

Health Education Competency Of Nurses For Inpatients In Vietnam And Associated Factors

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Abstract

Objectives: Health education is a critical responsibility of nurses, directly impacting patient outcomes and health promotion. However, data on nurses' competencies in delivering HE in Vietnam remain limited. This study aimed to assess the self-perceived health education competency of clinical nurses for inpatients at a central hospital in Vietnam and to analyze associated individual and organizational factors.

Methods: A cross-sectional analytical study was conducted from June 2022 to November 2023 at the 108 Military Central Hospital, Vietnam. A total of 421 clinical nurses participated using total population sampling. Data were collected through a validated 45-item self-assessment questionnaire measuring three domains: knowledge, skills, and attitude. Competency levels were classified according to Bloom's cut-off criteria. Data were analyzed using descriptive statistics and independent-sample t-tests.

Results: Among the 421 nurses surveyed, 65.5% self-assessed their HE competency as good, with an overall mean score of 182.65 out of 225. The attitude domain achieved the highest proportional mean score, followed by knowledge and skills. Strong performance was observed in patient self-care guidance and communication skills, while competencies related to cultural understanding and educational technology use were relatively lower. No significant differences in competency were found based on gender, age, years of service, or educational level ($p > 0.05$). However, nurses with access to organizational support factors - such as dedicated HE rooms, educational materials, supervision, and training - had significantly higher competency scores ($p < 0.05$).

Conclusions: The majority of nurses demonstrated good self-perceived competency in health education. Institutional support, rather than demographic characteristics, played a key role in enhancing competency levels. Healthcare institutions should prioritize investments in digital literacy training, cultural competence development, and ongoing professional education to further improve nurses' HE capabilities and patient care quality.

Keywords: Health education, nursing competency, inpatient care, organizational factors, Vietnam

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I. Introduction

Health education (HE) is a fundamental and indispensable component of nursing practice. Through health education, nurses equip patients and their families with essential knowledge and skills to actively participate in disease prevention, treatment adherence, complication management, and overall health promotion [11]. The effectiveness of health education activities largely depends on the competence of nurses, encompassing their knowledge, skills, and attitudes toward patient education.

The assessment of nurses' competence in health education is critical, especially in hospital settings where patients' needs for health-related knowledge are high. Strengthening nurses' health education capacity not only improves patient outcomes but also contributes to the quality of healthcare services overall. However, in Vietnam, studies specifically focusing on the evaluation of nurses' health education competence remain limited. Most available research considers health education as a minor aspect within the broader assessment of nursing competencies.

In a cross-sectional study conducted by Pueyo-Garrigues et al. (2022) involving 458 clinical nurses across two specialized healthcare centers in Spain, nurses self-assessed their competence using a validated instrument covering knowledge, skills, and attitudes. The mean scores were $70.10 \pm 15.11/115$ points for knowledge, $92.14 \pm 15.18/130$ points for skills, and $32.32 \pm 5.89/45$ points for attitudes. The major barriers identified for effective health education delivery included insufficient training, lack of time, and excessive workload [9].

Similarly, a study by Tran Quang Huy (2020) evaluating the competencies of 143 clinical nurses in Vietnam reported that only 46.9% of participants self-assessed as meeting the requirements for the criterion

"Identifying patient needs and organizing health education." Health education competence was one of the criteria with the lowest achievement rates among clinical practice domains [3].

Given these findings and the current demands of the healthcare system, particularly amidst the rise of non-communicable diseases and an aging population, it is necessary to comprehensively assess and enhance nurses' competence in health education. In response to this need, we conducted the present study with the objective to assess the health education competence of nurses for hospitalized patients at the 108 Military Central Hospital and to analyze the associated factors.

II. Materials And Methods

This cross-sectional analytical study was conducted from June 2022 to November 2023 at the 108 Military Central Hospital, Vietnam, involving 40 clinical departments. The target population included clinical nurses directly involved in patient care during the study period. Eligible participants were nurses who agreed to take part in the study and were actively providing inpatient care at the hospital at the time of data collection. Nurses working in intensive care units, emergency departments, or those absent during the study period were excluded.

