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The Current Status of Work Engagement of Nurses in the Emergency Department of Tertiary Non-Public Hospitals in Jiangsu Province and Its Impact on Patient Safety Perception

Sixue Qin, Kun Zhang, Zhiyi Xie, Yanling Liu*

Phase I, Department of Emergency, Taikang Xianlin Drum Tower Hospital, Affiliated Hospital of Medical School, Nanjing University, Nanjing 210046, Jiangsu, China

**Author to whom correspondence should be addressed.*

Abstract: Objective: To investigate the current status of work engagement of emergency nurses in tertiary non-public hospitals in Jiangsu Province, analyze its influencing factors and the role of work engagement on perception of patient safety, so as to provide a basis for nursing managers to formulate strategies, stabilize the nursing team, and improve patient safety guarantee. Methods: A convenience sampling method was used to select 189 nurses from the emergency departments of six tertiary non-public hospitals in Jiangsu Province as research subjects from September 2024 to December 2024. The general information scale, Chinese version of Utrecht Work Engagement Scale (UWES), Organizational Justice Scale, and Nurse Version of Patient Safety Perception Scale were used for the questionnaire survey. SPSS 22.0 was used for data statistics, including descriptive analysis, t-test, analysis of variance, correlation analysis, and multiple linear regression analysis. Results: The UWES score of emergency nurses in tertiary non-public hospitals in Jiangsu Province was 61.71 ± 18.74, and the score of the Patient Safety Perception Scale was 82.35 ± 14.62. Work engagement was significantly positively correlated with perception of patient safety ($r = 0.412$, $P < 0.001$). Multiple linear regression showed that working years, presence or absence of children, physical condition, monthly income, frequency of night shifts, promotion requirements and organizational justice were the influencing factors of work engagement ($P < 0.05$), while the "vigor" and "absorption" dimensions of work engagement were positive predictive factors of perception of patient safety ($P < 0.05$). Conclusion: The level of work engagement of emergency nurses in tertiary non-public hospitals in Jiangsu Province is lower than that in public hospitals of the same level, and work engagement has a positive impact on perception of patient safety. Nursing managers need to optimize management strategies targeting to improve nurses' work engagement, thereby ensuring patient safety.

Keywords: Tertiary non-public hospitals; Emergency department; Nurses; Work engagement; Influencing factors; Perception of patient safety

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1. Introduction

In recent years, the government has continuously promoted the development of social medical services, and non-public hospitals have become an important part of the medical service system [1–3]. However, most non-public hospitals

have problems such as insufficient investment in discipline construction and a lack of attention to the nurse team [4]. In addition, emergency nurses have to bear negative factors such as high work pressure, public opinion, and organizational instability [5], which easily lead to insufficient work engagement and a high turnover rate. As a positive work state, work engagement includes dimensions of vigor, dedication, and absorption [6]. It not only affects nurses' professional experience, but also is directly related to nursing quality. The high-risk and unpredictable characteristics of emergency nursing work require nurses to maintain a high level of work engagement. Insufficient work engagement may reduce nursing vigilance, increase the risk of errors, and thus affect perception of patient safety [7,8]. At present, existing studies have focused on the work engagement of emergency nurses in public hospitals, but there are few studies on the work engagement of nurses in non-public hospitals, and there is a lack of analysis on its correlation with perception of patient safety [9]. This study investigates the current status of work engagement of emergency nurses in tertiary non-public hospitals in Jiangsu Province, clarifies its influencing factors, and explores the role of work engagement on perception of patient safety, so as to provide an empirical basis for non-public hospitals to optimize nursing management and improve patient safety.

2. Subjects and methods

2.1. Research subjects

A convenience sampling method was used to select 189 nurses from the emergency departments of six tertiary non-public hospitals in Jiangsu Province as research subjects from September 2024 to December 2024.

2.1.1. Inclusion criteria

Having obtained a nurse qualification certificate.

