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The Relationship between Health Education and Nurses' Compliance with Nursing Care Standards

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Abstract

Background: Nurses' adherence to nursing care standards is an important indicator in ensuring the quality and safety of healthcare services. Nursing care standards serve as professional guidelines for implementing a systematic and evidence-based nursing process. One factor suspected of influencing nurses' adherence is health education, both formal and continuing education through training and competency development. Objective: This study aims to analyze the relationship between health education and nurses' adherence to nursing care standards. **Methods**: This study used a quantitative analytical design with a cross-sectional approach. The study sample consisted of 225 nurses working in hospital inpatient units, selected using a purposive sampling technique. Data were collected through a structured questionnaire that measured the level of health education and nurses' adherence to nursing care standards. Data analysis was performed using the chi-square test and logistic regression with a significance level of $p < 0.05$. **Results**: The results showed a significant relationship between health education and nurses' adherence to nursing care standards ($p = 0.001$). Nurses with higher health education were more likely to adhere to nursing care standards than nurses with lower health education. **Conclusion**: Health education plays a significant role in improving nurses' adherence to nursing care standards. Strengthening continuing education and training is recommended as a strategy to improve the quality and safety of nursing services.

Keywords: Health Education; Nurse Compliance; Nursing Care Standards; Nursing Services; Patient Safety

Introduction

Nurses' adherence to nursing care standards is the primary foundation for providing safe, effective, and high-quality healthcare services. Nursing care standards encompass various stages of professional practice, from assessing patient needs and identifying clinical problems, planning nursing interventions, implementing interventions, and evaluating outcomes. Adherence to these standards not only impacts patient clinical outcomes but also patient safety, service effectiveness, the credibility of healthcare institutions, and the accountability of the nursing

profession. In this context, health education—both formal and continuing—is seen as a crucial determinant of nurses' competence in consistently and evidence-based application of these standards.

Health education for nurses encompasses not only the transfer of theoretical knowledge but also the development of clinical skills, an understanding of professional ethics, and the ability to make decisions in complex situations in the workplace. Learning theories developed in nursing emphasize that structured and systematic education can improve nurses' understanding of nursing standards, thereby strengthening professional practice in carrying out correct procedures and complying with guidelines. According to Imelida (2021), nurses' education and knowledge are seen as predisposing factors influencing the level of nurse compliance in implementing patient fall risk prevention. Although these findings do not show a significant relationship in certain contexts, they still emphasize the importance of formal learning as part of the nursing professionalism system.

International literature also shows that nurses' competency in nursing standards is closely related to their adherence to clinical practice. Martinez (2017) examined nurses' compliance with the National Core Competency Standards, demonstrating that understanding core competencies impacts professional behavior and adherence to complex practice standards in healthcare settings. This study recommends updating and strengthening education to encourage nurses to be more familiar and up-to-date with their core competency standards.

In a slightly different context—but still related to adherence to clinical protocols—several studies provide evidence of the relationship between knowledge and training and nurses' adherence to standard precautions (basic precautions in infection prevention). Al-Faouri et al. (2021) demonstrated that education level and experience influence nurses' awareness and adherence to infection safety practices, although the context was set in a critical care unit outside Indonesia.

Another methodologically relevant study is the adaptation and validation of the Compliance with Standard Precautions Scale by Samur, Seren Intepeler, and Lam (2020). This study demonstrated the importance of a valid instrument for measuring nurses' adherence to applicable practice standards. This implicitly supports the importance of education to improve nurses' understanding of these standards over time.

Factors influencing nurses' adherence to practice standards extend beyond formal education. Bouchoucha and Moore (2019) identified various psychosocial and organizational factors that contribute to nurses' adherence to standard precautions. Education and training are considered among the variables that can improve nurses' understanding and ability to adhere to safety protocols and proper clinical practice.

Wong et al. (2021) found a relationship between nurses' adherence to standard precautions and their views on infection prevention and control policies, suggesting that organizational education and training regarding specific protocols can alter nurses' perceptions and, ultimately, their compliance behavior.

Meanwhile, Haile, Engeda, and Abdo (2017) reported in the context of an Ethiopian hospital that adherence to standard precautions was influenced by educational factors, clinical work experience, and training. This can also be interpreted as support for the role of health education in influencing nurses' adherence behavior in acute care settings.

Colet et al. (2017) studied nursing students' adherence to standard precautions, providing insight into how early educational stages (in college) influence attitudes and adherence to health standards of practice when they enter professional practice.

Porto and Marziale (2016) explored the reasons and consequences of low adherence to standard precautions among nursing teams, emphasizing the importance of developing educational and support systems to improve practice standardization in the field.