The sample size was determined using a standard formula for estimating a single proportion with a 95% confidence level ($Z = 1.96$) and a margin of error (d) of 5%. Given the lack of prior studies using a similar assessment tool, the proportion (p) was referenced from a study by Tran Quang Huy [3], which reported that 46.9% of nurses self-assessed as meeting the criterion for "identifying patient needs and organizing health education." The calculated sample size was 421 participants, and total population sampling was applied, resulting in 421 nurses recruited.

$$n = Z^2_{\alpha/2} \frac{p \times (1-p)}{d^2}$$

Data were collected using a validated and reliable self-assessment questionnaire measuring health education competence [1,2]. The questionnaire comprised two sections: demographic characteristics and a 45-item self-assessment of health education competence, covering three domains: knowledge (15 items), skills (22 items), and attitude (8 items). Responses were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Scoring was based on total points ranging from 45 to 225. The knowledge domain ranged from 15 to 75 points, the skills domain from 22 to 110 points, and the attitude domain from 8 to 40 points. Competence was classified according to Bloom's cut-off criteria, with scores $\geq 80\%$ (180–225 points) categorized as good, 60–79.9% (132–179 points) as average, and $< 60\%$ (45–131 points) as poor [8,10].

The study protocol was approved by the Ethics Committee of Nam Dinh University of Nursing and received institutional permission from the 108 Military Central Hospital.

Data collection was performed at clinical departments, where investigators explained the study purpose and procedures to participants. Nurses completed the survey independently within approximately 30 minutes during scheduled departmental meetings. After collection, data were cleaned, coded, and analyzed using SPSS version 18.5. Descriptive statistics were applied to analyze the data. Associations between competence scores and individual or organizational factors were analyzed using independent-sample t-tests, assuming normal distribution of continuous variables.

III. Results

Characteristics of the participants and nurses' health education activities

Table 1: Characteristics of the participants (N = 421)

	Characteristics	N	%
Gender	Male	78	18.5
	Female	343	81.5
Age Mean: 35.6 \pm 7.7 Min: 23 Max: 53	18–25	39	9.3
	26–35	176	41.8
	36–45	150	35.6
	46–55	56	13.3
	Postgraduate	23	5.5
Educational Level	Bachelor's degree	211	50.1
	College diploma	151	35.9
	Intermediate diploma	36	8.6
Years of Service	5 years or less	96	22.8
	More than 5 years	325	77.2

Among the 421 nurses surveyed, the majority were female (81.5%) with an average age of 35.6 \pm 7.7 years, ranging from 23 to 53 years; most were between 26 and 45 years old (77.4%). In terms of educational

level, 50.1% held a bachelor's degree, 35.9% had a college diploma, and 5.5% had a postgraduate degree. Regarding years of service, 77.2% of participants had more than five years of working experience.

Table 2: Nurses' health education activities (N=421)

Characteristics		N	Tỷ lệ %
Availability of health education (HE) room with adequate space and lighting	Fully available	363	86.2
	Partially available	32	7.6
	Not available	26	6.2
Availability of health education (HE) materials at the unit	Fully available	340	80.7
	Partially available	79	18.8
	Not available	2	0.5
Availability of equipment supporting health education	Fully available	303	72.0
	Partially available	114	27.1
	Not available	4	0.9
Supervision of health education activities	Frequently	387	91.9
	Rarely	34	8.1
Mechanism for incentives/rewards/penalties related to health education activities	Fully available	293	69.6
	Partially available	105	24.9
	Not available	23	5.5
Human resources for implementing health education at the unit	Fully available	300	71.3
	Partially available	121	28.7
Criteria for implementing health education procedures	Fully available	297	70.5
	Partially available	120	28.5
	Not available	4	1.0
Training on health education within the past two years	Yes	307	72.9
	No	114	27.1

Most nurses reported that health education (HE) rooms with adequate space and lighting were fully available (86.2%), and 80.7% confirmed the full availability of HE materials at their units. Regarding equipment, 72.0% indicated that supporting devices for HE were fully available. Supervision of HE activities was frequent in 91.9% of cases, and mechanisms for incentives, rewards, or penalties related to HE activities were fully available according to 69.6% of respondents. In addition, 72.9% of nurses had received training on health education within the past two years.

