion criteria were: (1) 18 years old and above, with a college degree or above; (2) Received national nursing higher education; (3) A clinical nurse who has signed a contract with a hospital and is currently practicing effectively. Exclusion criteria: (1) Internship, rotation, further education, and standardized training for nurses; (2) Those who take sick leave, maternity leave, or go out for further education during the investigation period. Exclusion criteria: (1) Incomplete questionnaire filling; (2) Those who fill out the questionnaire for less than 5 min. Using the rough sample size estimation method

Lv *et al. BMC Nursing*   (2024) 23:757

Page 3 of 8

to calculate the sample size, with a dropout rate of 20%, the required sample size is 144–192 cases [7]. A total of 624 questionnaires were collected in this study, and all participants were informed and voluntarily participated. After filling out a questionnaire survey, the members of our research group determined that the minimum answer time was 5 min. After removing 14 samples with an answer time≤5 min, 610 samples were effectively collected, with an effective response rate of 97.75%.

Research methods

A descriptive cross-sectional study was conducted in the form of a questionnaire. The questionnaire was distributed through the WJX platform (Changsha Ranxing Information Technology Co., Ltd., Changsha, China). WJX is a platform especially for creating online questionnaires. The questionnaire is composed of informed consent, research purpose, research risk, data confidentiality, questionnaire information, etc. After the respondent agreed to informed consent, the system will jump to the questionnaire form.

Instruments

This study used self-designed baseline data of patients, combined with employee silence scale (ESS), work engagement scale and colleague support scale.

(1) Baseline characteristic survey: including gender, age, educational level, professional title, position, years of work, marital status, department, employment method, monthly night shifts, annual income, and whether there is an economic burden. (2) Organizational Silence: the survey scale of employee silence behavior developed by Zheng Xiaotao et al. [8] in 2008 was used to evaluate the status of organizational silence of nurses. The scale has 12 items and 3 dimensions. The higher the score of the scale, the higher the level of organizational silence. The scale has high reliability and validity. (3) Work engagement scale: prepared by schanfeli et al. [9] in 2002, translated and revised by Chinese scholar Zhang Yiwen et al. [10] in 2005. There are 17 entries in the table, including 3

dimensions. The higher the score, the higher the level of work engagement. (4) Colleague support: the peer support scale (PSS) developed by Tang Leiwen et al. with reference to foreign Greene et al. [11] is used. The scale includes two parts, a and B, which are used to measure nurses' perception of the support of head nurses and colleagues.See Table 1.

Design and quality control

Collect data online from January to April 2024, and the research initiator contacted the nursing department director or head nurse of the survey hospital to provide a detailed explanation of the survey object, purpose, and filling method. After obtaining approval, the survey was conducted and a questionnaire link was sent through the WeChat platform. The questionnaire is set with unified guidance language to explain the research purpose and filling method to the respondents. After being informed, the respondents voluntarily choose whether to agree to participate in the survey. In this questionnaire, a prompt for missing information was set to ensure the completeness of the questionnaire filling; To prevent duplicate filling and submission, each IP is only allowed to answer questions once and is filled out by the research subjects themselves. All questionnaire surveys are conducted anonymously and do not involve personal privacy. The data entry is jointly completed by two people. One person is responsible for importing data from Questionnaire Star and conducting statistical analysis, while the other person is responsible for repeated analysis and proofreading of data pairs to ensure the accuracy and reliability of the data.

Data analysis

Statistical analysis of the data was conducted using SPSS 26.0 software. Count data is represented by composition ratio and the X^2 test is used; The Kolmogorov Smirnov test was used to evaluate the normality of the distribution of each variable in quantitative data, which follows a normal distribution represented $\bar{b_x} \pm s$ Independent sample t-test and variance ratio test were used to analyze the differences in organizational silence scores among nurses with different demographic characteristics, and the results were expressed as *t*-values or *F*-values; Pearson correlation analysis was used to examine the strength of the association between nurse organizational silence behavior and their perceived colleague support and work engagement, with the results expressed as *r*-values; Multiple linear regression analysis was used to analyze the influencing factors, and $P < 0.05$ indicates that the difference is statistically significant.

