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PHYSICAL ASSESSMENT SKILLS IN CLINICAL SETTINGS AMONG NURSING STUDENTS AT CAN THO UNIVERSITY OF MEDICINE AND PHARMACY

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ABSTRACT

Background: *Physical assessment is a systematic evaluation of a patient's physiological status and represents a fundamental component of the nursing process that underpins accurate clinical judgment and care planning. Adequate physical assessment skills among nursing students are essential for early detection of patient deterioration, effective clinical decision-making, and the delivery of safe, high-quality nursing care.* ***Objectives:*** *To assess the level of physical assessment skill application among nursing students during clinical practice at Can Tho University of Medicine and Pharmacy, and to examine the associated factors with this level of practice.* ***Materials and methods:*** *A cross-sectional descriptive study was conducted on 113 third and fourth-year nursing students at Can Tho University of Medicine and Pharmacy. A 30-question questionnaire was used to survey the students' application of physical assessment skills in clinical practice. The collected data were analyzed using Jamovi software.* ***Results:*** *A total of 41.6% nursing students demonstrated physical assessment skills practice always or frequently, and 47.8% practiced occasionally or rarely. However, only 13 skills were performed always or frequently, 16 skills were performed occasionally or rarely, and one skill was not performed. There is an association between the year of academic performance and the frequency of performing physical assessment skills during clinical practice ($p<0.001$).* ***Conclusion:*** *Nursing students predominantly performed physical assessment skills at an occasional or rare level, with limited skills practiced consistently. The findings suggest that improved educational strategies are required to enhance nursing students' application of physical assessment skills.*

Keywords: *physical assessment skills, physical examination, nursing students, nurse.*

I. INTRODUCTION

Physical assessment is a systematic process of evaluating a patient's physiological status to obtain accurate data for nursing diagnosis and care planning. It is the first and foundational step in the nursing process, determining the quality of subsequent phases, including diagnosis, planning, implementation, and evaluation [1]. Physical assessment allows nurses to evaluate a patient's present health and identify initial signs of change. Information obtained from a comprehensive head-to-toe examination provides an important foundation for identifying subtle changes in a patient's clinical condition [2]. Low levels of physical assessment skill application among nursing students may delay clinical decision-making and increase the risk of adverse patient outcomes, thereby compromising patient safety and quality of care [3]. Inadequate use of physical assessment skills also limits the development of clinical reasoning and confidence, which are essential for effective nursing practice and timely intervention in complex clinical situations [3]. Therefore, undergraduate

nursing education has the responsibility to equip students with essential skills that support evidence-based clinical practice.

This study aimed to assess the level of physical assessment skill application among nursing students during clinical practice at Can Tho University of Medicine and Pharmacy and to examine the associated factors with this level of practice. The findings are expected to inform strategies to enhance clinical practice competence among nursing students.

II. MATERIALS AND METHODS

2.1. Participants

Nursing students at Can Tho University of Medicine and Pharmacy were recruited during the research period from December 2024 to June 2025.

- Inclusion criteria: 3rd–year and 4th–year nursing students at Can Tho University of Medicine and Pharmacy who had already experienced their clinical modules at the time of data collection and who provided informed consent to participate.

- Exclusion criteria: Students who were absent during the data collection period. Students who have not yet taken the theory or clinical practicum of the Fundamental Nursing II course.

2.2. Methods

- Research design: A cross-sectional descriptive study was applied.

- Sample size: A total sampling approach was employed. All 122 eligible students were invited to participate, and 113 completed questionnaires were returned, yielding a response rate of 92.6%.

- Data collection: After obtaining ethical approval, students who met the inclusion criteria were provided with detailed information about the study objectives and invited to participate. Participants completed a self-administered questionnaire.

- Instrument: The Physical Assessment Skills Scale, originally developed by Giddens with 126 items, was later adapted by Giancarlo Cicolini with 30 items routinely taught and performed, demonstrating a Cronbach's alpha of 0.94. The scale was translated into Vietnamese by Nguyen Thi Hong Hanh, yielding a Cronbach's alpha of 0.74. It consists of 30 items assessing fundamental physical assessment skills performed by nursing students. Responses are rated on a 6-point Likert scale, where 0 indicates "Do not know how to perform," 1 indicates "Know how to perform but have never done it during clinical placement," 2 indicates "Rarely perform - only a few times across all placements," 3 indicates "Occasionally perform - a few times during each placement," 4 indicates "Frequently perform - almost every time I am in clinical practice," and 5 indicates "Always perform - every time I am in clinical practice". The level of performance of physical examination skill by nursing students during clinical practice is classified based on the average score: always or frequently (>3 points), occasionally or rarely (2–3 points), and never performed or not known (<2 points) [4, 5, 6].

