

## ORIGINAL RESEARCH

# Analysis of Influencing Factors of Professional Identity of Nurses in Infection Department in the Post-Epidemic Era

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### ABSTRACT

**Objective** • The objective of this study was to understand the factors that influence the professional identity of nurses working in infectious diseases departments following the COVID-19 epidemic. Additionally, the research aims to provide a theoretical foundation for enhancing nurses' professional identity in these departments.

**Methods** • A total of 155 nurses from the infection departments of 5 hospitals in Guangdong Province were selected using a convenience sampling method. A locally designed general questionnaire, nurse occupational benefit scale, and occupational identity scale were employed for data collection. Single-factor linear analysis and multiple linear regression analysis were conducted to analyze the data.

**Results** • The average occupational identity score of nurses in the infection departments was  $105.50 \pm 18.94$ . Multiple linear regression analysis results indicated that several factors influenced professional identity, including family support, recognition from doctors, participation in integrated medical and nursing ward rounds, positive perception of professional benefits, and a sense of belonging to a team.

**Conclusion** • In the post-epidemic era, the professional identity of nurses working in the infection departments is moderately affected by various factors, particularly the perception of occupational advantages post-exposure to the epidemic. (*Altern Ther Health Med.* 2024;30(12):106-111).

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### INTRODUCTION

Since the 2019 outbreak of new crown pneumonia, most medical workers, particularly nurses in the infection department, have been working on the front lines for a long time and have contributed significantly to the victory over the new crown epidemic.<sup>1</sup> Fluctuating epidemics, with the potential for small-scale outbreaks at any time, characterize the post-epidemic era. It is expected to have profound impacts on various aspects of society. Even during this post-epidemic era, the departments of infectious diseases still need to treat many patients infected with the new coronavirus.

Nurses in the department face challenges such as their susceptibility to infection, heavy workloads, insufficient workforce allocation, and a closed and depressing working environment.<sup>2</sup> These factors have resulted in varying degrees of impact, leading to lower job satisfaction among nurses in departments of infectious diseases compared to other departments.<sup>3-5</sup>

Professional identity refers to how nurses perceive and understand the significance of their work based on their cognitive characteristics in their daily responsibilities.<sup>6</sup> A positive sense of professional identity can help improve nurses' work enthusiasm and satisfaction, promote a greater focus on patient care, better enable them to cope with work pressures, and reduce job burnout.<sup>7-10</sup> Most research in the post-epidemic era has centered around career choices and professional identity among nursing students. However, more research must be done on the professional identity of nurses working in front-line infection departments. This study aims to explore the levels of professional identity among nurses in the infection departments during the post-epidemic era and analyze the factors that influence it. The findings will provide valuable evidence for developing measures to enhance nurses' professional identity.

MATERIALS AND METHODS

Research Objects

Between April 2023 and May 2023, nurses from the infectious diseases departments were selected using the convenience sampling method in 5 hospitals in Guangdong Province, China. Study participant selection was based on specific criteria. The data for the study were collected using a questionnaire hosted on the website: <https://www.wjx.cn/>.

The inclusion criteria for research participants were: 1. possession of a valid nurse qualification certification from the People's Republic of China and an active practicing certificate, 2. experience of at least 6 months in epidemic rescue and nursing roles, and 3. clear understanding of the research's significance and voluntary participation. Exclusion criteria included nurses in advanced training or rotation, or nurses on leave for more than 12 weeks for various reasons.

Based on exploratory analysis, a sample size of at least 5 to 10 times the number of independent variables is recommended.<sup>11</sup> Considering a 10% inefficiency, this study includes 18 independent variables, requiring at least 99 to 198 for accurate results. A total of 161 questionnaires was distributed during the survey, with 155 returned and considered valid, for a return rate of 96.27%.

Research Tools

**General Information Questionnaire.** The researchers used a self-designed questionnaire to obtain 17 socio-demographic and work-related data elements.