Table 1 Survey scale summary

Gauge name	Dimension	Number of entries	Cronbach's α coefficient
Employee Silence Behavior Scale	Acquiesce in silence	4	0.810
	Defensive silence	4	0.770
	Disregard silence	4	0.840
	Dynamism	6	0.767
Work engagement scale	Dedication	5	0.735
	Absorption	6	0.753
Colleague support scale	Head nurse support scale (scale A)	9	0.922
	Colleague support scale (scale B)	21	0.959

Table 2 General information of survey subjects and univariate analysis of nurse organizational silence

Project		n	Organizational Silence Score	t/F	P
Gender	Men	70	34.56±10.73	1.064	>0.05
	Women	540	36.45±8.14		
Education level	College and undergraduate education	603	36.56±6.06	1.014	>0.05
	Master's degree or above	7	40.27±6.21		
Age	18-	228	38.34±5.26	1.215	>0.05
	30-	231	39.21±5.34		
	≥40	151	39.89±5.15		
Employment method	Contract based system	310	38.26±5.42	6.352	<0.05
	Career establishment	300	32.78±5.35		
Marital status	Unmarried	259	37.29±6.15	1.161	>0.05
	Married	349	38.27±7.33		
	Divorce or widowhood	2	37.14±6.25		
Post	Teaching instructor	45	37.27±5.32	0.020	>0.05
	Deputy head nurse and head nurse	29	36.38±8.26		
	Assistant to the head nurse	6	38.17±7.35		
	Responsible team leader	38	36.38±8.26		
	None	492	38.17±7.35		
Professional title	Deputy Chief Nurse or above	21	31.16±8.35	10.423	<0.05
	Supervisor Nurse	179	33.04±6.26		
	Senior Nurse	277	36.5±9.07		
	Registered Nurse	133	39.66±10.73		
Work experience (years)	1~2	117	38.27±6.48	9.125	<0.05
	3~5	107	33.45±4.73		
	>5	386	35.38±8.26		
Monthly night shift frequency	0–5 times	254	38.24±4.17	1.025	>0.05
	6–10 times	223	38.06±5.96		
	More than 10 times	133	39.15±4.35		
annual income	<100,000	159	37.26±8.73	0.456	>0.05
	100,000~200,000	405	35.27±6.33		
	over 200,000	46	35.19±6.08		
Department	ICU	182	35.06±7.39	4.342	<0.05
	Emergency department	40	36.09±5.17		
	outpatient service	59	39.21±5.34		
	Ordinary Ward	299	37.09±4.25		
	Operating Room	30	36.21±3.16		
Financial burden	had	417	40.26±8.73	0.360	>0.05
	None	193	38.27±6.33		

Table 3 Current score status of nurse organizational silence, work engagement, and support scale

Project	entry	Score range	score($\bar{x}$±s)
Organizational silence	12	12~60	33.88±6.88
Tacitly agreeing to silence	4	10~18	13.38±3.26
Defense Silence	4	9~15	11.27±2.48
Neglecting silence	4	5~15	9.38±3.26
Work engagement	17	19~119	69.23±10.76
vitality	6	25~35	29.02±3.72
dedication	5	15~23	18.37±3.54
Focus	6	16~25	21.69±3.08
Supporting scales	30	30~150	90.02±13.72
A scale	9	45~67	56.79±10.16
B scale	21	30~55	43.82±11.23

Results

Demographic and other data of study participants
Among the 610 nurses, there are 70 males and 540 females, ranging in age from 20 to 55 years old (30.52±3.04). The general information of the survey subjects is shown in Table 2.