Self-assessment among nurses on health education competency

Figure 1 - Health education competency classification

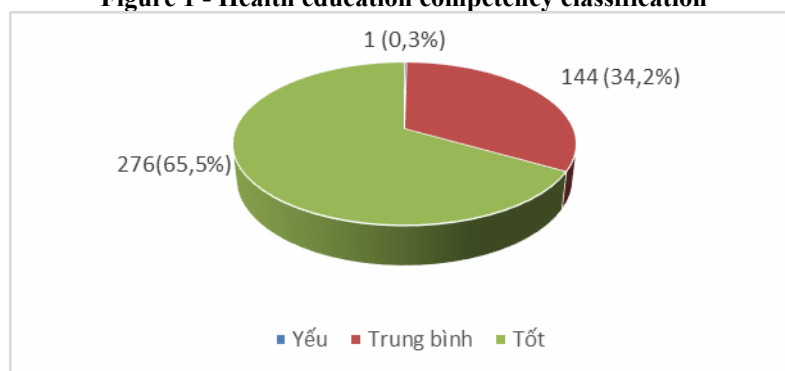


Figure 1 shows that among 421 nurses participating in the study, 65.5% self-assessed their health education competency as good, 34.2% as average, and 0.3% as poor. Thus, it can be observed that the majority of participants achieved above-average competency levels.

Table 3 - Nurses' self-assessment of health education competency (N=421)

Category	Total score	Mean	SD
Overall competency in knowledge, attitude, and skills	225	182.65	14.26
Knowledge domain competency	75	60.7	5.31
Skills domain competency	110	88.72	7.25
Attitude domain competency	40	33.24	2.8

The self-assessment results of 421 nurses indicated an overall mean competency score of 182.65 out of 225 points. Among the three domains, the highest proportional score was observed in the attitude domain (33.24/40), followed by knowledge (60.70/75) and skills (88.72/110).

Table 4 - Nurses' self-assessment in the knowledge domain (N=421)

Category	Mean	SD
1. Explain the concept of health.	4.03	0.53
2. Explain lifestyle and habit impacts on health.	4.07	0.57
3. Explain environmental impacts on health.	4.07	0.52
4. Understand culture, society, customs, and beliefs.	3.9	0.55
5. Explain steps in the health education process.	3.97	0.51
6. Explain use of health education tools.	3.94	0.54
7. Explain organization of health education activities.	3.9	0.54
8. Explain nurses' roles in health education.	4.07	0.42
9. Explain patients' and families' roles in health education.	4.06	0.42
10. Instruct patients on self-care during treatment.	4.19	0.39
11. Instruct patients on medication use.	4.14	0.38
12. Instruct patients on cooperating during procedures.	4.15	0.4
13. Instruct patients on disease prevention.	4.1	0.4
14. Instruct patients on diet for medical conditions.	4.11	0.39
15. Instruct patients on hospital policies and regulations.	4.12	0.47

Table 4 presents the self-assessment results of nurses regarding their knowledge in health education across 15 categories. The highest mean scores were observed in instructing patients on self-care during treatment (Mean = 4.19, SD = 0.39), medication use (Mean = 4.14, SD = 0.38), and cooperation during procedures (Mean = 4.15, SD = 0.40). The areas with relatively lower scores included understanding culture, society, customs, and beliefs (Mean = 3.90, SD = 0.55), and explaining the organization of health education activities (Mean = 3.90, SD = 0.54). The mean scores in all knowledge domains were high, reflecting a good level of knowledge among the participating nurses.