Being an on-the-job clinical nurse with at least half a year of work experience in the emergency department (including rotation).

Providing informed consent and volunteering to participate in the study.

2.1.2. Exclusion criteria

Probationary nurses, student nurses, or advanced study nurses.

Nurses who took sick leave or maternity leave for ≥ 1 month during the survey period.

2.2. Research instruments

2.2.1. General information scale

Self-designed, including nine items: age, working years, marital status, presence or absence of children, highest educational background, physical condition, monthly income, frequency of night shifts, and promotion requirements.

2.2.2. Chinese Version of Utrecht Work Engagement Scale (UWES)

It includes three dimensions (vigor, dedication, absorption) with a total of 17 items. A 7-point Likert scale is used for scoring, and a higher total score indicates a higher level of work engagement. In this study, the KMO value of the scale was 0.934, and the Cronbach's α coefficient was 0.964, showing good reliability and validity [10].

2.2.3. Organizational Justice Scale

Refer to the scale developed by Liu *et al.* [11] based on Colquitt's theory [12], which includes four dimensions (informational justice, interpersonal justice, procedural justice, distributive justice) with a total of 22 items. A 5-point Likert scale is used for scoring, and a higher total score indicates a stronger sense of organizational justice. In this study, the Cronbach's α coefficient was 0.967, showing good reliability and validity.

2.2.4. Nurse Version of Patient Safety Perception Scale

Adopting the revised version by Hao *et al.* [13], it includes three dimensions (safety climate, error reporting, safety attitude) with a total of 19 items. A 5-point Likert scale is used for scoring, and a higher total score indicates a higher level of perception of patient safety. In this study, the Cronbach's α coefficient of the scale was 0.921, and the reliability and validity met the requirements.

2.3. Data collection and statistical methods

Anonymous questionnaires were distributed through "Wenjuanxing" (a professional online questionnaire platform). An informed consent form was set on the first page of the questionnaire, and all items were set as mandatory to ensure data completeness. SPSS 26.0 was used for statistical analysis: measurement data were expressed as mean ± standard deviation (SD); *t*-test/analysis of variance was used for inter-group comparison; Pearson correlation analysis was used for variable correlation; multiple linear regression was used for analyzing influencing factors (test level $\alpha = 0.05$).

3. Results

3.1. Basic characteristics of research subjects

A total of 189 questionnaires were distributed, and 186 valid questionnaires were recovered, with an effective recovery rate of 98.41%. Detailed information is shown in **Table 1**.

3.2. Overall scores of nurses' work engagement and perception of patient safety

3.2.1. Work engagement

The total score was 61.71 ± 18.74. Among the dimensions, the score of vigor was 21.34 ± 6.66, dedication was 19.49 ± 5.71, and absorption was 20.88 ± 7.05, as shown in **Table 1**.

3.2.2. Perception of patient safety

The total score was 82.35 ± 14.62. Among the dimensions, the score of safety climate was 28.62 ± 5.89, error reporting was 18.45 ± 4.21, and safety attitude was 35.28 ± 6.52, as shown in **Table 1**.

3.3. Comparison of work engagement scores among nurses with different characteristics

Statistically significant differences were found in the total work engagement scores among nurses with different working years, presence or absence of children, highest educational background, monthly income, frequency of night shifts, and promotion requirements ($P < 0.05$). No statistically significant difference was observed in work engagement scores among nurses with different physical conditions ($P > 0.05$), as detailed in **Table 1**.

3.4. Correlation between work engagement and perception of patient safety

The total score of work engagement and its various dimensions were significantly positively correlated with the total score of perception of patient safety and its various dimensions ($r = 0.326–0.489$, $P < 0.001$), as shown in **Table 2**.

