

ORIGINAL RESEARCH

# Importance of the Nurses' Empathy Level in Operating Rooms

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## ABSTRACT

**Objective** • We aimed to explore the level of empathy and professional identity of nurses in the operating room, explore their correlation, and make relevant recommendations.

**Methods** • A total of 220 operating room nurses in Wenzhou were investigated with The Jefferson Scale of Empathy (JSE) and professional identity rating scale, using the convenience sampling method.

**Results** • The total score of empathy for operating room nurses was  $92.47 \pm 9.89$ , the total score of professional identity was  $104.58 \pm 15.79$ , and the correlation coefficient between both empathy and professional identity was 0.295. Empathy and professional identity were at a moderate level and they were moderately positively correlated. The first hierarchical regression analysis showed that the presence or absence of hospitalization experience of self or immediate family members and education level jointly explained

13.6% of the variance in empathy among operating room nurses; the second hierarchical regression analysis displayed that the presence or absence of hospitalization experience of self or immediate family members, education level, professional satisfaction, and professional identity jointly explained 20.1% of the variance in nurses' empathy, and the independent variables improved the explanation of the corresponding variables by 6.5%.

**Conclusions** • The professional identity of operating room nurses are positively correlated with empathy. Nursing managers should pay attention to their professional identity cultivation and enhance the professional satisfaction of operating room nurses. They should encourage them to improve their educational level so as to enhance their level of empathy and improve the quality of nursing services (*Altern Ther Health Med.* 2023;29(5):107-111).

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## INTRODUCTION

Empathy is the ability to understand people and share their feeling in interpersonal communication and to respond to their needs in a non-judgmental and appropriate manner.<sup>1</sup> Operating room nurses are the main body of nursing humanistic care implemented for patients during surgery, so they should have a high level of empathy to reduce patients' physical pain and psychological stress and improve their state of being.<sup>2,3</sup> Professional identity refers to an individual's perception of the goals, social values, and other factors of the occupation he or she is engaged in, in line with society's evaluation and expectations of that occupation.<sup>4</sup> A positive professional identity can play a positive role in guiding nurses, which can better relieve their stress during work, enhance their sense of work happiness and value, and help improve patients' satisfaction with the nursing provided.<sup>5</sup> The purpose of this study was to analyze the current situation and correlation between empathy and the professional identity of operating room nurses, to use professional identity to cultivate empathy in operating room nurses, and to provide a theoretical basis for subsequent training interventions.

## METHODS

### Study population

From July to September 2021, a questionnaire survey was conducted among 220 operating room nurses in Wenzhou by convenient sampling method.

**Inclusion criteria.** (1) registered nurses; (2) engaged in operating room nursing for 2 years or more; and, (3) voluntary participation in this study.

**Exclusion criteria.** (1) training, rotation, or internship nurses; (2) people who have been engaged in the operating room nursing work and have been transferred out of the post; and, (3) nurses having obvious physical and psychological diseases.

### Research Method

**Study instruments.** (1) General information questionnaire: including sex, marriage, education, whether there are children, evaluation of the relationship with mother as a child, highest education, title, the job in the authorized strength, work environment, professional satisfaction of nurses, and whether they or their relatives have hospitalization experience. (2) Empathy scale<sup>6</sup>: the Chinese version of Jefferson Scale of Empathy (JSE) for Caregivers, which has 20 entries, including 3 dimensions of perspective selection, emotional care, and trans-personal thinking, and each entry is scored on a 7-point equal-interval scale. The total score ranges from 20 to 140, with higher scores indicating higher levels of empathy. The reliability of the scale was assessed using Cronbach's  $\alpha$  and was found to be 0.797 and the retest reliability was 0.792. Professional identity scale<sup>7</sup>: the revised professional identity scale of operation room nurses which includes 5 dimensions of professional perception valuation, professional social support, professional social skills, professional frustration coping, and professional self-reflection, with 30 entries. The 5-Point Likert Scale was used, with scores ranging from 1 to 5 on a scale of "Strongly disagree" to "Strongly agree". A total score of 30-60 indicates a very low level of professional identity, 61-90 indicates a low level of professional identity, 91-120 indicates a medium level of professional identity, and 121-150 indicates a high level of professional identity. Cronbach's  $\alpha$  for the scale was 0.938 and the split-half reliability was 0.88.