Table 5 - Nurses' self-assessment in the skill domain (N=421)

Category	Mean	SD
1. Identify patients' health-related habits and lifestyles.	4.01	0.46
2. Explore patients' prior knowledge and experiences.	3.95	0.5
3. Assess patients' health education needs.	4.04	0.45
4. Prioritize patients' health education issues.	4.06	0.43
5. Determine settings and resources for education.	4.03	0.43
6. Develop tailored health education plans.	4.03	0.44
7. Create suitable educational materials.	3.96	0.51
8. Use patient-centered teaching methods.	4.00	0.46
9. Communicate clearly with patients and families.	4.06	0.39
10. Maintain appropriate behavior during education.	4.07	0.38
11. Use visual aids effectively.	3.92	0.59
12. Use computers and projectors proficiently.	3.92	0.57
13. Apply verified social media information in education.	3.99	0.51
14. Assess patients' learning outcomes.	4.04	0.41
15. Adjust educational content as needed.	4.04	0.40
16. Identify and address communication barriers.	4.06	0.37
17. Speak clearly and understandably.	4.11	0.36
18. Listen actively to patients and families.	4.14	0.36
19. Observe patient and family attitudes.	4.10	0.36
20. Adapt communication styles to individuals.	4.11	0.35
21. Collaborate effectively with colleagues.	4.13	0.36
22. Manage education groups effectively.	3.97	0.47

Table 5 presents nurses' self-assessment scores in the skill domain related to health education. The mean scores ranged from 3.92 to 4.14, indicating a generally good level of self-perceived skills among participants. The highest-rated skills were "Listening actively to patients and families" (Mean = 4.14) and "Speaking clearly and understandably" (Mean = 4.11). Meanwhile, the lowest-rated skills were "Using visual aids effectively" (Mean = 3.92) and "Using computers and projectors proficiently" (Mean = 3.92), suggesting areas that may require further training and support.

Table 6 - Nurses' self-assessment in the attitude domain (N=421)

Category	Mean	SD
HE is an important duty of nurses.	4.18	0.43
Nurses should be active and proactive in HE.	4.16	0.40
HE is integrated into patient care.	4.15	0.40

Patients and families have the right to receive HE.	4.14	0.38
Nurses should respond positively to patient/family feedback.	4.13	0.38
Nurses should show empathy during HE.	4.15	0.39
Collaboration with colleagues and patients is crucial in HE.	4.16	0.41
Nurses should motivate patients and families to change behaviors.	4.15	0.40

Table 6 presents the nurses' self-assessment regarding their attitudes toward health education (HE). The results show that nurses strongly recognize HE as an important duty (mean = 4.18, SD = 0.43) and believe they should be active and proactive in performing HE activities (mean = 4.16, SD = 0.40). Collaboration with colleagues and patients is also highly valued (mean = 4.16, SD = 0.41), along with consistent integration of HE into patient care (mean = 4.15, SD = 0.40). Overall, nurses demonstrate a positive attitude toward HE, including respecting patients' rights, responding to feedback, showing empathy, and encouraging behavior change.

Association between factors and nurse's health education competency

Table 7 - Association between Nurses' Characteristics and Competency

Characteristics	N	Mean	SD	t	p
Gender					
Male	78	180.9	13.7	0.22	0.64
Female	343	183.1	14.4		
Years of Service					
≤ 5 years	96	182.4	14.8	1.79	0.95
> 5 years	325	182.7	14.1		
Age					
18–35 years	212	182.3	13.6	0.56	0.53
> 35 years	209	183.1	15.0		
Educational Level					
Bachelor's and Postgraduate	234	182.8	14.7	0.29	0.76
College and Intermediate	187	182.4	13.7		

*T-Test, *p ≤ 0,05,*

There was no statistically significant difference in the overall competency scores between male and female nurses ($p = 0.64$). Similarly, years of service, age group, and educational level were not significantly associated with differences in competency scores ($p > 0.05$ for all comparisons).

