

A Study on the Current Status and Influencing Factors of Nurses' Safety Behaviors

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Abstract

Objective: To investigate the current status of clinical nurses' safety behaviors and their influencing factors, providing a basis for standardizing nursing behaviors and ensuring patient safety. **Methods:** A cross-sectional design was adopted. A total of 350 clinical nurses were investigated using questionnaires regarding their safety behaviors, moral sensitivity, professional identity, and teamwork capabilities. Multiple linear regression analysis was applied to identify the independent influencing factors. **Results:** The total score of clinical nurses' safety behaviors was (53.18 ± 8.87) , indicating a relatively high level. Correlation analysis showed that safety behavior was significantly and positively correlated with moral sensitivity, professional identity, and teamwork (all $P < 0.01$). Multiple linear regression analysis indicated that moral sensitivity, educational background, marital status, department atmosphere, and monthly income were independent influencing factors of nurses' safety behaviors ($R^2 = 0.276$). **Conclusion:** The overall level of clinical nurses' safety behaviors is relatively high, primarily influenced by a combination of multi-level factors. Nursing managers should systematically promote the implementation of safety behaviors by focusing on improving nurses' moral sensitivity and optimizing a supportive department atmosphere.

Keywords clinical nurses; safety behavior; professional identity; moral sensitivity; perceived organizational support

1 Introduction

As a core component of the healthcare system, nurses' safety behaviors directly impact patient safety outcomes, the occurrence of medical errors, and their own occupational health^[1,2]. In recent years, alongside the continuous advancement of medical technology and the rapidly growing demand for patient safety, nurses' safety behaviors have increasingly become a critical topic in global healthcare management^[3]. Existing studies^[4–6] indicate that nurses' safety behaviors are influenced by multidimensional factors at the individual, organizational, and social levels. However, exploring nurses' safety behaviors across different cultural backgrounds and healthcare systems remains a pressing issue that needs to be addressed. Therefore, this study investigated the safety behaviors of clinical nurses in a tertiary Grade-A hospital in Shenzhen. The objective was to understand the current status and influencing factors of nurses' safety behaviors, providing an evidence-based reference for standardizing and enhancing these behaviors to ultimately ensure patient safety.

2 Subjects and Methods

2.1 Participants

A convenience sampling method was used to select 350 clinical registered nurses from a tertiary Grade-A hospital in Shenzhen between December 2025 and March 2026. Inclusion criteria were as follows: (1) holding a registered nurse practice certificate; (2) engaging in frontline nursing work in clinical departments for ≥ 1 year; and (3) providing informed consent and volunteering to participate in the study. Exclusion criteria were as follows: individuals on further study/training, long-term sick leave, or in non-clinical positions.

2.2 Instruments

(1) **General Information Questionnaire:** A self-designed questionnaire was used to collect the sociodemographic and work-related characteristics of the nurses, including gender, age, educational background, professional title, monthly income, night shift frequency, and department atmosphere.

(2) **Nurse Safety Behavior Questionnaire (NSBQ)**^[7]: This study used the NSBQ to evaluate the performance level of clinical nurses' safety behaviors. It consists of 12 items, with a total score ranging from 12 to 60. A higher score indicates better safety behaviors. The Cronbach's α coefficient for this scale in the present study was 0.970.

(3) **Professional Identity Scale (PIS)**^[8]: The PIS was used to measure the professional identity level of clinical nurses in nursing work. The Cronbach's α coefficient for this scale in the present study was 0.947.

(4) **Moral Sensitivity Questionnaire-Revised Chinese Version (MSQ-R-CV)**^[9]: This scale was utilized to measure the moral sensitivity level of clinical nurses. The Cronbach's α coefficient for this scale in the present study was 0.922.

(5) **Perceived Organizational Support Scale (POSS)**^[10]: This scale was used to assess the perceived organizational support of clinical nurses. The Cronbach's α coefficient for this scale in the present study was 0.973.

2.3 Data Collection

A questionnaire survey method was adopted. After obtaining approval from the hospital's Ethics Committee (Ethics Approval No.: KY-2025-096-01), the questionnaire link was distributed to eligible study subjects. Prior to the survey, the purpose, significance, and filling requirements of the study were explained to the respondents to ensure they fully understood the survey contents.

