

## ORIGINAL RESEARCH

# Analysis of nurses' intention to resign and its reasons in a tertiary Grade-A hospital in Beijing during the post-pandemic era

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## ABSTRACT

**Background and objective:** After the end of the COVID-19 pandemic in China in 2023, there has been an increasing number of clinical nurses resigning, which has greatly impacted clinical work. The objective of this study was to understand the reasons for the resignation of clinical nurses in a tertiary Grade-A hospital in Beijing.

**Methods:** This study was completed in two stages. In the first stage, semi-structured interviews were conducted with 11 nurses who submitted resignation applications between August 2022 and August 2023 at a tertiary Grade-A hospital in Beijing. The themes identified were analyzed and refined using NVivo 12.0 software. The second stage involved a convenience sampling method for conducting a questionnaire survey on the resignation intentions of 220 clinical nurses in the hospital from September to October 2023.

**Results:** The results of the first stage research show that the reasons for nurses' resignation can be summarized into four themes: deteriorating team collaboration atmosphere, heavy workload, conflicting family roles, and significant fatigue. The results of the second stage of the research indicated that out of 220 clinical nurses surveyed, 12 nurses reported plans to resign in the upcoming year. And we found that "Do You Have Intention to Resign within One Year" Yes vs No were statistically different in terms of commuting time ( $p = .048$ ), work intensity ( $p = .049$ ), physical health status ( $p = .001$ ), reasonableness of work input and income ( $p = .002$ ), promotion opportunities ( $p = .046$ ), reward and punishment system ( $p = .001$ ), and humanistic care ( $p = .001$ ), and hospital nursing management methods ( $p = .001$ ).

**Conclusions:** The poor rationality of work input and income, deteriorating team collaboration atmosphere, and heavy workload may be the main reasons for nurses resigning. Nursing managers need to enhance nurses' salaries and benefits, strengthen hospital humanistic care, create a harmonious team work atmosphere, and emphasize the professional development of nursing talent to ensure the stability of the nursing team, especially during times of epidemic outbreaks.

**Key Words:** Post-pandemic era, Nurses, Resignation, Semi-structured interview

## 1. INTRODUCTION

In recent years, frequent public health emergencies have occurred worldwide,<sup>[1,2]</sup> characterized by unpredictability, sudden outbreaks, rapid spread, and difficulty in treatment.<sup>[3]</sup>

These events have caused serious harm to public health, as well as to national politics, society, and economy.<sup>[4]</sup> Nurses are crucial in emergency response and rapid intervention during sudden public health emergencies.<sup>[5]</sup> With the success

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of China’s anti-epidemic efforts, the world has entered the post-pandemic era.<sup>[6,7]</sup> The uncertainty and suddenness of public health emergencies impose significant challenges and pressures on nursing staff both physically and mentally.<sup>[8]</sup> To some extent, work fatigue is inevitable for frontline nursing staff, impacting patient care quality.<sup>[9]</sup> Global healthcare faces a severe shortage of nursing human resources, exacerbated by high turnover rates,<sup>[10]</sup> impacting nursing team stability. Stable nursing teams enhance emergency response capacity, hospital competitiveness, and nursing development, reflecting nurse satisfaction and ensuring patient care safety and satisfaction.<sup>[11,12]</sup> This study explores reasons for nursing turnover in this context, analyzing resignation intentions and related factors to stabilize teams and train staff for emergency response.

## 2. METHODS

### 2.1 Research subjects

The study was conducted in two stages, so our research subjects were nurses from two different periods. The first stage:

purposive sampling was employed to select nurses who resigned from our hospital between August 2022 and August 2023 for semi-structured interviews. Ethical approval for this study was obtained from the Ethics Committee of Dongzhimen Hospital, Beijing University of Chinese Medicine (Approval No.: 2022DZMEC-335-02) before the study commenced. The sample size was determined based on the repetition of interview information, saturation of information, and the absence of new themes in data analysis.<sup>[13]</sup> Ultimately, 11 interviews were conducted. Among the 11 interviewees, 10 were female, aged 25 to 36 years, with an average age of 28.09 years; the average length of service at the time of resignation was 5.29 years. Other sociological information is summarized in Table 1. In the second stage, a convenience sampling method was employed to anonymously survey 220 clinical nurses from September to October 2023. Inclusion criteria required participants to hold a nursing qualification certificate and have been employed at the hospital for over one year. Exclusion criteria were team members such as interns, trainees and rotating nurses. Participation in the study was voluntary for all respondents.