Table 8: Association between organizational factors and competency (n=421)

Characteristics	N	Mean	SD	t	p
Health education room	Fully available	363	183.5	1	0.05
	Partially available /Not available	58	177.4		
Health education materials	Fully available	340	184.3	5.05	0.000
	Partially available/Not available	81	175.7		
Health education support equipment	Fully available	303	184.5	4.29	0.000
	Partially available/Not available	118	178		
Supervision of health education activities	Regularly	387	183.3	3.57	0.001
	Rarely	34	175.1		
Incentive and penalty mechanisms	Fully available	293	184.5	4.09	0.000
	Partially available/Not available	128	178.4		
Human resources for health education	Fully available	300	184.9	5.18	.000
	Partially available/Not available	121	177.2		
Health education procedures	Fully available	297	184.7	4.49	0.000
	Partially available/Not available	120	177.8		
Health education training	Yes	307	183.7	2.56	0.01

	No	114	179.8	11.5		
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*T-Test, *p ≤ 0,05,*

Table 8 shows that nurses who reported fully available organizational factors (such as health education rooms, materials, and support equipment) had significantly higher competency scores compared to those with partial or no availability ($p < 0.05$). Regular supervision, presence of incentive and penalty mechanisms, adequate human resources, established health education procedures, and recent training were all associated with higher competency scores.

IV. Discussion

Characteristics of the participants and nurses' health education activities

Among the 421 nurses surveyed, the majority were female (81.5%) with an average age of 35.6 ± 7.7 years. Most nurses (77.2%) had more than five years of experience, and 50.1% held a bachelor's degree. Organizational factors supporting health education were relatively strong, with 86.2% reporting fully available HE rooms, 80.7% having HE materials, and 72.9% having received HE training within the past two years.

Our findings regarding the availability of organizational resources for health education are consistent with the study by Shibiru et al. [12], who reported that sufficient institutional support was critical for enhancing nurses' clinical competencies. Similarly, Dong et al. [15] demonstrated that structured online training programs significantly improved health education competency among nursing students. This finding aligns with Weiss et al. [17], who showed that combining simulation and online learning approaches enhanced discharge teaching skills among nurses.

Furthermore, Pueyo-Garrigues [22] highlighted that personal factors (knowledge, skills, attitudes) and institutional factors (training opportunities, available resources) jointly determined the quality of nurses' health education practices. The current study's high levels of HE supervision (91.9%) and training (72.9%) are comparable to the interventions described by Basak et al. [13] and Dorri et al. [16], where simulation-based and role-playing educational methods successfully enhanced nurses' patient education capabilities. In addition, the observed emphasis on patient-centered health education is similar to the approach promoted by Blazeck and Kaye [14], who found that interactive video-based teaching significantly improved nursing students' discharge education skills.

The relatively high health education competency scores among nurses in this study can be attributed to several organizational supports, including available health education resources, regular supervision, and recent training. These findings suggest that structured organizational investments in training and supervision positively impact nurse competencies. However, minor gaps persist in the availability of materials and support equipment across some clinical units. Hospitals should continue to strengthen resource allocation, implement continuous education models such as blended learning, and promote collaboration with external partners for training support. Enhancing practical skills through simulation and reinforcing patient-centered communication strategies are also key to optimizing nurses' health education capabilities.

Self-assessment among nurses on health education competency

Among the 421 nurses surveyed, 65.5% self-assessed their health education competency as good, with an overall mean score of 182.65/225. The attitude domain achieved the highest proportional mean score, followed by knowledge and skills. Knowledge levels were generally strong, especially in patient self-care guidance, while understanding of cultural and social factors scored lower. Skills related to communication were highly rated, but the use of educational technologies like visual aids and projectors received lower scores.

The overall health education competency observed in this study is consistent with findings by Shibiru et al. [12] and Pueyo-Garrigues [22], who also reported that a majority of nurses demonstrate moderate to good self-perceived competency levels. Similar to our study, Pueyo-Garrigues highlighted that organizational factors and professional experience contributed significantly to competency scores. In addition, Dong et al. [15] confirmed that structured training interventions could enhance nurses' general competency in health education, emphasizing the importance of continuous professional development.

Regarding the knowledge domain, our findings showed high mean scores, particularly in instructing patients on self-care, medication use, and procedure cooperation. These results align with the study by Ekong et al. [18], where nurses who received targeted educational interventions demonstrated improved knowledge in patient education. Similarly, research by Kao et al. [19] emphasized that tailored educational programs could significantly enhance nurses' ability to convey technical health information. Nevertheless, consistent with Lewis et al. [20], our study also points out that aspects related to cultural, societal, and belief-related knowledge remain areas needing further emphasis in training curricula.