**Nurses' Professional Identity.** The "Nurse Professional Identity Scale" compiled by Liu Ling<sup>12</sup> was employed to assess nurses' professional identity in the infection departments. This scale encompassed 5 dimensions and included 30 items. A Likert 5-level scoring method was used for evaluation. The total scores are classified into four levels: poor (30–60), low (61–90), moderate (91–120) and high (121–150). The total Cronbach's  $\alpha$  of the scale measured in this study was 0.918, and the Cronbach's  $\alpha$  values of each dimension was between 0.732 and 0.867.

**Nurses' Sense of Professional Benefit.** The "Nurses' Sense of Professional Benefit Scale" compiled by Hu Jing<sup>6</sup> was used to measure the professional sense of benefit of nurses in the infections departments, including 5 dimensions and 33 items, which were evaluated by the Likert 5-level scoring method and divided into: 5 = strongly agree, 4 = somewhat agree, 3 = not sure, 2 = strongly agree, 1 = strongly disagree. The total Cronbach's  $\alpha$  of the scale measured in this study is 0.921, and the Cronbach's  $\alpha$  values of each dimension are between 0.821 and 0.893.

Data Collection Methods

The data were collected through questionnaires. Before conducting the survey, communication took place between the hospital nursing department and the head nurse. Once consent was obtained, the head nurse distributed the questionnaire link to the group of nurses. The participants willingly completed and returned the questionnaire.

Statistical Methods

Excel software was utilized for organizing and verifying the data by 2 individuals. Data analysis was performed using SPSS22.0 and Amos 24.0. Descriptive statistics, such as mean  $\pm$  standard deviation, were used to measure data, while frequency and composition ratios were employed for count data. For normally distributed data, a *t* test was conducted to compare between 2 groups, while a one-way analysis of variance was used for comparing multiple groups. Pearson correlation analysis was used to examine correlations, and multiple linear regression was employed to identify factors influencing occupational identity. The significance level for the tests was set at  $\alpha=0.05$ .

Ethical Considerations

The investigation was conducted with the informed consent of the participants, who willingly completed the questionnaire.

RESULTS

Scores of Professional Identity of Nurses in Infection Departments

The average total score for nurses' occupational identity in the infection department was  $105.50 \pm 18.94$ , and the scores for each dimension are presented in Table 1.

Univariate Analysis of Professional Identity of Nurses in Infection Departments

The results indicated that the professional identity of nurses in the infection departments was influenced by various factors, including marital status, nurses' voluntary choice to work in the infection department, job titles, participation in integrated medical and nursing ward rounds, support from family members, and approval from doctors. These factors were found to have statistically significant effects on the nurses' professional identity in the infection department ( $P < .05$ ) (Table 2).

Correlation Analysis Between Professional Benefit and Professional Identity of Nurses in Infection Departments

According to the data presented in Table 3, the overall average score for the occupational benefits of infection nurses was  $133.77 \pm 19.20$ . The correlation coefficient (*r*) between each dimension and occupational identity ranged from 0.714 to 0.813, and the correlation was found to be statistically significant ( $P < .05$ ).

**Table 1.** Professional Identity Level of Nurses in the Infection Departments (n=155)

Item	Score ( $\bar{x} \pm s$ )
Professional identity score	105.50 $\pm$ 18.94
Professional social skills	20.33 $\pm$ 4.25
Occupational cognitive evaluation	32.55 $\pm$ 6.37
Career frustration coping	20.87 $\pm$ 3.90
Career self-reflection	10.25 $\pm$ 2.08
Occupational social support	21.50 $\pm$ 4.03