**The study methods.** After obtaining the consent of the study subjects, the purpose of the study, precautions, and commitment to follow the principle of confidentiality was first explained. A total of 220 valid questionnaires were obtained.

**Statistical analysis.** Data was entered in pairs using EpiDate 3.1, and data were processed and analyzed using the Statistical Product and Service Solutions (SPSS) Statistics (version 22.0, IBM, Armonk, NY, USA). The statistical data were expressed as percentages and the measurement data were described as means and standard deviations. Student's *t* test (*t* test), univariate analysis of variance, and Pearson correlation coefficient were used for statistical correlation analysis. Statistically significant variables were introduced into the regression model. The hierarchical regression

method was used to further analyze the influencing factors, and  $P < .05$  was considered a statistically significant difference.

## RESULTS

### Basic information of operating room nurses

A total of 220 operating room nurses were surveyed in this study, of whom 14 (6.36%) were male and 206 (93.64%) were female; aged 21-62 ( $32.13 \pm 7.62$ ) years; nursing experience of 2 to 42 ( $11.04 \pm 8.61$ ) years; 71 (32.2%) were unmarried/divorced/widowed and 149 (67.8%) were married; 79 (36%) were only children and 141 (64%) were non-only children. The number of nurses was 20 (9%), 100 (45.6%) were nurse practitioners, 61 (27.7%) were nurse supervisors, 39 (17.7%) were associate nurse practitioners and above; 202 (91.8%) were in the authorized strength and 18 (8.2%) were in the contract authorized strength (8.2%).

### Levels of empathy among operating room nurses

The total empathy score of 220 operating room nurses was  $92.47 \pm 9.89$ , which indicated a moderate level. The highest score obtained for the perspective selection dimension was  $58.12 \pm 6.09$  and the lowest score obtained for the transposition dimension was  $6.21 \pm 2.87$ . See Table 1 for details.

### A univariate analysis affecting empathy among operating room nurses

General demographic information was used as the independent variable and empathy score was used as the dependent variable, and Student's *t*-test or analysis of variance was performed. The results showed that there were statistically significant sex differences, education level, professional satisfaction, and own or immediate family's hospitalization experience or not ( $P < .05$ ), as detailed in Table 2.

### Level of professional identity of nurses in the operating room

The total professional identity score of 220 operating room nurses was  $104.58 \pm 15.79$ , which indicated a moderate level. The highest score was for the career cognitive evaluation dimension and the lowest score was for the career self-reflection dimension. See Table 3 for details.

### Analysis of the correlation between empathy and professional identity among operating room nurses

Pearson's rank correlation analysis of the total scores of empathy and professional identity and the scores of each dimension among the operating room nurses showed that

**Table 1.** Empathy Scores of Nurses in the Operating Room (n = 220)

	Number of entries	Lowest Score	Highest score	Score ( $\bar{x} \pm s$ )
Viewpoint selection	10	40	70	$58.12 \pm 6.09$
Emotional Care	8	12	56	$25.17 \pm 6.96$
Thinking differently	2	2	14	$6.21 \pm 2.87$
Total Empathy Score	20	76	138	$92.47 \pm 9.89$