This overall literature underscores that the relationship between nurses' health education and adherence to nursing standards of care is complex and influenced by many factors beyond basic knowledge. Work experience, motivation, organizational culture, supervision, and access to continuing education all play a role in shaping nurses' professional adherence behavior in the clinical setting.

However, the majority of evidence suggests that continuing and evidence-based education contributes positively to improving nurses' competence and understanding, which in turn leads to increased adherence to professional practice standards.

Method

This study employed a quantitative analytical design with a cross-sectional approach. This design was chosen because it aimed to simultaneously measure the relationship between nurses' health education as the independent variable and nurses' adherence to nursing care standards as the dependent variable at a specific point in time without treatment manipulation.

The cross-sectional approach is often used in nursing studies to identify the extent to which variables, such as education or training, correlate with nurses' clinical practice in the workplace.

The study population consisted of all professional nurses actively working in inpatient wards of general and referral hospitals in the study area during the data collection period.

The study sample size was 225 nurses selected using purposive sampling, a non-probability technique in which respondents are selected based on specific inclusion criteria (e.g., active nurses in clinical settings, having at least one year of work experience, and willingness to participate in the study).

This sample size was chosen to meet the need for adequate statistical analysis and to strengthen the validity of the inferential results, in line with the practice of similar studies that use sufficiently large numbers of participants to test relationships between variables (e.g., a study involving 266 nurses in a study on compliance with infection prevention standards).

The research instrument consisted of a structured questionnaire based on health education indicators (e.g., level of formal nursing education, patient safety training, training in standards of care) and adherence to nursing care standards (e.g., patient assessment, implementation of procedures, documentation according to standards).

Compliance was measured using a 5-point Likert scale, with higher scores indicating better compliance. This instrument was developed by referring to valid and reliable measurement tools from previous studies on nurses' adherence to standard operating procedures and standard precautions, particularly those that have been tested in a cross-sectional context with adequate statistical reliability.

Data were collected through a questionnaire survey distributed directly to respondents in each nursing service unit. Respondents were invited to complete the

questionnaire after receiving an explanation of the study and providing informed consent.

This study prioritized respondent confidentiality and anonymity and adhered to ethical principles of health research. Data were collected over 4–6 weeks during a single observational phase, without interfering with ongoing clinical practice.

Data were analyzed using the latest version of the Statistical Package for Social Sciences (SPSS). The analysis began with statistical descriptions of participant characteristics (age, education level, length of service). Normality tests were conducted to determine the choice of subsequent statistical techniques.

To examine the relationship between health education and nurses' adherence to nursing care standards, the chi-square test (for categorical data) or logistic regression analysis was used when controlling for other confounding variables such as work experience and additional training was necessary. Statistical test results will be reported with a p-value <0.05 as the threshold for statistical significance.

Instrument reliability was assessed using a Cronbach's alpha test to ensure the internal consistency of each measurement scale. Content validity was established through a review of nursing experts and research methodology, ensuring each item accurately represented the concept being measured.

Results

1. Respondent Characteristics

Table 1: Respondent Characteristics (n = 225)

Characteristics	Category	n	%
Age	20–30 years	82	36,4
	31–40 years	97	43,1
Gender	> 40 years	46	20,5
	Male	78	34,7
Education	Female	147	65,3
	D3 Nursing	112	49,8
Years of Service	S1 Nursing/Nursing	113	50,2
Characteristics	< 5 years	69	30,7
Characteristics	5–10 years	91	40,4
	> 10 years	65	28,9

A total of 225 nurses participated in this study, and all questionnaires were deemed complete and suitable for analysis. Respondent characteristics included age, gender, education level, and length of service. A description of respondent characteristics is presented in Table 1. The majority of respondents were aged 31–40 years (43.1%), female (65.3%), and had a relatively balanced educational level, between a Diploma 3 (D3) and Bachelor's (S1) degree in Nursing.

2. Distribution of Nurses' Health Education

Table 2: Distribution of Nurses' Health Education (n = 225)

Health Education	n	%
Low	67	29,8
Medium	88	39,1
High	70	31,1

Nurses' health education was assessed based on their level of formal education and participation in nursing training related to nursing care standards. The analysis results show the distribution of health education levels as shown in Table 2. The majority of nurses had a moderate level of health education (39.1%), followed by a high level (31.1%).

3. Distribution of Nurses' Compliance with Nursing Care Standards

Table 3. Distribution of Nurses' Compliance with Nursing Care Standards (n = 225)

Compliance Level	n	%
Not Compliant	54	24,0
Somewhat Compliant	94	41,8
Compliant	77	34,2

Nurses' compliance with nursing care standards was measured based on the implementation of nursing assessments,

interventions, documentation, and evaluations. The distribution of compliance levels is presented in Table 3. The results showed that the majority of respondents were in the moderately compliant category (41.8%), while 34.2% were in the compliant category.