In terms of attitude, our study recorded high scores, reflecting a positive perception of the importance of health education among nurses. This finding corroborates with Basak et al. [13] and Blazeck and Kaye [14], who showed that educational interventions emphasizing the professional responsibility of patient teaching led to a more proactive attitude among nursing students. Furthermore, the recognition of patients' rights to education and the emphasis on empathy and motivation during health education, as observed in our study, are consistent with best practices outlined by Dorri et al. [16] and Sy [23].

Regarding practical skills, the findings indicated good self-assessed competency in communication-related aspects, such as active listening and clear explanation, which is similar to the results from Weiss et al. [17] and Dong et al. [15]. These studies emphasized that blended learning and simulation training significantly improved communication competencies. However, consistent with previous reports by Pueyo-Garrigues [22] and Basak et al. [13], skills involving technological aids, such as using visual materials and digital tools, were comparatively weaker, suggesting an area for targeted training interventions.

The relatively high competency levels observed can be attributed to the institutional support mechanisms available at the study setting, such as dedicated health education rooms, comprehensive materials, and regular supervision, alongside continuous education efforts. These supportive factors have been recognized as key determinants of professional competency in previous studies. Nevertheless, the lower scores in utilizing technological tools suggest a gap in digital literacy training. Therefore, it is recommended to incorporate targeted workshops on the effective use of educational technology into staff development programs. Additionally, enhancing the cultural competence component of health education and promoting blended learning models will further strengthen nurses' overall competencies in patient education.

Association between factors and nurse's health education competency

There was no statistically significant difference in overall competency scores based on gender, years of service, age group, or educational level. However, the availability of organizational factors, including health education resources, support equipment, supervision, incentive mechanisms, and recent training, was significantly associated with higher competency scores. These findings highlight the critical role of institutional support in enhancing nurses' health education competencies.

The lack of statistically significant differences in competency scores based on gender, age, years of service, or educational background is consistent with the findings of Shibiru et al. [12] and Pueyo-Garrigues [22]. Both studies indicated that while individual characteristics influence certain professional behaviors, they are not strong predictors of overall health education competency. Similarly, Dong et al. [15] suggested that competency is more affected by environmental and training factors than by demographic attributes.

The strong association between the availability of organizational resources (such as health education rooms, materials, and supervision) and higher competency scores aligns closely with prior findings by Weiss et al. [17] and Ekong et al. [18]. These studies emphasized that organizational infrastructure and consistent institutional support significantly enhance nurses' ability to deliver effective health education. Moreover, Kao et al. [19] also reported that well-structured organizational environments improve both knowledge transfer and communication with patients.

The significant impact of recent training on competency levels observed in this study is supported by previous research conducted by Basak et al. [13] and Dorri et al. [16], where simulation-based and role-playing educational interventions notably enhanced nurses' patient education skills. Dong et al. [15] further confirmed that continuous education programs, especially those incorporating digital learning modalities, directly correlate with improvements in health education competencies among nurses and nursing students.

The observed findings suggest that institutional support mechanisms - rather than personal factors - are primary drivers of health education competency among nurses. The availability of dedicated rooms, educational materials, supervision, incentive systems, and regular training creates an environment conducive to professional development. To further enhance competency levels, it is recommended that healthcare institutions prioritize infrastructure investment, regular supervision, reward mechanisms, and continuous professional development programs focusing on practical skills and educational technologies. Strengthening these organizational factors will sustain and improve nurses' health education performance, ultimately benefiting patient outcomes.

V. Conclusion

This study highlights that the majority of nurses demonstrated good self-assessed competency in health education, particularly in communication and patient guidance, while identifying areas for improvement in cultural understanding and the use of educational technologies. Institutional factors such as the availability of educational resources, supervision, and ongoing training were found to be significantly associated with higher competency levels, whereas demographic characteristics showed no significant impact. These findings emphasize the critical role of organizational support in strengthening nurses' capacities to deliver effective health education. To further enhance competency, healthcare institutions should invest in digital literacy

training, cultural competence development, and sustainable professional development programs, ensuring improved patient outcomes and advancing the quality of healthcare education in Vietnam.

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