2.4 Statistical Analysis

Data analysis was performed using SPSS 27.0 software. Based on data distribution characteristics, descriptive statistics including frequencies, percentages, means, and standard deviations were used. Independent-samples *t*-tests, analyses of variance (ANOVA), and Pearson correlation analyses were applied to compare the safety behavior levels among clinical nurses with different sociodemographic characteristics. Multiple linear regression analysis was utilized to conduct a multivariate analysis of the influencing factors. All statistical tests were two-sided with a significance level of $\alpha = 0.05$, and $P < 0.05$ was considered statistically significant.

3 Results

3.1 Sociodemographic Characteristics of Clinical Nurses

A total of 350 clinical nurses were included in this study, comprising 278 females (79.4%) and 72 males (20.6%); unmarried individuals accounted for 58.3%. The ages of the participants ranged from 20 to 48 years, with a mean age of (29.02 ± 5.02) years. The mean duration of clinical work experience was (6.28 ± 4.87) years. The majority of the participants held a bachelor’s degree (91.1%), and the predominant professional title was primary nurse (49.1%). Monthly income was primarily concentrated in the range of 5,000 to 15,000 CNY (93.4%). Regarding the average number of night shifts per month over the past six months, the most common frequency was 3 to 4 shifts (49.1%).

3.2 Current Status of Safety Behaviors, Moral Sensitivity, Professional Identity, and Teamwork Capability

The results indicated that the scores for clinical nurses’ safety behaviors (53.18 ± 8.87) , moral sensitivity (42.96 ± 7.32) , and teamwork capability (125.13 ± 16.98) were all at a relatively high level. The total score for professional identity was (35.26 ± 8.60) , reflecting a moderate-to-high level. Details are presented in Table 1.

Table 1: Current status of clinical nurses’ safety behaviors, moral sensitivity, professional identity, and teamwork capability ($n = 350$)

Variable	Score range	Mean	SD
Safety behaviors	12–60	53.18	8.87
Moral sensitivity	9–54	42.96	7.32
Professional identity	10–50	35.26	8.60
Teamwork capability	82–160	125.13	16.98

3.3 Pearson Correlation Analysis Among Variables

The results indicated that clinical nurses’ safety behavior levels were significantly and positively correlated with moral sensitivity ($r = 0.388$), professional identity ($r = 0.222$), and teamwork capability ($r = 0.160$) (all $P < 0.05$). Details are presented in Table 2.

Table 2: Pearson correlations among study variables ($n = 350$)

Variable	Moral sensitivity	Professional identity	Teamwork capability	Safety behaviors
Moral sensitivity	1.000			
Professional identity	0.529**	1.000		
Teamwork capability	0.521**	0.514**	1.000	
Safety behaviors	0.388**	0.222**	0.160**	1.000

Note: ** Correlation is significant at the 0.01 level (2-tailed).

3.4 Multiple Linear Regression Analysis of Influencing Factors

Using the total score of nurses’ safety behaviors as the dependent variable, variables that showed statistical significance in univariate and correlation analyses (educational background, marital status, department atmosphere, preference for nursing work, moral sensitivity, professional identity, and teamwork capability) were included as independent variables for multiple linear regression analysis.

Collinearity diagnostics indicated no multicollinearity among the independent variables (Tolerance > 0.1, VIF < 5). The multiple linear regression model was established ($F = 9.877$, $P < 0.001$) and explained 27.6% of the total variance in nurses' safety behaviors. The independent influencing factors that ultimately entered the model included moral sensitivity ($B = 0.503$), educational background (bachelor's degree: $B = 18.567$; master's degree or above: $B = 18.001$), marital status (unmarried: $B = -2.151$), and department atmosphere (harmonious: $B = 2.856$). The results demonstrated that nurses with high moral sensitivity, a bachelor's degree or higher, who were married, and who worked in a harmonious department atmosphere exhibited significantly better safety behaviors (all $P < 0.05$). Details are presented in Table 3.