Silence status of nurse organizations
The total average score of 610 nurses from general hospitals in eastern coastal cities of China was(33.88±6.88), and the total score of work engagement was (69.23±10.76); The total score of the support scale was (90.02±13.72), all of which are at a moderate level. Please refer to Table 3 for details.

Univariate analysis of nurse organizational silence
The results of single factor analysis of nurses' organizational silence are shown in Table 2. The survey showed that the score of organizational silence of contract nurses was (38.26±5.42) points, and the score of organizational silence of career nurses was (32.78±5.35) points. There were differences in the score of organizational silence of nurses in terms of employment methods ($P<0.05$); Nurses with different professional titles had different scores of organizational silence, and nurses with low professional titles had the highest score of organizational silence, which was (39.66±10.73); There were significant differences in nurses' organizational silence among different working years ($P<0.05$). Nurses with 1–2 years' working years had the highest degree of organizational silence, with a score of (38.27±6.48); The score of organizational silence of outpatient nurses was (39.21±5.34), which was the highest compared with other departments such as the operating room. The organizational silence scores of 610 nurses in this group had statistical differences in employment mode, professional title, working years and departments ($P<0.05$).

Correlation analysis of nurse organizational silence behavior with perceived support and work engagement

The correlation strength between nurses' Organizational Silence Behavior and their perceived colleague support and work engagement was expressed in R value. The analysis results showed that the total score and each dimension of nurses' work engagement, the perceived support scale A and B and the total score were negatively correlated with the total score and each dimension of organizational silence (*P* < 0.05). Among them, the correlation between nurses' work engagement and the dimension of indifference silence in organizational silence was the strongest, and the score of nurses' indifference silence decreased with the increase of work engagement (*r* =-0.824, *P* < 0.05). See Table 4.

Multiple linear regression analysis on the influence of nurse organizational silence

Multiple linear regression analysis (a-in =0.05, a-out =0.10) was carried out by taking the score of nurses' organizational silence as the dependent variable and the factors with statistical significance in the univariate analysis and correlation analysis as the independent variable. The results showed that department (β'value=0.256, *P*=0.001), employment method (β'value=0.115, *P*=0.001), professional title (β'value=0.741, *P*=0.023), working years (β'value=1.1110, *P*=0.000), work engagement (β'value=6.182, *P*=0.000) and colleague support scale A (β'value=0.198, *P*=0.000) were significantly different. The main influencing factors of nurses' Organizational Silence Behavior (*P* < 0.05) were B scale (β'value=0.485, *P*=0.001), and B scale (β'value=0.485, *P*=0.001). See Table 5.

Discussions

The silence of nurse organizations in general hospitals in eastern coastal cities of China is at a moderate level.

The survey showed that the total average score of organizational silence of 610 nurses in general hospitals in eastern coastal cities of China was (33.88±6.88), and the univariate analysis showed that there were significant differences in employment mode, professional title, working years and departments (*P* < 0.05). The correlation analysis between nurses' organizational Silence Behavior and their perceived support and work engagement showed that nurses' work engagement, colleague support a and B scales were negatively correlated with the total score and each dimension of organizational silence (*P* < 0.05). Multiple linear regression analysis showed that the above were the main influencing factors of nurses' Organizational Silence Behavior (*P* < 0.05). With the development of medical work, the nature of nursing work is also undergoing continuous change, and the development of nursing organizations is also facing opportunities and challenges.

Table 4 Correlation analysis between nurse organizational silence behavior and perceived support and work engagement

Project	Tacitly agreeing to silence	Defense Silence	Neglecting silence	Total score for silent behavior
Total score of work investment	-0.554[a]	-0.561[a]	-0.824[a]	-0.530[a]
Vitality	-0.390[a]	-0.390[a]	-0.854[a]	-0.363[a]
Dedication	-0.242[a]	-0.238[a]	-0.729[a]	-0.233[a]
Focus	-0.340[a]	-0.418[a]	-0.629[a]	-0.343[a]
Supporting scales	-0.426[a]	-0.426[a]	-0.227[a]	-0.411[a]
A Scale	-0.554[a]	-0.561[a]	-0.324[a]	-0.530[a]
B Scale	-0.390[a]	-0.390[a]	-0.554[a]	-0.363[a]