**Table 1.** General information of the study subjects (L = 11)

Code	Gender	Age	Political Affiliation	Marital Status	Children	Professional Title	Education	Years of Employment	Level	Native Place
L1	Female	33	Party member	Married	2	Chief Nurse	Bachelor’s Degree	14	N3	Beijing
L2	Female	25	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	5	N1	Beijing
L3	Female	26	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	3	N1	Henan
L4	Female	28	General public	Married	0	Nurse	Bachelor’s Degree	4	N2	Beijing
L5	Female	25	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	0.25	N1	Beijing
L6	Female	31	General public	Married	1	Nurse	Bachelor’s Degree	8	N2	Shanxi
L7	Female	36	General public	Married	2	Chief Nurse	Bachelor’s Degree	13	N3	Hebei, Baoding
L8	Female	27	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	4	N1	Henan, Anyang
L9	Female	27	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	5	N2	Hebei, Zhuozhou
L10	Female	25	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	2	N1	Hebei, Chengde
L11	Male	26	Communist Youth League member	Unmarried	0	Nurse	Bachelor’s Degree	4	N2	Shandong, Dezhou

#### 2.1.1 Investigative tools

##### 1) Development of interview guidelines

The researchers developed interview guidelines following an extensive literature review and consultation with nursing management and clinical nursing experts. Pre-interviews were conducted with departing nurses, and based on these

insights, the guidelines were refined to formulate the final interview framework. The interviews primarily focused on the following two questions:

- **WHAT:** What reasons led you to decide to leave?
- **WHY:** What aspects of leaving made you feel conflicted and reluctant?

## 2) Survey questionnaire

The questionnaire was constructed by the researchers after an extensive literature review and consultations with relevant experts in the field. It included demographic information (such as gender, age, personality orientation, marital status, number of children, education, professional title, hierarchical level, etc.) and reasons prompting nurses to leave the hospital. Please refer to Table 2 for details.

### 2.1.2 Data collection methods

**WHAT:** Data was collected through face-to-face semi-structured interviews conducted in quiet, spacious, and well-lit rooms.

**WHERE:** The interviews took place in the hospital premises.

**WHO:** Researchers explained the study's purpose to participants, ensured confidentiality, gained trust and cooperation, and obtained signed informed consent forms from each participant.

**WHEN:** In August 2023

**HOW:** The entire interview process was recorded using the built-in recording feature of a mobile phone. Researchers also observed and documented interviewees' non-verbal behaviors, such as expressions, gestures, tone of voice, and emotions, in a notebook.

**Questionnaire distribution method:** The researchers distributed the questionnaire link in September to October 2023, provided instructions on the study's purpose and content, ensured anonymity, and allowed questionnaire completion only after obtaining informed consent. The completion time for the questionnaire was set at a minimum of 200 seconds, and a total of 220 valid questionnaires were collected. Within 48 hours after the interviews, the recorded data was transcribed into text format. NVivo 12.0 software was utilized for data analysis, employing Colaizzi's phenomenological 7-step analysis method:

- **WHAT:** Careful reading of all interview transcripts.
- **HOW:** Extraction of significant statements and coding of meaningful recurring viewpoints.
- **WHY:** Compilation of coded viewpoints and writing detailed, comprehensive descriptions.
- **HOW:** Identifying similar viewpoints and extracting thematic concepts.
- **WHO:** Researchers returned to the interviewees for validation of identified themes.

The researchers summarized and synthesized the results of the data analysis, integrating their own interpretations to derive the study's themes.

### 2.1.3 Statistical processing

Regarding the qualitative data of the first stage: within 48 hours after the interviews, the recorded data was transcribed

into text format. NVivo 12.0 software was utilized for data analysis, employing Colaizzi's phenomenological 7-step analysis method:<sup>[14]</sup>

- **WHAT:** Careful reading of all interview transcripts.
- **HOW:** Extraction of significant statements and coding of meaningful recurring viewpoints.
- **WHY:** Compilation of coded viewpoints and writing detailed, comprehensive descriptions.
- **HOW:** Identifying similar viewpoints and extracting thematic concepts.
- **WHO:** Researchers returned to the interviewees for validation of identified themes.