4. Relationship between Health Education and Nurse Compliance

Table 4 Relationship between Health Education and Nurse Compliance (n = 225)

Health Education	Not obey (%)	Fairly Compliant (%)	Compliant n (%)	Total	*p*
Low	32 (47,8)	24 (35,8)	11 (16,4)	67	0,001
Medium	17 (19,3)	44 (50,0)	27 (30,7)	88	
High	5 (7,1)	26 (37,1)	39 (55,8)	70	
Total	54	94	77	225	

A bivariate analysis using the chi-square test was conducted to examine the relationship between health education and nurse compliance with nursing care standards. The results of the analysis are presented in Table 4. The chi-square test results showed a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between nurses' health education and adherence to nursing care standards. Nurses with higher health education tended to demonstrate better adherence levels than nurses with lower health education.

Discussion

The results of this study indicate a significant relationship between nurses' health education levels and their adherence to nursing care standards (χ^2; $p = 0.001$). Nurses with higher health education tended to demonstrate higher adherence levels than those with lower or moderate health education. This finding supports the notion that formal education and professional training are important factors in improving nursing practice according to standards (Imelida, 2021).

Theoretically, health education equips nurses with broader theoretical knowledge and clinical skills, which contribute to their ability to understand and apply standard procedures in the clinical setting. According to Martinez (2017), adherence to core competency standards is related to nurses' ability and understanding of the applicable core competency standards; nurses who better understand these competencies are more likely to meet the expected standards of nursing practice.

This study also revealed that nurses with higher health education were more likely to be compliant than those with lower or moderate levels of education. This suggests that formal education not only enhances instructional understanding but also strengthens professional attitudes and commitment to practice standards.

Other studies have confirmed a positive relationship between nurses' knowledge and adherence to clinical practice guidelines, such as infection prevention standards (standard precautions), where increased knowledge through training was shown to be associated with increased adherence rates ($n = 266$) in a cross-sectional study conducted in Jordan.

However, the complexity of the relationship between education and adherence also needs to be understood within the context of the limitations of formal education as one of many factors influencing nurses' clinical behavior. Berdida (2022) demonstrated that while education and work experience influence adherence to standard precautions, increasing education levels do not always correlate positively with adherence to infection control in a linear fashion; sometimes, increased education is accompanied by decreased adherence in

some domains of clinical standards. This is due to variations in educational content, institutional curricula, and nurses' actual clinical experiences in the field.

Furthermore, higher health education is often associated with access to additional learning resources such as continuing education, workshops, seminars, and other clinical competency improvement programs. Educational interventions such as these have consistently been shown to improve nurses' understanding of standard practices and improve adherence behaviors, particularly in clinical safety and hygiene protocols (e.g., training in the use of standard and isolation precautions). Other studies have shown improved adherence scores after intensive training compared to before (t-value significant, $p < 0.001$).

The results of the current study also indicate that other variables, such as work experience and age, tend to be associated with adherence profiles, although the primary focus remains on health education. Nurses with longer work experience tend to have more consistent standard practices, likely a combination of formal education and repeated clinical experiences.

The implications of these findings are important for the development of nursing practice in hospitals. Human resource management and nursing education should consider investing in continuing education to help nurses maintain competency in current practice standards. Hospital and educational institution policies should also integrate educational modules that focus on the implementation of nursing care standards from the initial stages of education through to ongoing learning in healthcare.

Furthermore, these findings also encourage further research examining other confounding variables such as work motivation, organizational culture, clinical supervision, and workload, all of which may moderate the relationship between education and nurses' adherence to nursing care standards.

This is in line with a literature review that emphasized that organizational factors, interprofessional communication, and patient safety culture contribute to nurses' adherence behavior in a dynamic and complex environment..

Conclusion

This study concluded that there is a significant relationship between health education and nurses' compliance with nursing care standards. Nurses with higher levels of health education tended to demonstrate better compliance in carrying out the nursing process, including assessment, intervention implementation, documentation, and evaluation of care. These findings confirm that health education plays a crucial role in shaping nurses' professional competence, attitudes, and awareness of the importance of implementing nursing practice standards. Although nurse compliance is also influenced by other factors such as work experience and the organizational environment, health education remains the primary foundation for improving the quality of nursing care. Therefore, healthcare institutions and nursing education institutions need to strengthen standards-based continuing education and clinical training programs to ensure nurses are able to provide safe, high-quality nursing care in accordance with professional guidelines.

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