**Table 2.** Comparison of General Demographic Information and Total Empathy Scores of Operating Room Nurses (n = 220)

Group	Number of people	Total Empathy score	t/F	P value
<b>Sex</b>				
Male	14	92.04 ± 9.33	6.100	.014
female	206	98.71 ± 15.17		
<b>Marriage</b>				
Married	149	93.60 ± 12.47	1.390	.240
Unmarried/divorced/widowed	71	91.92 ± 8.38		
<b>Only child</b>				
Yes	79	91.94 ± 9.61	0.538	.464
No	141	93.41 ± 10.37		
<b>Relationship with mother as a child</b>				
Attachment or secure feeling	197	92.41 ± 9.80	0.060	.800
Avoidance or detachment	23	92.96 ± 10.81		
<b>Education level</b>				
Master or above	37	91.21 ± 8.21	18.960	<.001
Bachelor degree or below	183	98.68 ± 14.37		
<b>Job title</b>				
Nurse	20	90.15 ± 11.41	1.430	.234
Nurse practitioner	100	91.84 ± 7.61		
Supervisor nurse practitioner	61	92.57 ± 9.80		
Deputy chief nursing officer and above	39	95.10 ± 13.51		
<b>Job in the authorized strength</b>				
Formal authorized strength	202	92.29 ± 10.05	0.827	.364
Contract authorized strength	18	94.50 ± 7.78		
<b>Work environment</b>				
Poor	10	87.63 ± 6.37	1.660	.193
General	110	88.53 ± 7.14		
Good	100	88.75 ± 7.42		
<b>Professional satisfaction</b>				
Unsatisfactory	98	92.82 ± 8.57	12.689	<.001
General	104	90.41 ± 7.44		
Satisfied	18	102.40 ± 19.33		
<b>Nursing workload</b>				
General	45	94.51 ± 13.65	1.674	.190
Large	140	93.37 ± 9.41		
Very large	35	91.59 ± 8.44		
<b>Job income satisfaction</b>				
Unsatisfactory	28	87.82 ± 7.05	0.736	.481
General	130	88.67 ± 7.36		
Satisfied	62	90.24 ± 6.65		
<b>Willingness to leave the job</b>				
Frequently want to	29	93.02 ± 9.58	1.361	.259
Occasionally think	95	91.32 ± 7.21		
Seldom think about it	96	94.41 ± 16.42		
<b>Whether hospitalization experience for myself or my immediate family members</b>				
Yes	50	97.54 ± 12.62	18.370	<.010
None	170	90.98 ± 8.41		
<b>Number of empathy training in the past three years</b>				
0 times	128	92.51 ± 9.98	1.114	.330
1-5 times	78	93.06 ± 10.13		
6 times and above	14	88.79 ± 7.12		

**Table 3.** Professional Identity Scores of Nurses in the Operating Room (n = 220)

Project	Number of entries	Lowest Score	Highest score	Score (x ± s)
Professional Perception Evaluation	9	14	45	29.58 ± 5.97
Professional social support	6	14	30	22.46 ± 2.96
Professional frustration coping	6	14	30	21.92 ± 3.24
Professional social skills	6	9	30	19.50 ± 3.58
Professional self-reflection	3	5	15	11.11 ± 1.81
Total Professional Identity Score	30	56	150	104.58 ± 15.79

**Table 4.** Correlation Between Empathy and Professional Identity of Operating Room Nurses (r-value)

	Empathy (r-value)	P value
Professional Identity	0.295	<.001
Professional Perception Evaluation	0.297	<.001
Professional social support	0.179	<.050
Professional Social Skills	0.293	<.001
Professional frustration coping	0.271	<.001
Professional Self-Reflection	0.213	<.001

**Table 5.** Hierarchical Regression Analysis of Empathy Among Operating Room Nurses

Independent variable	Regression coefficient	Standardization Regression coefficient	R <sup>2</sup>	F value	P value
<b>first tier</b>					
Constants	97.353		0.136	17.041	<.001
Education level	6.440	0.244			
Any hospitalization experience of self or immediate family members	5.632	0.239			
<b>second tier</b>					
Constants	72.581		0.201	13.534	<.001
Education level	4.449	0.169			
Any hospitalization experience of self or immediate family members	4.554	0.193			
Professional satisfaction	2.837	0.181			
Professional identification	0.170	0.272			

professional identity was positively correlated with empathy ( $r = 0.295, P < .01$ ); all five dimensions of professional identity were positively correlated with empathy (all  $P < .05$ ); see Table 4 for details.

### **Hierarchical regression analysis of empathy among operating room nurses**

Operating room nurses' empathy was set as the dependent variable, general demographic information of operating room nurses in Table 2 was set as the first-tier independent variable, and the professional identity was set as the second-tier independent variable, and then hierarchical regression analysis was performed. The results of the regression analysis showed that the general demographic information of the first tier of operating room nurses' own or immediate family's hospitalization experience or lack of such experience and education level jointly explained 13.6% of the variance in the operating room nurses' empathy. In the second tier, adding professional identity to the original general demographic information, own or immediate family's hospitalization experience or lack of such experience, education level, professional satisfaction, and professional identity jointly explained 20.1% of the variance. The explanation of the independent variables corresponding to the dependent variables improved by 6.5%, as detailed in Table 5.