The researchers summarized and synthesized the results of the data analysis, integrating their own interpretations to derive the study's themes.

Regarding the quantitative data of the second stage: The survey results were statistically processed using SPSS 20.0 software. Count data were presented as frequencies and percentages (%). Comparison "Do You Have Intention to Resign within One Year? Yes vs No" with sociological data and reasons for leaving using Fisher's exact test, with a significance level set at  $p < .05$ .

## 3. RESULTS

### 3.1 Interview results

#### 1) Departmental environment

The atmosphere of medical and nursing cooperation is not good.

(1) The unclear division of medical and nursing responsibilities, along with inadequate cooperation between medical and nursing staff, exacerbates both workload and psychological pressure. Approximately 20% of the interviewed nurses indicated that the efficiency of doctors in issuing orders directly impacts the workflow of clinical nurses. Moreover, the unfriendly attitude of doctors is a factor influencing nurses' psychological work experience. Nurse 9: "Worrying too much feels like when you are with the doctor team, especially when you are on night duty or day shift, it will increase your busy workload." Nurse 10: "The attitude and respect of doctors towards nurses are insufficient. Nurses are commanded, and the division of responsibilities between doctors and nurses is not clear."

(2) Difficulty adapting to the working atmosphere of the department. The departmental working atmosphere is one of the factors that nurses consider when contemplating resignation. About 20% of nurses consider leaving because they find it difficult to adapt to the department's working atmosphere. However, some nurses have stated that the positive collaborative atmosphere of their original team is something

they often miss after resigning. Nurse 5: "I feel oppressed because I find it difficult to integrate into the department." Nurse 7: "The contradiction is that I am reluctant to leave the atmosphere of the team." Nurse 9: "The department feels like home. I am quite reluctant to leave all the teachers."

## 2) Work and family role conflict

(1) Difficulty balancing work and family. In this interview, over 70% of the interviewees stated that the reason for leaving was related to family factors, including marriage, childbirth, child education, and family care. Nurse 1: "Mainly because I have two young children, I can't take leave to go home every few days. If I were in the community, I could at least go home at noon to see them." Nurse 6: "I can't balance work and family. In the end, I can only choose family." Nurse 11: "I live in the suburbs and have a house now. I plan to get married in the suburbs. It's too tiring to commute two hours to work."

(2) Strict control during the epidemic period led to partial failure to fulfill family responsibilities. During the epidemic period, medical workers were subject to strict control, making it difficult to leave Beijing to visit their families. About 40% of the nurses interviewed stated that their inability to reunite with their families for long periods was the main reason for their thoughts of resigning. Nurse 3: "First of all, it is inconvenient to leave Beijing, and then because of the epidemic." Nurse 8: "I haven't been home for three years. I miss home. I want to go home for development." Nurse 9: "Because of the epidemic, I can't leave Beijing, and I can't go home often, which makes me think about resigning." Nurse 3: "I haven't been home for almost two years, which is also a big influence."

## 3) Strong Sense of Work Fatigue and High Pressure

(1) Heavy workload. During the post-epidemic period, nurses were also engaged in responding to public health emergencies, such as supporting cabin hospitals and nucleic acid testing sites, in addition to the heavy workload in the department. The irrational allocation of human resources resulted in a large workload for nursing staff, which was one of the reasons for resignation. And at least three interviewees mentioned heavy workload. Nurse 10: "Deciding to resign is because it's too busy. At that time (December 2022), the department was particularly busy, working every day." Nurse 8: "For nursing work, after work, I feel like I've been emptied. I don't have the energy to play or do anything else."

(2) Irregular working hours. Nursing work often involves night shifts due to its special nature. During emergencies,

such as sudden incidents, night shifts are more frequent, with larger workloads, and nurses cannot get adequate rest after work, leading to physical health problems. Nurse 10: "And every day, I can't get off work, or I have to work again the day after a night shift."