Note: a: *P* < 0.05

Table 5 Multiple linear regression analysis on the impact of nurse organizational silence

Factor	β	S.E.	β' Value	*t* Value	*P* Value
Department	0.195	0.486	0.256	2.745	0.001
Employment method	0.129	0.258	0.115	2.745	0.001
Professional title	0.215	0.341	0.741	1.632	0.023
Years of work experience	0.449	0.059	1.1110	1.3045	0.000
Work engagement	0.205	0.183	6.182	5.044	0.000
Colleagues support scale A	0.186	0.267	0.198	4.967	0.003
Colleagues support scale B	0.264	0.569	0.485	5.665	0.001
Constant	22.064	0.041	-	42.723	0.001

In the enterprise, the silent organizational atmosphere will limit employees' desire to express themselves. In the long run, employees will feel multiple pressures due to a lack of control over their work. In the field of nursing, nurses' organizational silence will affect nurses' work motivation and work mood, increase turnover intention, and affect nursing managers' decision-making [12]. The total average score of organizational silence of 610 nurses in the hospital investigated in this study was (36.88±11.88), which was lower than the total score of Organizational Silence Behavior of nurses in Tumor Hospital (49.25±16.11) by yinzhidong [13] and others, and also lower than the total score of organizational silence of nurses in operating room (47.34±17.14) by Zhou Aiqin [14] and others. Analysis of the reasons may be related to the different nursing professional fields of the research objects: nurses in tumor hospitals and operating rooms may need to deal with more serious diseases or more complex operations and bear more mental pressure, which makes nurses more inclined to choose silence to avoid additional pressure and conflict. The nurses in this study were all working in general hospitals, and their stress was at a medium level. Therefore, the score of organizational silence was lower than that of nurses in tumor hospitals and operating rooms. In this study, the scores of the three dimensions of organizational silence from high to low are tacit silence, indifference to silence, and

defensive silence. Indifference to silence refers to indifference to the interests of the organization, lack of interest in the overall values of the hospital, and psychological separation from the organization and deliberate choice of silence; Acquiescence in silence is the most common silence behavior among nurses, which mostly refers to the negative retention of views, loss of trust and attachment to the organization, and is a kind of negative compliance [15]. Defensive silence is what people often say, "If you talk too much, you will lose". That is, nurses keep silent out of self-protection, fear the consequences of speaking out, and do not want to hurt the relationship or produce any negative relationship consequences [16]. However, the overall level of nurses' organizational silence in this study is at the medium level, indicating that there is a balance between nurses' expression of their views and reservations, which may be due to the balance between nurses' trust and attachment to the organization and their concerns about the possible negative consequences. Therefore, although it is not a high level of silence, the medium level of organizational silence still indicates that there is room for improvement. While maintaining the status quo, managers need to further improve the relevant countermeasures, establish and improve the effective voice mechanism, guide and encourage nurses to take the initiative to speak, mobilize their work enthusiasm, and make the nursing team better development.

The phenomenon of organizational silence shows a certain degree of diversity in different departments

This study showed that there were differences in organizational silence scores among different departments ($P<0.05$), which may be related to factors such as different departmental atmospheres, management systems, and interpersonal relationships. The organizational silence score of outpatient nurses is higher. Analyzing the reasons for this may be because outpatient nurses receive less attention from the leadership level compared to other departments, and face high patient mobility. However, further related research is needed in the future.

The type of nurse staffing is the key factor affecting organizational silence behavior

In this study, there were 300 career nurses, accounting for 49.18%. The score of organizational silence of nurses was (32.78 ± 5.35), which was lower than that of contract nurses (38.26 ± 5.42), and the difference was statistically significant ($P<0.05$). They had higher work enthusiasm and were more proactive in hospital development and construction. The salary and benefits of contract nurses are different from those of regular nurses, with high mobility and lack of investment in the development and construction of hospitals, which can lead to organizational silence behavior [17].