3.5. Multiple linear regression analysis of influencing factors on work engagement

Taking the total score of work engagement as the dependent variable, and incorporating variables with significant differences in univariate analysis (working years, presence or absence of children, highest educational background, monthly income, frequency of night shifts, promotion requirements) and organizational justice as independent variables (variable assignments are shown in **Table 3**), multiple linear regression analysis was conducted. The results showed that organizational justice, working years, presence or absence of children, physical condition, monthly income, frequency of night shifts, and promotion requirements were influencing factors of work engagement ($P < 0.05$), collectively explaining 36.5% of the variance ($R^2 = 0.365$, $F = 10.04$, $P < 0.01$), as detailed in **Table 4**.

Table 1. Comparison of work engagement scores among nurses with different characteristics (mean ± SD, points)

Item	Grouping	Number of cases	Total work engagement score (mean ± SD, points)	*t*/F value	*P* value
Age	< 25 years old	60	65.90 ± 22.04	3.548	0.031
	25–30 years old	67	62.18 ± 16.39		
	> 30 years old	59	56.92 ± 16.68		
Working years	< 5 years	66	68.25 ± 17.83	3.458	0.036
	5–10 years	76	61.32 ± 15.47		
	> 10 years	44	53.89 ± 14.26		
Presence or absence of children	No	91	66.52 ± 19.29	3.132	0.002
	Yes	95	57.11 ± 17.05		
Monthly income (RMB)	< 5000	51	58.20 ± 19.94	4.388	0.014
	5000–10000	70	60.36 ± 16.12		
	> 10000	65	68.04 ± 19.28		
Frequency of night shifts (times/month)	< 4	48	66.08 ± 22.01	4.644	0.011
	4–6	76	63.54 ± 18.31		
	> 6	62	56.08 ± 15.10		

Table 2. Correlation analysis between work engagement and perception of patient safety (r values)

Items	Safety climate	Error reporting	Safety attitude	Total score of perception of patient safety
Vigor	0.421***	0.385***	0.456***	0.478***
Dedication	0.326***	0.342***	0.398***	0.389***
Absorption	0.415***	0.403***	0.489***	0.467***
Total score of work engagement	0.433***	0.397***	0.472***	0.412***

Note: ***$P < 0.001$

Table 3. Assignment table of independent variables for multiple linear regression

Independent variables	Assignment criteria
Working years (years)	< 5 = 1; 5–10 = 2; > 10 = 3
Presence or absence of children	No = 1; Yes = 2
Physical condition	Good = 1; Fair = 2; Poor = 3
Monthly income (RMB)	< 5000 = 1; 5000~10000 = 2; > 10000 = 3
Frequency of night shifts (times/month)	< 4 = 1; 4–6 = 2; > 6 = 3
Promotion requirements	No papers required = 4; 1 general paper required = 3; 1 provincial paper required = 2; 1 core paper required = 1
Organizational justice	Actual score

Table 4. Multiple linear regression analysis of influencing factors on work engagement

Independent variables	Partial regression coefficient	Standard error	Standardized regression coefficient	*t* value	*P* value
Constant	89.860	9.185	-	9.783	< 0.001
Organizational justice	0.368	0.076	0.300	4.849	< 0.001
Working years	-3.705	1.536	-0.151	-2.411	0.017
Presence or absence of children	-5.304	2.482	-0.142	-2.137	0.034
Physical condition	-4.046	1.626	-0.152	-2.488	0.014
Monthly income	3.917	1.452	0.165	2.698	0.008
Frequency of night shifts	-3.893	1.503	-0.159	-2.590	0.010
Promotion requirements	-2.448	1.229	-0.129	-1.993	0.048

3.6. Regression analysis of the impact of work engagement on perception of patient safety

Taking the total score of perception of patient safety as the dependent variable and incorporating each dimension of work engagement (vigor, dedication, absorption) as independent variables, multiple linear regression analysis was conducted. The results showed that vigor (β = 0.285, $P < 0.001$) and absorption (β = 0.251, $P = 0.002$) were positive predictive factors of perception of patient safety, collectively explaining 28.3% of the variance ($R^2 = 0.283$, F = 18.65, $P < 0.01$), as detailed in **Table 5**.