(3) Psychological pressure and professional burnout. Nursing staff face significant physical labor and psychological pressure. Nurse 6: "After completing each task, I keep thinking about whether there are any missed nursing tasks in my mind, and I'm afraid that something will go wrong in the middle of nursing work, which may deteriorate my mental resilience." Nurse 10: "Because it's the oncology department, where many people end their lives, and there are many deaths in the department, my personal mood is depressed."

(4) Long commuting time. In the interviews, about 30% of nurses had a one-way commuting time of more than 1 hour. Long hours commuting led to greater fatigue and contributed to thoughts of resignation. Nurse 10: "I get up at 5:00 in the morning, leave at 5:20, take the bus at 5:30, and arrive at the hospital at about 7:00. It takes a long time." Nurse 4: "It takes three hours for commuting."

## 4) Low Salary and Benefits

Approximately 18% of the interviewees expressed dissatisfaction with their income. In this survey, those dissatisfied with their salary had all worked for less than 3 years, and 90% of the nurses stated that they would be willing to continue working at the hospital if the hospital addressed staffing issues. Nurse 5: "I feel that the department's income may be much lower than that of the previous hospital, and I find it a bit unacceptable." Nurse 3: "Our bonus salary is too low, and it's gone after renting a house."

## 3.2 Results of Survey

Among the 220 clinical nurses surveyed, we found 12 nurses had plans to resign within the next year. Compared with sociological data, nurses' plans to resign in the next year were statistically different in terms of commuting time ( $p = .049$ ), work intensity ( $p = .049$ ), physical health status ( $p = .001$ ), reasonableness of work input and income ( $p = .002$ ), promotion opportunities ( $p = .046$ ), reward and punishment system ( $p = .001$ ), humanistic care ( $p = .001$ ), and hospital nursing management methods ( $p = .001$ ). See Table 2 for details. In the investigation of reasons for prompting resignation, the top three reasons were low income, high work pressure, and tense nurse-patient relationships, as shown in Table 3.