Professional title and working years are important factors influencing nurses' organizational silence tendency

This article shows that the lower the professional title, the higher the score of organizational silence. Chang Jiayin et al. [18] also reached a similar conclusion in their research. The reason may be that nurses with lower professional titles have a short entry time or lower education, lack sufficient clinical experience, and cannot accurately judge and implement appropriate nursing measures when facing changes in patient conditions. Their own skills and knowledge reserves are limited, and they are unable to provide constructive opinions in their work, resulting in higher scores of organizational silence.

This study shows that nurses who have worked for 1–2 years have the highest score in organizational silence, which may be due to their short tenure and lack of work experience, and their tendency to be cautious in handling work events; As one age and accumulates work experience, their workability improves and they are more willing to express their opinions, resulting in a decrease in silence scores. Another study [19] suggests that unfamiliarity with personnel relationships is the main reason for the high level of silence in young nurse organizations, and young nurses believe that they have limited qualifications and are unable to provide valuable advice for the long-term development of the department.

This suggests that nursing managers should pay attention to the thoughts and suggestions of lower-level nurses, regularly conduct medical discussions on difficult cases in the department, increase communication opportunities, and even if young nurses express inappropriate opinions, they should not rashly stop criticism, patiently explain, and provide positive guidance.

Job engagement is negatively correlated with nurses' organizational silence

The total score of work engagement among nurses surveyed in this study is (69.23 ± 10.76), which is the main influencing factor of nurse organizational silence. Previous studies have shown that work engagement has the property of a mediating variable. Jin Limin et al. [20] found that in organizational silence, except for prosocial silence, other dimensions are negatively correlated with the total score and dimensions of work engagement. The lower the nurse's work engagement, the more severe their organizational silence. The reason behind this is that work engagement is a state of satisfaction for employees, filled with persistent and positive emotions and motivations. The higher the nurse's work engagement, the better their work and psychological experience, and the more satisfied they are with their work. Conversely, those with lower work engagement are prone to work fatigue, which can lead to feelings of exhaustion, avoidance, and

Lv *et al. BMC Nursing*   (2024) 23:757

Page 7 of 8

psychological rejection of engaging in their work. They usually choose to remain silent [21].

Colleague support is a favorable factor to reduce nurses' organizational silence

This study shows that colleague support is also one of the influencing factors of nurse organizational silence, including the perceived supportive role of the head nurse and colleagues. The study shows that [22], colleague support plays a mediating role in organizational silence and turnover intention, accounting for 19.2% of the total effect, which is consistent with the conclusion of this study. This article shows that the influence is greater with the support of the head nurse. The head nurse is the organizer and leader of the nursing team, and the level of their comprehensive quality and management style will have a direct impact on nurses. The support of the head nurse plays a crucial role in establishing colleague support for the nursing community. Nurses receive care, support, and assistance from colleagues, and this reciprocal relationship is conducive to their integration into the organization, making them feel that their value is being realized. Head nurse support and colleague support can be seen as social exchanges between nurses, leaders, and colleagues [23]. Therefore, nurses also take the initiative to safeguard the overall interests of the organization, and their behavior in offering advice and suggestions increases accordingly. The less likely they are to choose silence in their work.

Limitations

This study only included nurses from general hospitals in eastern coastal cities of China, and did not issue questionnaires in specialized hospitals and economically underdeveloped areas, which may produce sample bias and limit the depth and breadth of the study. On the other hand, this study is carried out in the form of a questionnaire. The answers to the questionnaire are affected by personal emotions, differences in understanding and other factors, which may have subjective bias. At the same time, the cross-sectional study design can only observe the correlation between the factors affecting organizational silence, and it is difficult to determine the causal relationship between variables. Next, we can observe the causal relationship between the factors through longitudinal research.