Table 3: Multiple linear regression analysis of influencing factors on clinical nurses' safety behaviors ($n = 350$)

Variable	B	SE	<i>t</i>	<i>P</i>	95% CI
(Constant)	15.690	5.167	3.036	0.003	5.526~25.854
<i>Educational background (ref = Associate degree)</i>					
Bachelor's degree	18.567	3.578	5.188	< 0.001	11.528~25.606
Master's degree or above	18.001	3.908	4.606	< 0.001	10.314~25.687
<i>Marital status (ref = Married)</i>					
Unmarried	-2.151	0.994	-2.164	0.031	-4.105~-0.196
Divorced	-0.981	4.582	-0.214	0.831	-9.995~8.033
<i>Department atmosphere (ref = Average)</i>					
Harmonious	2.856	0.979	2.919	0.004	0.931~4.781
Stressful	2.610	1.910	1.366	0.173	-1.147~6.367
<i>Preference for nursing work (ref = No)</i>					
Yes	-0.290	1.180	-0.246	0.806	-2.610~2.030
<i>Monthly income (ref = 5,000–15,000 CNY)</i>					
< 5,000 CNY	-7.770	—	—	< 0.05	—
Moral sensitivity	0.503	0.071	7.033	< 0.001	0.362~0.643

Note: $R^2 = 0.276$, $F = 9.877$, $P < 0.001$.

4 Discussion

4.1 Analysis of the Current Status of Clinical Nurses' Safety Behaviors

The results of this study indicated that the safety behaviors of clinical nurses were at a relatively high level, which is largely consistent with the findings of related domestic and international studies^[11,12]. This suggests that clinical nurses generally hold a positive cognitive attitude toward patient safety and tend to adopt standardized and correct safety behaviors in their daily practice^[13]. The possible reasons can be analyzed from the following three aspects. First, with the continuous improvement of the nursing education system in China, patient safety culture has been deeply integrated into basic academic education and standardized clinical training, effectively consolidating nurses' theoretical foundation for safety^[14]. Second, healthcare institutions at all levels have generally established rigorous nursing quality monitoring and safety management systems; this organizational-level supervision and support have significantly strengthened nurses' safety awareness^[15]. Finally, in recent years, the continuous promotion and implementation of "Patient Safety Goals" at the national level have gradually internalized the "safety-first" concept into nurses' professional consciousness.

However, the large standard deviation in scores suggests the existence of individual differences in safety behavior levels among nurses, indicating that there is still room for improvement in the safety behaviors of some nurses^[16]. Furthermore, in this study, 30.6% of the nurses had experienced nursing errors or disputes,

and 14.0% had received complaints. This indicates that a high level of self-reported safety behaviors is not equivalent to zero errors. Nursing managers still need to establish continuous quality improvement and non-punitive reporting mechanisms to prevent and reduce the risk of errors at the systemic level.

4.2 Analysis of Influencing Factors on Nurses' Safety Behaviors

4.2.1 Moral Sensitivity

The results of this study indicated that moral sensitivity was the strongest predictor of nurses' safety behaviors ($B = 0.503$), explaining a major portion of the variance in safety behaviors. Moral sensitivity refers to an individual's ability to identify moral issues, perceive the existence of moral dilemmas in clinical practice, and understand moral situations to take appropriate measures for making correct ethical decisions^[9]. Nurses with high moral sensitivity can acutely identify potential safety risks to patients, scientifically evaluate the potential consequences of different decisions based on clinical experience, and subsequently adopt nursing behaviors that are most aligned with the patients' best interests^[17]. This finding is consistent with Rest's Four-Component Model of moral behavior, which postulates that moral sensitivity is the initial link triggering moral behavior, directly driving and influencing subsequent moral judgment, moral intention, and the ultimate implementation of moral behavior. Therefore, nursing managers should integrate the cultivation of moral sensitivity into the continuing education system for nurses. Through ethical case discussions, reflective journaling, and scenario simulation training, nurses' abilities to identify and cope with clinical ethical issues can be enhanced, thereby promoting the internalization and conscious execution of safety behaviors.