**Table 2.** General Information and Factors Influencing Intention to Resign within One Year of 220 Clinical Nurses

Item	Group	Frequency	Percentage (%)	Do You Have Intention to Resign within One Year?		p
				Yes	No	
Gender	Female	205	93.18	11	194	.581
	male	15	6.82	1	14	
Age(years)	20~25	36	16.36	2	34	.418
	26~30	67	30.45	4	63	
	31~35	58	26.36	5	53	
	≥ 3	59	26.82	1	58	
Personality Orientation	Extroverted	106	48.18	7	99	.559
	Introverted	114	51.82	5	109	
Only Child	Yes	74	33.64	5	69	.543
	No	146	66.36	7	139	
Marital Status	Unmarried	94	42.73	6	88	.825
	Married	121	55	6	115	
	Divorced/Separated/Widowed	5	2.27	0	5	
Have Children	Yes	99	45	5	94	1
	No	121	55	7	114	
Highest Education	Master's or Doctorate	4	1.81	1	3	.269
	Bachelor's	184	83.64	10	174	
	College	32	14.55	1	31	
Professional Title	Associate senior nurse	5	2.27	0	5	.504
	Nurse-in-charge	66	30	2	64	
	Nurse practitioner	81	36.82	7	74	
	Nurse	68	30.91	3	65	
Hierarchical Level	N4	13	5.91	0	13	1
	N3	52	23.64	3	49	
	N2	88	40	6	82	
	N1	54	24.55	3	51	
	N0	13	5.91	0	13	
Years of Service	1-2 years	16	7.27	0	16	.961
	2-5 years	62	28.18	4	58	
	5-10 years	43	19.55	3	40	
	10-20 years	72	32.73	4	68	
	Over 20 years	27	12.27	1	26	
Average Daily Commute Time	Less than 1 hour	64	29.09	4	60	.049
	1-2 hours	93	42.27	3	90	
	2-3 hours	42	19.09	1	41	
	3-4 hours	12	5.45	2	10	
Employment Nature	4 hours and above	9	4.09	2	7	1
	Civil Service	19	8.64	1	18	
Average Monthly Income	Contractual (Equal pay for equal work)	201	91.36	11	190	.778
	5000 -10,000 yuan	42	19.09	1	41	
	11,000 - 15,000 yuan	149	67.73	10	139	
	16,000 - 20,000 yuan	25	11.36	1	24	
Personal Annual Income (pre-tax)	Over 20,000 yuan	4	1.82	0	4	.342
	Below 60,000 yuan	5	2.27	0	5	
	60,000 - 100,000 yuan	25	11.36	0	25	
	110,000-150,000 yuan	94	42.73	4	90	
	160,000 to 200,000 yuan	82	37.27	8	74	
Do You Often Work Overtime	Over 200,000 yuan	14	6.36	0	14	.2
	Yes	69	31.36	6	63	
Frequency of Overtime Work	No	151	68.64	6	145	.307
	Once a week	132	60	6	126	
	Twice a week	51	23.18	3	48	
	Three times a week	25	11.36	1	24	
	Four times a week and above	12	5.45	2	10	
How Do You Feel about Work Intensity?	Very Light, Light	5	2.27	0	5	.049
	Normal	110	50	2	108	
	Large, Very Large	105	47.73	10	95	
Your Physical Health Condition?	Very Good	46	20.91	1	45	.001
	Good	35	15.91	2	33	
	Average	102	46.36	2	100	
	Poor	26	11.82	3	23	
How Do You Rate Your Family Relationships?	Very Poor	11	5	4	7	.096
	Very Harmonious	117	53.18	5	112	
Compared with Your Work Effort, Do You Think Your Income is...	Relatively Harmonious	77	35	3	74	.002
	Average	26	11.81	4	22	
	Reasonable	25	11.36	0	25	
	Relatively Reasonable	46	20.91	0	46	
	Average	88	40	3	85	
How Do You Feel about the Current Practice Environment?	Less Reasonable	44	20	5	39	.143
	Very Unreasonable	17	7.73	4	13	
	Very Good	24	10.91	0	24	
	Good	58	26.36	1	57	
	Average	109	49.55	8	101	
Do You Think There are Opportunities for Promotion in the Current Environment?	Poor	16	7.27	1	15	.046
	Very Poor	13	5.91	2	11	
	Many	12	5.45	0	12	
	Quite a Few	54	24.55	0	54	
	Average	116	52.73	7	109	
How Do You Feel about the Hospital's Reward and Punishment System?	Few	23	10.45	3	20	.001
	Very Few	15	6.82	2	13	
	Very Reasonable	23	10.45	0	23	
	Reasonable	68	30.91	1	67	
	Average	111	50.45	6	105	
Did You Understand Nursing Work before Engaging in Nursing?	Unreasonable	8	3.64	1	7	.887
	Very Unreasonable	10	4.55	4	6	
	Very Understanding	24	10.91	1	23	
	Quite Understanding	64	29.09	5	59	
	Average	66	30	4	62	
	Partial Understanding	46	20.91	2	44	
	No Understanding at All	20	9.09	0	20	
	Internal Medicine General Ward	78	35.45	5	73	
	Surgical General Ward	31	14.09	1	30	
Outpatient and Medical Technology, Auxiliary Departments	61	27.73	2	59		
Your Job Position	Operating Room	12	5.45	0	12	.238
	CU, CCU, and other intensive care units	13	5.91	2	11	
	Intervention Room	0	0	0	0	
	Emergency Department	9	4.09	2	7	
	Logistics, Administration	4	1.82	0	4	
	Others	12	5.45	0	12	
	Very Good	49	22.27	0	49	
Hospital's Care for Medical Personnel	Good	76	34.55	1	75	.001
	Average	80	36.36	7	73	
	Poor	9	4.09	2	7	
	Very Poor	6	2.73	2	4	
Your Perception of the Hospital's Nursing Management Methods	Very Good	46	20.91	0	46	.001
	Quite Satisfied	73	33.18	0	73	
	Somewhat Satisfied	82	37.27	6	76	
	Not Very Satisfied	13	5.91	4	9	
	Very Unsatisfied	6	2.73	2	4	