Conclusion

This study found that the organizational silence of nurses in general hospitals in eastern coastal cities of China is at a moderate level. Nursing workers with outpatient, contract-based, low professional titles, low work experience, poor work engagement, and insufficient support from colleagues are prone to silence behavior. As a model of

economic prosperity, Hangzhou has also demonstrated outstanding strength in the medical field. Hospitals in Hangzhou not only lead in medical technology, but also set a benchmark in hospital management, scientific research and teaching, and the humanistic care of nurses. Next, the hospital management can formulate targeted measures to improve the working environment of nurses, enhance nursing quality, and provide high-quality medical services to more patients.

Implications

As a model of economic prosperity, the coastal cities in eastern China also show outstanding strength in the medical field. Hospitals in this region not only take the lead in medical technology, but also set a benchmark in hospital management, scientific research and teaching, and humanistic care of nurses. In the follow-up study, we can comprehensively analyze the causes and consequences of nurses' organizational silence through cross regional comparative study, long-term follow-up study, interdisciplinary research and other forms. Through these studies, we can not only further explore the influencing factors of nurses' organizational silence, comprehensively understand the complexity of nurses' organizational silence, and provide reference for hospital management to formulate effective management measures. We hope that by sharing and learning the experiences and practices of hospitals in eastern coastal cities in medical technology, management innovation, and humanistic care, we can promote mutual inspiration and common growth among hospitals in different regions.

Declarations

Ethicals approval and consent to participate
The study was reviewed by the second affiliated hospital of Zhejiang Chinese Medical University Ethics Committee and has been approved for exemption

Lv *et al. BMC Nursing*   (2024) 23:757

Page 8 of 8

from ethical review. All participants were enrolled in the investigation using the principles of informed consent and confidentiality. All data are treated in confidence.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