## **DISCUSSION**

### **Operating room nurses have a moderate level of empathy**

The mean value of the total empathy score of the operating room nurses was  $92.47 \pm 9.89$ , which indicated a moderate level of empathy, found to be consistent with literature report<sup>8</sup> and other findings in the present study. Among the dimension scores, the highest mean score for the viewpoint selection dimension was  $58.12 \pm 6.09$ , followed by the second highest mean score for the emotional care dimension ( $25.17 \pm 6.96$ ). The lowest score of  $6.21 \pm 2.87$  was obtained for the trans-personal thinking dimension, which was consistent with the previous findings.<sup>9</sup> This shows that the lack of ability of operating room nurses to think from the patient's perspective is more common.

This study demonstrated that the empathy skills of operating room nurses were influenced by many factors such as education level, own or immediate family's hospitalization experience, professional satisfaction, and level of professional identity. This study suggests that nursing managers should develop ways and methods to conduct empathy training for operating room nurses, such as encouraging higher levels of education and enhancing their professional satisfaction; sharing their own or immediate family's hospitalization experiences with nurses and encouraging nurses to mutually share their similar experiences. Nursing managers can also enhance the level of empathy among operating room nurses through training methods such as role-playing and standardized patients combined with situational simulation.

### **Professional identity of nurses in the operating room is at a moderate level**

The mean of the total professional identity score of the operating room nurses was  $104.58 \pm 15.79$ , which implied a moderate level and was consistent with the findings of Wu Rui et al.<sup>10</sup>. The dimensions, in descending order of scores, were professional perception evaluation, professional social support, professional frustration coping, professional social skills, and professional self-reflection.

The highest professional perception evaluation scores in this study indicate that operating room nurses have a strong sense of subjective well-being, social responsibility, and have positive self-evaluation of the nursing profession. Professional self-reflection had the lowest score and deserves the attention of managers. Therefore, it is suggested that nursing managers need to pay attention to the career planning of operating room nurses, and it is recommended to promote reflective practice in nursing such as reflective diaries, typical case studies, and focus on guiding operating room nurses to develop professional emotions, professional attitudes, and values to improve their professional identity.

### **Empathy of operating room nurses was positively correlated with professional identity**

The study showed a moderate positive correlation between empathy and professional identity among operating room nurses, found to be consistent with literature report<sup>11</sup>. The results of the hierarchical regression analysis showed that professional identity was a positive predictor of empathy ( $P < .01$ ). This implies that, stronger the sense of professional identity, higher is the level of empathy. Nursing managers should nurture empathy in operating room nurses while paying attention to enhancing the level of empathy by promoting professional identity. To further explore the influencing factors that affect the level of professional identity, they should pay attention to the cultivation of the level of professional identity, and improve the level of empathy of operating room nurses while improving their professional level.

To sum up, nursing managers need to strengthen the training of empathy of operating room nurses, promote the cultivation of their professional identity, attach importance to key groups of operating room nurses, and reduce their workload. In the future, we will increase the sample size and explore a highly operational and effective intervention program, so as to improve the empathy level of nurses in the operating room. This will further deepen the high-quality nursing service in the operating room, improve the sense of access of patients to nursing service, and promote the recovery of patients.

### **DATA AVAILABILITY**

The datasets used and analyzed in the current study are available from the corresponding author upon reasonable request.

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## AUTHOR CONTRIBUTIONS

Miaoye Hu, MM and Zhengzhou Zhang, BS contributed equally to the study.

## AUTHOR DISCLOSURE STATEMENT

Miaoye Hu and Chunmei Zhang designed the study and performed the experiments, Zhengzhou Zhang, Yunxia Ou, Huihui Zhang and Xiaofeng Zheng collected the data, Yamei Wu, Shumin Wang and Fuxiao Cao analyzed the data, Miaoye Hu and Chunmei Zhang prepared the manuscript. All authors read and approved the final manuscript. The authors declared no conflict of interest.

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