**Table 2.** Univariate Analysis of Professional Identity (PI) of Nurses in Infection Departments (n=155)

Variables	n	PI, mean ± SD	Variables	n	PI, mean ± SD
Sex			The title of a professional post		
Male	9	112.67±16.62	Nurse and below	103	103.32±19.36
Female	146	105.06±19.03	Supervisor nurse	45	106.84±18.83
t		1.171	Associate chief nurse and above	7	114.29±9.93
P value		.244	F		1.067
Age (years)			P value		.346
<25	10	104.10±19.97	Professional positions		
25~	102	104.55±19.72	Yes	57	110.33±17.61
35~	38	107.05±19.03	No	98	102.69±19.20
≥45	5	116.00±11.11	t		2.461
F		0.697	P value		.015
P value		.555	Working experience in infection department (year)		
Marital status			<5	65	104.95±18.32
Married	97	107.82±17.15	5-10	52	105.88±21.45
Unmarried	56	100.14±19.97	>10	38	106.68±20.32
Divorced	2	143.00±9.89	F		0.088
F		7.471	P value		.916
P value		0.001	Infection specialist nurse		
Educational background			Yes	10	112.30±13.67
Technical secondary school	34	108.21±23.79	No	145	105.03±19.19
Junior college	69	105.45±17.74	t		1.175
Bachelor degree or above	52	103.81±16.99	P value		.242
F		0.552	Participate in the nursing of new emergent infectious diseases		
P value		0.577	Yes	149	105.70±19.04
Nursing years (year)			No	6	100.50±16.86
<5	18	105.78±14.98	t		0.659
5-10	66	104.77±20.65	P value		.511
>10	57	105.94±20.09	Degree of family support		
F		0.260	Doesn't matter	78	100.32±16.60
P value		0.772	Oppose	11	87.27±19.55
Establishment			Support	66	100.32±16.60
Yes	82	107.73±19.87	F		19.532
No	73	103.00±17.62	P value		<.001
t		1.560	Participate in clinical teaching		
P value		0.121	Yes	97	107.32±19.45
Monthly income (yuan)			No	58	102.47±17.99
<6000	19	106.95±15.44	t		1.551
6000~10000	84	102.33±18.60	P value		.123
≥10000	52	110.10±19.91	Doctor approval		
F		2.827	Well accepted	25	123.12±16.13
P value		0.062	Approve	104	105.40±16.16
Choose the infection nurse voluntarily			Normal	26	88.96±16.96
Yes	77	114.09±16.91	F		28.008
No	78	97.03±16.97	P value		<.001
t		6.268	Integrated rounds of medical care		
P value		<0.001	Yes	135	107.98±17.37
Hospital level			No	20	88.80±20.99
Third Class A	129	105.79±19.42	t		4.480
Non-third class A	26	104.08±16.56	P value		<.001
t		0.420			
P value		.675			

**Table 3.** Correlation Analysis Between Professional Benefit and Professional Identity of Nurses in Infection Departments (n=155)

Item	( $\bar{x} \pm s$ )	R	P value
Positive job perception	27.67±4.51	0.813	<.001
Good nurse-patient relationship	25.28±3.52	0.714	<.001
Family and friends identification	23.55±4.11	0.759	<.001
Team belonging	24.27±3.54	0.791	<.001
self-growth	33.00±4.60	0.781	<.001

**Table 4.** Multiple Linear Regression Analysis of Factors Affecting Professional Identity of Nurses in Infection Departments (n=155)

Variables	Unstandardized $\beta$	Standard error	Standardized $\beta$	t	P value	95.0% CI
Constant	17.924	7.709	/	2.325	.021	2.69 ~ 33.158
Positive job perception	1.825	0.412	0.435	4.434	<.001	1.011 ~ 2.638
Doctor satisfaction	6.685	1.525	0.203	4.384	<.001	3.672 ~ 9.698
Team belonging	1.428	0.516	0.267	2.767	.006	0.408 ~ 2.448
Family support degree	-2.187	0.865	-0.111	-2.528	.013	-3.896 ~ -0.478
Integrated rounds of medical care	-5.629	2.488	-0.100	-2.263	.025	-10.544 ~ -0.713

Note: R=0.863, R<sup>2</sup>=0.744, adjusted R<sup>2</sup>=0.736, model test F=86.688, P < .001.