References
1. Yalçın B, Baykal Ü, Türkmen E. Why do nurses choose to stay silent? A qualitative study. Int J Nurs Pract. 2022;28(1):e13010. https://doi.org/10.1111/ijn.13010.
2. Yurdakul M. Be en MA, Erdo an S. The organisational silence of midwives and nurses: reasons and results [J]. J Nurs Manag 2016,24(5):686–94. https://doi.org/10.1111/jonm.12374
3. Kaya G, Eskin Bacaksiz F. The relationships between nurses' positive psychological capital, and their employee voice and organizational silence behaviors. Perspect Psychiatr Care. 2022;58(4):1793–800. https://doi.org/10.1111/ppc.12990.
4. De Los Santos JAA, Rosales RA, Falguera CC, Firmo CN, Tsaras K, Labrague LJ. Impact of organizational silence and favoritism on nurse's work outcomes and Psychological Well-being. Nurs Forum. 2020;55(4):782–92. https://doi.org/10.1111/nuf.12496.
5. Labrague LJ, De Los Santos JA. Association between nurse and hospital characteristics and organizational silence behaviours in nurses: a cross-sectional study. J Nurs Manag. 2020;28(8):2196–204. https://doi.org/10.1111/jonm.13101.
6. Farghaly Abdelaliem SM, Abou Zeid MAG. The relationship between toxic leadership and organizational performance: the mediating effect of nurses' silence. BMC Nurs. 2023;4(1):4. https://doi.org/10.1186/s12912-022-01167-8.
7. Feng Chen. Medical multivariate statistical analysis method[M]. Bei Jing: China Statistics Press,2000(in Chinese). IBSN: 7503734175.
8. Zheng X, Ke J, Shi J, Zheng X. Measurement of employee silence and the impact of trust on it in the Chinese context [J]. Acta Physiol Sinica 2008,40(2):219–27(in Chinese).
9. Schaufeli WB, Salanova M, Gonazlea RV. The measurement of Engagement and Burnout:a Confirmative Analytic Ap-proach[J]. J Happ Stud. 2002;3(1):71–92. https://doi.org/10.1023/A:1015630930326.
10. Zhang Y. Yiqun Gao. The Chinese Version of Utrecht Work Engagement Scale: An Examination of Reliability and Validity [J]. Chinese J Clin Psychol 2005,13(3):268–70(in Chinese). https://doi.org/10.3969/j.issn.1005-3611.2005.03.005
11. King G, Baldwin P, Servais M, Moodie S. Solution-focused coaching to support clinicians' Professional Development: an analysis of relational strategies and co-constructed outcomes. Dev Neurorehabil. 2022;25(3):205–16. https://doi.org/10.1080/17518423.2021.2011458.
12. Shiqing Liu Y, Wang C, Li L, Wang. Study on the relationship between nurses' voice behavior and honest leadership and organizational commitment [J]. J Nurs Sci 2019,34(19):67–70(in Chinese). https://doi.org/10.3870/j.issn.1001-4152.2019.19.067
13. Yin Z, Zhang L, Liu H. Status and influencing factors of organizational silence among 404 nurses in cancer hospital [J]. J Nursing(China) 2020,27(1):43–6(in Chinese). https://doi.org/10.16460/j.issn1008-9969.2020.01.043
14. Yağar F, Dökme Yağar S. The effects of organizational silence on work engagement, intention to leave and job performance levels of nurses. Work. 2023;75(2):471–8. https://doi.org/10.3233/WOR-210192.
15. LABRAGUE L J, DE LOS SANTOS J. A.Association between nurse and hospital characteristics and organisational silence behaviours in nurses: a cross-sectional study[J]. J Nurs Manag 2020,28(8):2196–204. https://doi.org/10.1111/jonm.13101
16. Labrague LJ, De Los Santos JA. Association between nurse and hospital characteristics and organisational silence behaviours in nurses: a cross-sectional study. J Nurs Manag. 2020;28(8):2196–204. https://doi.org/10.1111/jonm.13101.
17. Aslan SK, Yalçın B, Göktepe N, Türkmen E, Canbolat S, Bakoğlu N, et al. Effects of demographic, occupational, and practice environment variables on organizational silence among nurse managers. Int Nurs Rev. 2022;69(2):132–8. https://doi.org/10.1111/inr.12712.
18. Jiayin Chang X, Hao H, Liu W, Wang. Correlation Analysis of organizational silence and structural authorization of junior nurses [J]. Journal of Nursing Science,2018,33(9):61–63(in Chinese). http://doi.org/CNKI:SUN:HLXZ.0.2018-09-022.
19. Wu W, Zhang J, Zhang Y, Chen C. Qualitative study on organizational silence behavior experience of Junior nurses [J]. Hospital Management Forum,2023,40(9):57–9(in Chinese). https://doi.org/10.3969/j.issn.1671-9069.2023.09.016
20. Doo EY, Kim M. Effects of hospital nurses' internalized dominant values, organizational silence, horizontal violence, and organizational communication on patient safety. Res Nurs Health. 2020;43(5):499–510. https://doi.org/10.1002/nur.22067.
21. Parlar Kılıç S, Öndaş Aybar D, Sevinç S. Effect of organizational silence on the job satisfaction and performance levels of nurses. Perspect Psychiatr Care. 2021;57(4):1888–96. https://doi.org/10.1111/ppc.12763.
22. Atalla ADG, Elamir H, Abou Zeid MAG. Exploring the relationship between organisational silence and organisational learning in nurses: a cross-sectional study. J Nurs Manag. 2022;30(3):702–15. https://doi.org/10.1111/jonm.13539.
23. Xin Yao S, Wen Y, Shen Z, Song Y, Chen, et al. Current status and latent profile analysis of nurses' organizational silence [J]. Chin J Nurs. 2023;58(8):921–8. (in Chinese).https://doi.org/10.3761/j.issn.0254-1769.2023.08.004