Table 5. Regression analysis of the impact of work engagement on perception of patient safety

Independent variables	Partial regression coefficient	Standard error	Standardized regression coefficient	*t* value	*P* value
Constant	45.213	6.892	-	6.560	< 0.001
Vigor	0.896	0.215	0.285	4.167	< 0.001
Dedication	0.321	0.234	0.098	1.372	0.172
Absorption	0.765	0.228	0.251	3.355	0.002

4. Discussion

4.1. Current status of work engagement of emergency nurses in tertiary non-public hospitals in Jiangsu Province

The total work engagement score of emergency nurses in tertiary non-public hospitals in Jiangsu Province was 61.71 ± 18.74, which was lower than that of emergency nurses in public hospitals in China (70.28 ± 13.72) [14], indicating that the work engagement of this group needs to be improved. Among the dimensions, the score of vigor was the highest, and absorption was the lowest. This may be due to the frequent task switching in the emergency department, making it difficult to maintain long-term focus. Nurses with less working experience (< 5 years) had higher scores, which were related to strong professional freshness [15], consistent with the research conclusions of Chi *et al.* [16].

4.2. Analysis of influencing factors on nurses' work engagement

4.2.1. Organizational justice

It was the strongest positive factor (β = 0.300). If non-public hospitals have opaque performance and unfair salary distribution, it is easy to reduce nurses' sense of justice [5], thereby reducing work engagement, which is consistent with the

research of Zhao *et al.* [11].

4.2.2. Personal and work characteristics

Nurses with more than 10 years of working experience (occupational burnout), those with children (family distracts energy), and those with more than six night shifts per month (physical fatigue) had lower work engagement [15]. Nurses with a monthly income of more than 10,000 RMB had higher work engagement because salary reflects their value [17]. Excessively high promotion requirements, such as the need for core papers, distracted their energy due to the lack of scientific research resources [4].

4.3. Impact of work engagement on perception of patient safety

Nurses with a high score in the vigor dimension can reduce fatigue-related errors, and nurses with a high score in the absorption dimension pay more attention to nursing details. Both positively predict the perception of patient safety, which is consistent with the research of Drury *et al.* [18]. The dedication dimension had no significant impact, possibly because professional identity needs to be combined with practical behaviors to be transformed into safety guarantees. In addition, work engagement was positively correlated with all dimensions of perception of patient safety, indicating that improving work engagement can optimize the safety climate, willingness to report errors, and safety attitude, which is of great significance for ensuring patient safety in the emergency department [19,20].

4.4. Strategies to improve nurses' work engagement and perception of patient safety

4.4.1. Optimizing organizational justice

Publicize performance and salary rules, and adjust promotion requirements, such as replacing core papers with clinical cases.

4.4.2. Improving working conditions

Control night shifts to ≤ 6 times per month, implement flexible scheduling, and increase night shift allowances and risk subsidies.

4.4.3. Strengthening safety training

Carry out stress management and concentration training, and establish a "work engagement–safety perception" monitoring mechanism.

5. Conclusion

The work engagement of emergency nurses in tertiary non-public hospitals in Jiangsu Province is lower than that in public hospitals. Organizational justice, monthly income, and other factors are the main influencing factors, while the vigor and absorption dimensions positively promote the perception of patient safety. Nursing managers need to improve nurses' work engagement by optimizing the fairness mechanism and improving working conditions, thereby ensuring patient safety.

This study has limitations: the samples were selected by convenience sampling, and the region was limited to Jiangsu Province, so the extrapolation of the results should be cautious. Potential influencing factors, such as nurses' psychological resilience and social support, were not included. In the future, the sample size can be expanded, and variable analysis can be deepened.

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Disclosure statement

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