**Table 5.** Multiple Linear Regression Analysis Independent Variable Assignment

Item	Assign
Marital status	Married=1; Unmarried=2; Divorce=3
Choose the infection nurse voluntarily	Yes=1; No=2
Professional positions	Yes=1; No=2
Family support degree	Support=1; Oppose=2; Doesn't matter=3
Doctor satisfaction	Normal=1; Satisfied=2; Very satisfied=3
Integrated rounds of medical care	Yes=1; No=0
Good nurse-patient relationship	Measured value
Family and friends identification	Measured value
Team belonging	Measured value
Self-growth	Measured value
Positive job perception	Measured value

**Multivariate Analysis of Factors Affecting Professional Identity of Nurses in Infection Departments**

A stepwise multiple linear regression analysis was conducted to determine the occupational identity score of nurses in the infection department. The dependent variable was the total score of occupational identity, while the independent variables included those that showed statistical significance in the previous univariate and correlation analysis. The regression equation had family support, doctor recognition, medical-nursing integration, ward rounds, and professional benefits, contributing to a positive professional perception and a sense of team belonging. The final results are shown in Table 4, and the assignment of independent variables is shown in Table 5.

**DISCUSSION**

This study’s survey showed that the average occupational identity of score nurses working in the infection departments was 105.50±18.94 points, indicating a moderate level of identity. The infection department is a specialized area that deals with sudden infectious diseases, placing nurses on the frontlines of risk. The constant concern of contracting infections and the isolated working environment separate nurses from their families and social groups.

In China, the nursing profession is limited in development, resulting in a concentration of power and limited opportunities for ordinary nurses to participate in important hospital tasks, discussions, and decision-making processes. The lack of career development and promotion prospects raises doubts about the value and significance of the nursing profession, leading to increased job burnout and turnover rates.<sup>13-15</sup> This study suggests that clinical nursing managers prioritize enhancing nurses’ professional identity in the infection department and work towards improving their sense of belonging and job satisfaction.

The multiple linear regression analysis results revealed a significant impact of family support on the professional identity of nurses working in the infection department ( $P < .001$ ). Family support held great importance as a spiritual pillar, and the extent of support received by nurses directly influenced their overall physical and mental well-being.<sup>16,17</sup> Good emotional support from family members plays a crucial role in maintaining optimal working conditions for nurses.<sup>18</sup> Several studies<sup>19</sup> have highlighted that higher levels of support from family members and relatives increase

enthusiasm among nurses and foster a positive approach towards problem-solving at work. These findings emphasize the need for humanistic care and attention toward the family dynamics of nurses in clinical management. For instance, activities involving nurses and their families to strengthen their bond, enhance professional identity, and promote a sense of belonging among nurses.

The findings of this research indicate that the acknowledgment from doctors plays a positive role in shaping the professional identity of nurses in the infection departments ( $P < .001$ ). This suggests that when doctors recognize the efforts of nurses, their professional identity improves. Nurses who are in regular contact with patients (particularly those with infectious diseases) can promptly identify changes in patients’ conditions, psychological states, and reactions to medications. They collaborate with the responsible doctor to discuss suitable rehabilitation plans based on the patient’s condition.

Effective communication between doctors and nurses and their active involvement in case discussions fosters a conducive learning and working environment for the nurses. Consequently, they become more proactive in their work, resulting in an enhanced sense of professional value and a stronger professional identity. Studies conducted abroad have demonstrated that nurses desire recognition from patients and their family members and hope to obtain strong support from relatives, friends, managers, and doctors,<sup>20</sup> suggests that clinical managers can communicate and coordinate with doctors and encourage nurses more.

The results of this study’s survey indicate that the perception of professional benefits and the feeling of belonging to the team significantly impact the professional identity of nurses in the infection department. The overall effect is 0.435 and 0.267, respectively. Due to traditional beliefs, however, there is a lack of understanding about the true nature of the nursing profession.