**Table 3.** Distribution of Possible Reasons for Voluntary Resignation among Clinical Nurses

Possible Reasons for Resignation	Number of Individuals	Composition Ratio (%)
Low income	143	65.00
High work pressure and strong responsibility	93	42.27
Tense nurse-patient relationships	88	40.00
Occupational impact on health	82	37.27
Commute time	80	36.36
Inconvenience in caring for family members	59	26.82
Children's education	38	17.27
Numerous training and exams	38	17.27
Dim future development prospects	31	14.09
City relocation	25	11.36
Doctor-nurse cooperation	24	10.91
Finding a more satisfactory job	21	9.55
Unharmonious relationships with colleagues	19	8.64

## 4. DISCUSSION

### 4.1 Enhancing welfare benefits for junior nurses to stabilize the nursing team

Nursing positions involve high work intensity, particularly amid a shortage of nurses. Therefore, effective management should focus on optimizing workflow, maximizing the utilization of nursing human resources, and emphasizing the tiered utilization of nursing talents. It is crucial to delineate job responsibilities and establish a sound allocation system. Simultaneously, it is imperative to implement the requirements outlined in the “Guiding Opinions on Promoting the Reform and Development of Nursing Services”<sup>[14]</sup> by establishing a comprehensive performance evaluation index system for nurses. Linking performance evaluations with nurse employment, professional title promotion, and individual compensation can ensure that more effort leads to greater rewards. Among the 11 nurses who have resigned in our study, 8 had worked for less than or equal to 5 years, indicating the need for nursing managers to pay attention to the turnover risk among junior nurses.

Additionally, both interview and questionnaire results ( $p < .05$ ) underscore income as a significant factor influencing nurses’ decisions to leave. 40% of the nurses perceived their income as average, while 27.73% considered it unreasonable, with only 11.36% finding it fair. Nurses expressed difficulty in accepting their salaries given the high living costs and rental expenses in Beijing, as highlighted during interviews. Junior nurses in China refer to nurses and nurse practitioner, they generally lack clinical experience, leading to increased workload and risk but receive comparatively lower remuneration. This situation diminishes their sense of accomplishment, exacerbating negative work-related stress

and perpetuating a vicious cycle.<sup>[15]</sup> Therefore, nursing managers should establish rigorous standardized training systems to expedite the acquisition of strong nursing skills by new nurses and increase their remuneration accordingly. Given the heightened physical and mental stress levels, which often lead to a tendency to resign, nursing managers should prioritize the psychological well-being of junior nurses and offer various interventions to promote it. Timely attention to nurses’ work and developmental needs, coupled with early personalized interventions, can elevate departmental nursing management and proficiency to stabilize the nursing team effectively.

### 4.2 Enhancing hospital humanistic care and addressing nurses’ physical and mental health development to balance family and work role conflicts

Interview findings revealed that the high work pressure on nurses affects their ability to balance work and family life, particularly during strict epidemic control measures when nurses find it challenging to reunite with their families due to travel restrictions. This situation constitutes a significant aspect of role conflict. The research results are consistent with findings by Zhang et al.,<sup>[16]</sup> where nurses experiencing difficulty balancing work and family responsibilities were more inclined to consider resignation. Additionally, questionnaire responses indicated that nurses’ plans to leave within the next year were influenced by the hospital’s humanistic care and nursing management practices. During public health emergencies, nursing personnel experience significant physical and psychological stress.<sup>[17]</sup> Nursing managers should demonstrate greater care and concern for nurses in the post-epidemic era. Implementing measures such as flexible scheduling and rational resource planning can help nurses

manage stress more effectively, allowing them to better focus on their nursing duties.<sup>[18]</sup> Of the 11 departing nurses in our study, 7 were unmarried, indicating the importance of attention to unmarried nurses. Applying human-centered principles and understanding their work, life, and ideological dynamics, along with providing convenient marriage and fertility resources during their training, can effectively alleviate occupational pressure and enhance psychological experiences. Moreover, nurses' participation in epidemic response efforts and ongoing patient care underscores their significant role. Therefore, the establishment of humanistic care and protection measures is a reflection of personnel management systems and an essential part of emergency response system development. Given the unique characteristics of public health emergencies, related policies on emergency systems need comprehensive refinement, especially concerning occupational exposure protection and professional knowledge training. Concurrently, continuous attention to nurses' psychological development is imperative.