- Data analysis: Data were analyzed using Jamovi version 2.6.44. Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarize participants' characteristics. Associations between physical assessment skills and related factors were examined using Chi-square and one-way ANOVA. A p-value of <0.05 was considered statistically significant.

- Ethical approval: Our study adhered to all ethical principles and received approval from the Ethics Committee in Biomedical Research of Can Tho University of Medicine and Pharmacy (Approval No. 24.087.SV/PCT-HDDD, dated November 9, 2024). Participation was voluntary, and all respondents provided informed consent before data collection.

III. RESULTS

3.1. Characteristics of the participants

Table 1. Social-demographics characteristics of the respondents (n=113)

Characteristics		n	%	Mean	SD
Age	>=22	52	46	21.53	0.71
	<22	61	54		
Gender	Male	17	15		
	Female	96	85		
Year of academic program	Third year	67	59.3		
	Fourth year	46	40.7		
Academic performance	Excellent-outstanding	16	14.2		
	Good	52	46		
	Average	45	39.8		
Grade in the Fundamental Nursing II	Theory	-	-	7.91	1.26
	Clinical practicum	-	-	7.95	1.06

The mean age of the participating nursing students was 21.53 ± 0.71 years. The majority of the students were female (85%), and most demonstrated good to average academic performance (85.8%). Regarding the Fundamentals of Nursing II course, the mean theoretical grade and clinical practicum grade were 7.91 ± 1.26 and 7.95 ± 1.06, respectively.

3.2. Physical Assessment Skills Scale among nursing students

Table 2. Descriptive analysis of Physical Assessment Skills among nursing students (n=113)

	Nursing students	
	n	%
Always or frequently (>3 points)	47	41.6
Occasionally or rarely (2-3 points)	54	47.8
Never performed or not known (<2 points)	12	10.6
	113	100
	Mean ± SD: 2.87 ± 0.66	

The Physical Assessment Skills scale shows an overall mean score of 2.87 ± 0.66, indicating nursing students performed physical assessment skills at an occasional or rare level. Among the 113 nursing students, 47 reported always or frequently performing physical assessment skills, and 54 reported performing these skills occasionally or rarely, accounting for 41.6% and 47.8%, respectively. Meanwhile, 12 students (10.6%) indicated that they had never performed or were unfamiliar with these skills.

Table 3. Detailed description of the level of Physical Assessment Skills practice among nursing students (N=30)

Always or frequently (>3 score) n=13 (43.4%)		Occasionally or rarely (2-3 score) n=16 (53.3%)		Never performed or not known (<2 score) n=1 (3.4%)	
Item (Skill)	Mean±SD	Item (Skill)	Mean±SD	Item (Skill)	Mean±SD
1.Inspect overall skin colour	3.75±0.92	6.Palpate and inspect capillary refill	2.73±1.27	27.Assess for PERRLA (Pupils Equal, Round, Reactive to Light and Accommodation)	1.89±1.17
2.Evaluate breathing effort	3.52±0.95	7.Palpate distal pulses for circulation	2.77±1.34		
3.Assess mental status and level of consciousness	3.91±0.84	9.Auscultate lung sounds	2.22±1.08		
4.Inspect and palpate extremities for oedema	3.30±0.90	10.Auscultate abdomen for bowel sounds	2.07±0.98		
5.Palpate extremities for temperature	3.49±0.92	12.Auscultate heart sounds	2.17±1.03		
8.Inspect wounds	3.89±0.86	14.Inspect extremities for skin colour and hair growth	2.87±1.19		
11.Inspect abdomen	3.33±0.89	18.Observe range of motion of joints	2.65±1.03		
13.Inspect skin lesions	3.05±1.00	19.Inspect chest shape	2.94±0.94		
15.Inspect external eyes	3.05±1.16	22.Assess muscle strength	2.42±1.17		
16.Evaluate speech	3.52±1.08	23.Inspect muscles and extremities for size and symmetry	2.32 ± 1.04		
17.Palpate abdomen for tenderness and distension	3.40±0.93	24.Assess hearing on the basis of conversation	2.84±1.09		
20.Evaluate face for movement and sensation	3.19±1.07	25.Inspect and examine stool	2.22±1.24		

Always or frequently (>3 score) n=13 (43.4%)		Occasionally or rarely (2-3 score) n=16 (53.3%)		Never performed or not known (<2 score) n=1 (3.4%)
21.Palpate extremities for tenderness	3.15±1.05	26.Assess gait	2.50±1.17	
		28.Assess using Glasgow Coma Scale	2.57±1.44	
		29.Inspect the oral cavity	2.16±1.19	
		30.Inspect the spine	2.14±1.05	

Among the 30 physical assessment skills, only 13 skills (43.4%) were performed always or frequently during the clinical practicum; 16 skills (53.3%) were performed occasionally or rarely; and one skill (3.4%) was either known by nursing students but had never been performed, or they did not know how to perform it.