Many people perceive nurses as having low social status and merely assist doctors. Nursing is often considered to have limited career prospects.<sup>21,22</sup> Compared with other grade hospitals, nurses in Grade A tertiary hospitals have heavier workloads and must meet high standards of nursing care quality. Working in the infection department exposes nurses to the disdain of patients and their families and the risk of sudden infectious diseases. Such pressures likely result in adverse effects on nurses and their work. If nurses in the infectious disease department can feel a stronger sense of professional benefit, they will be able to face various problems at work with a positive attitude.<sup>23</sup> According to Maslow’s theory on the hierarchy of human needs, when the basic needs of nurses are met, they may be eager to meet higher-level needs, and the realization of career self-worth is the pursuit of nurses.<sup>24</sup>

The sense of belonging to a team stems from positive perceptions and shared experiences fostered through mutual support and collaboration among the nursing staff and organization members in their daily work, studies, and



personal lives. Patients with infectious diseases are in unique circumstances. Due to the highly contagious nature of such illnesses, family members of patients may be unwilling to work with them, placing responsibility for care solely on the nurses. It is nearly impossible for nurses in infectious diseases departments to rely exclusively on their individual abilities, and they often require the assistance of multiple professionals.

To enhance the effectiveness of infectious disease departments, it is recommended that a cultural system be established within the department. This includes improving nurses' professional identity, fostering a strong team dynamic, enhancing the organizational and leadership skills of the head nurse, and cultivating an exceptional nursing team.

Managers should also prioritize the career development planning process for nurses in the infectious diseases departments. This involves providing opportunities for nurses to display their talents and advantages in coordinating their work and rest time, alleviating the pressure of night shift work, reducing turnover rates, and increasing the overall sense of career benefits. It is important to implement appropriate intervention measures to improve the perception of professional benefits among nurses in the infectious diseases department.

The findings of this research indicate a statistically significant difference ( $P < .001$ ) in the impact of the integrated ward rounds of departments, doctors, and nurses on the professional identity of infectious disease nurses. In recent years, due to the large-scale epidemic of the COVID-19, there has been a significant surge in the demand for medical services. Consequently, the burden on hospitals' treatment responsibilities has continued to mount while patients' conditions in infectious disease units remain contagious and rapidly evolving.

In the absence of effective nursing intervention, the lack of proper care can lead to a significant increase in disease progression and mortality rates. This places a greater burden on nurses in the hospital's infection department. A new nursing approach called the department-integrated medical and nursing ward round model is being implemented to address this issue. This model involves collaboration between doctors and nurses, which enhances doctors' understanding of patients' conditions, improves the efficiency and quality of patient treatment, and reduces the risks associated with nursing. This integrated approach also helps in identifying potential development risks.<sup>25</sup>

After the combined medical and nursing rounds, doctors and nurses can collaboratively understand any changes in the patient's condition. Nurses can promptly provide patient information to the doctors, enabling them to adjust the treatment plan accordingly. Nurses can actively participate in the patient's treatment plan throughout the process, enhancing their professional recognition and boosting their confidence and motivation to deliver quality nursing care. Additionally, the integrated medical and nursing rounds facilitate communication between doctors and nurses, leading to a greater appreciation for the role of nurses.

Nurses, in turn, consciously strive to improve their professional value and strengthen their professional identity.

Nursing managers are advised to consider the integrated medical-nurse ward rounds as a starting point for fostering medical-nurse cooperation. They should explore more collaboration models suitable for the unique characteristics of infectious diseases, aiming to enhance the professional identity of nurses in this field.

## CONCLUSION

This study analyzed the current state and factors that influence nurses' professional identity in the infection department. The professional identity of these nurses is rated as moderate and requires further improvement. This can be achieved by considering the psychological needs of nurses in infectious diseases through a positive psychological approach. Managers should implement measures to enhance nurses' professional identity in infectious diseases, stabilize the nursing team in the post-epidemic era, and support the development of nursing specialists in infectious diseases to respond effectively to sudden and emerging diseases.

This study has certain limitations. The survey participants were nurses from 5 medical institutions in Guangdong Province, resulting in a limited sample size that may not fully represent the situation of nurses in other infectious diseases departments. In the future, expanding the survey areas and increasing the sample size will allow for a more in-depth analysis.

## ETHICAL APPROVAL

Not applicable.

## COMPETING INTERESTS

The authors report no conflict of interest.

## AUTHOR CONTRIBUTIONS

Yanyan Zhang and Juan Hu contributed equally to this work

## AVAILABILITY OF DATA AND MATERIALS

The data supporting this study's findings are available from the corresponding author upon reasonable request.

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