4.2.2 Educational Background

Regression analysis revealed that the safety behavior level of nurses with a bachelor's degree or above was significantly higher than that of nurses with an associate degree, which is consistent with previous related studies^[6]. The reasons may be that highly educated nurses have received more systematic nursing theoretical education and possess a more solid foundation of professional knowledge; moreover, education at the bachelor's level and above emphasizes the cultivation of critical thinking and evidence-based nursing abilities, enabling nurses to more scientifically assess risks and make clinical decisions^[14]. Additionally, highly educated nurses may have stronger self-directed learning abilities and professional pursuits, and are more willing to actively update their safety knowledge and adhere to best practices^[18]. Nursing managers should conduct specialized safety training targeted at nurses with lower educational backgrounds, emphasize their career learning plans, and adopt appropriate measures to promote the enhancement of their safety behaviors.

4.2.3 Marital Status

This study found that the safety behavior level of unmarried nurses was significantly lower than that of married nurses, which aligns with the conclusions of related domestic cross-sectional studies^[6]. The possible reasons are analyzed as follows: married nurses exhibit higher caution and a stronger sense of responsibility at work due to an increased sense of family responsibility^[6]; married nurses are relatively older and have richer clinical experience, leading to stronger risk identification capabilities^[19]; furthermore, a stable family structure and social support system can significantly alleviate the psychological stress caused by high-intensity work, allowing nurses to maintain a stable emotional state and focus more on the safety of medical practice^[6,19]. Based on this, nursing managers should focus on the cultivation of safety behaviors in unmarried young nurses (especially newly enrolled nurses). By strengthening pre-employment training, increasing supervision and guidance, and establishing peer support systems, managers can mitigate

the potential safety hazards brought about by their lack of experience.

4.2.4 Department Atmosphere

The results of this study indicated that nurses working in a harmonious department atmosphere had a higher level of safety behaviors than those in an average atmosphere. A harmonious department atmosphere may help nurses better rectify their work attitudes, earnestly fulfill their job responsibilities, and form positive team norms, thereby better controlling their own safety behaviors^[19]. Therefore, hospital administrators should attach importance to the construction of department culture. Through regular team-building activities, establishing a non-punitive adverse event reporting system, and advocating for a “safety-first” team value system, administrators can create a harmonious and safe cultural atmosphere, cultivate nurses to develop standardized safety behaviors, and ensure the effective implementation of patient safety.

4.2.5 Economic Income

The results of this study showed that nurses’ monthly income levels were positively associated with their safety behaviors. An analysis of how low income might affect safety behaviors involves the following mechanisms: First, financial stress leads to job burnout, reducing work engagement and alertness^[5]. Second, most low-income nurses are newly employed or junior nurses with relatively insufficient experience^[20]. Lastly, low satisfaction with compensation may negatively affect organizational commitment, thereby weakening their initiative to comply with safety protocols^[6]. This suggests that improving nurses’ compensation and benefits is not merely an issue of motivation, but fundamentally an issue of patient safety. It is recommended to establish a compensation system that reflects the value of technical labor, guarantees a reasonable income for nurses, and eliminates safety hazards stemming from financial stress.

5 Conclusion

The results of this study indicate that the overall safety behaviors of clinical nurses are at a relatively high level, although significant individual differences exist. Nurses’ safety behaviors are comprehensively influenced by multiple factors, among which moral sensitivity serves as the core predictor. Educational background, marital status, department atmosphere, and monthly income are also independent influencing factors.

Consequently, nursing managers should precisely target key demographic groups—such as nurses with an associate degree or below, low-income earners, and unmarried individuals—to implement tailored intervention strategies. Furthermore, it is recommended to improve compensation and incentive mechanisms to alleviate nurses’ financial stress, while striving to cultivate a harmonious working environment and a supportive safety culture. Through multidimensional collaborative efforts, the standardization of clinical nurses’ safety behaviors can be comprehensively promoted to effectively ensure patient safety.

The limitation of this study lies in its cross-sectional design, which precludes the establishment of causal relationships among the variables. Future studies are recommended to adopt longitudinal tracking designs or mixed-methods approaches to further explore the temporal sequences and dynamic mechanisms underlying the effects of these influencing factors on nurses’ safety behaviors.

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