#### **4.3 Clarifying medical and nursing responsibilities and emphasizing the establishment of a positive work environment in departments**

Interview findings revealed that some nurses who have resigned believed that medical and nursing roles were unclear in their departments, leading to poor cooperation between medical and nursing staff. Effective medical-nursing collaboration, based on the patient-centered care philosophy, requires mutual trust, equality, and respect between nurses and physicians.<sup>[19]</sup> The favorable Doctor-Nurse cooperation atmosphere can improve teamwork harmony, increase the implementation rate of positive nursing measures, ensure nursing safety and quality, and ultimately enhance medical-nursing staff job satisfaction, thus reducing turnover rates.<sup>[20,21]</sup> There have many studies<sup>[22,23]</sup> have confirmed the significant role of good medical-nursing collaboration, such as increasing nurses' identification with the medical-nursing team, reducing hospital infection rates, and adverse event occurrence. Furthermore, nurses cited unclear medical orders as a contributing factor to role ambiguity. Nurses often find themselves in the role of verifying medical orders, resulting in multiple corrections through communication with physicians, thereby increasing their workload. Therefore, nursing managers should communicate with the medical department to standardize medical order practices, optimize nursing workflow, and maintain a positive departmental work environment conducive to nursing team stability. In addition to medical-nursing cooperation, nursing autonomy, nursing management capabilities, and support for nursing work matching nurses' personalities are crucial factors influencing nurses' job satisfaction.<sup>[19,20,24]</sup> Nursing managers should

pay attention to these factors and actively explore strategies for improving medical-patient relationships to provide a scientific basis for nursing human resource management and development and achieve nursing team stability.

#### **4.4 Strengthening nurses' professional identity and focusing on the professionalization of nursing talents**

During the interviews, no nurses mentioned resigning due to poor professional identity, indicating a stronger sense of professional identity in the nursing profession after the epidemic. This finding contrasts with previous research results.<sup>[25]</sup> A higher sense of professional identity offers an opportunity for nurses to realize their own value. Cultivating nurses' Florence Nightingale spirit of dedication and compassion, along with honing their excellent operational skills, can enhance nurses' self-identity. Additionally, nursing managers should focus on cultivating professional talents while ensuring the steady progress of nursing work to promote disciplinary development. Nursing managers should encourage nurses to pursue on-the-job education, provide opportunities for external learning and exchange, and develop sound career development plans to create more opportunities and space for personal development. These efforts will increase nurses' organizational identity and optimize nursing talent training systems, ultimately fostering a new generation of practical nursing talents proficient in technology, capable of inheritance, and innovative.

#### **4.5 Summary of contributions and limitations**

This study delved into the reasons for nurse turnover following public health emergencies, providing empirical evidence for hospital managers to formulate more effective management policies. However, the study is limited to a single hospital with a small sample size and a short data collection period, which may not fully represent the situation of nurses nationwide. Additionally, the findings are primarily applicable to mainland China and may not be relevant to other cultural contexts.

## **5. CONCLUSION**

As frontline workers during public health emergencies, nurses' turnover behaviors directly impact nursing quality and human resource costs. Hospitals and nursing managers must implement humane management practices, focusing on nurses' physical and mental health development, work-family balance, and optimizing benefits and environments. By establishing reasonable and effective incentive mechanisms, encouraging specialized nursing talent development, fostering nurses' professional identity, and enhancing organizational identity, hospitals can reduce turnover, enhance nurses' job engagement, initiative, and creativity, and ultimately

mately achieve high-quality development for both the hospital and nursing team.

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### AUTHORS CONTRIBUTIONS

Dr. Liu Yan and Dr. Li Jie were responsible for the study design and revisions. Prof. Zhou Yinping, Duan Yunshan, and Zheng Liping were responsible for data collection. Prof. Cheng Juan drafted the manuscript, and Prof. Tian Runxi revised it. Dr. Li Jie and Prof. Cheng Juan are co-first authors. All authors read and approved the final manuscript and made significant contributions to the study.

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### CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Obtained.

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### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### DATA SHARING STATEMENT

No additional data are available.

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