3.3. Factors associated with the level of physical assessment skills among nursing students

Table 4. Analysis of the associated factors with the physical assessment skill scale (N=113)

Characteristics		Physical Assessment Skill Scale			p
		Always or frequently	Occasionally or rarely	Never performed or not known	
Gender	Female	37 (32.7%)	47 (41.6%)	12 (10.6%)	0.154*
	Male	10 (8.8%)	7 (6.2%)	0	
Year of academic performance	3rd year	17 (15%)	39 (34.5%)	11 (9.7%)	<0.001*
	4th year	30 (26.5%)	15 (13.3%)	1 (0.9%)	
Academic performance	Excellent-outstanding	8 (7.1%)	7 (6.2%)	1 (0.9%)	0.915*
	Good	22 (19.5%)	24 (21.2%)	6 (5.3%)	
	Average	17 (15%)	23 (20.4%)	5 (4.4%)	
Grade in the Fundamental Nursing II	Theory	8.07	7.82	7.67	0.431**
	Clinical practicum	8.19	7.93	7.91	0.655**

The Shapiro–Wilk test indicated normal distribution for Physical Assessment Skills Scale (W = 0.984, p = 0.192).

**Chi-square, **One-way ANOVA*

Gender, academic performance, and grade in the Fundamental Nursing II do not show an association with the use of physical assessment skills ($p > 0.05$). However, the year of academic performance shows a statistically significant association with the frequency of performing physical assessment skills during clinical practice ($p < 0.001$).

IV. DISCUSSION

4.1. Level of physical assessment skills among nursing students

Regarding physical assessment skills during clinical practice, the present study showed that 43.4% of skills were performed at an always or frequently level, whereas 53.3% were applied occasionally or rarely. A small proportion of skills (3.4%) were reported as known but never performed, or were not known by students. Although the level of application remains modest, it is higher than that reported in several earlier studies. Ayşegül Korkmaz Doğdu et al. found that only 18.3% of physical assessment skills were performed always or frequently, while most skills were applied occasionally or rarely (56.9%), and 24.8% had very low mean scores [7]. The study conducted by Egilsdottir among 363 nursing students reported that 43% of physical assessment skills were used regularly across three academic years, 43% were used infrequently, and 13% were either not known or not applied [8]. In contrast, Nguyen Thi Hong Hanh reported higher levels of skill, with 60% of physical assessment skills performed always or frequently during clinical practice and 36.4% performed occasionally or rarely [6]. Overall, the findings across studies indicate that the application of physical assessment skills among nursing students remains limited despite variations in reported levels. This explanation has also been highlighted in the systematic review by Mavis Weiting Tan et al., which emphasized the need to enhance the teaching of physical assessment skills in nursing education through application across diverse clinical contexts [9].

Among all assessed skills, six of the thirteen most frequently performed skills, including “Assess mental status and level of consciousness”, “Inspect wounds”, “Inspect overall skin colour”, “Evaluate breathing effort”, “Evaluate speech”, and “Palpate extremities for temperature”. These skills were also reported among the most frequently applied by nursing students at Duy Tan University in the study conducted by Nguyen Thi Hong Hanh [6]. In addition, a study by Clint Douglas involving 208 nursing students in Australia reported that “Evaluate breathing effort”, “Palpate and inspect capillary refill”, “Palpate extremities for temperature”, “Assessment of mental status and level of consciousness”, “Glasgow Coma Scale” and “Inspect overal skin colour/tone” were among the five most frequently performed skills [3].

The study identified “Auscultate abdomen for bowel sounds”, “Inspect the spine”, “Inspect the oral cavity”, “Auscultate heart sounds”, “Auscultate lung sounds”, and “Inspect and examine stool” as six skills that were rarely performed, while “Assess PERRLA” was reported as a skill that students knew but had never performed or did not know how to perform. In the study by Nguyen Thi Hong Hanh, “Auscultate lung sounds”, “Auscultate abdomen for bowel sounds”, and “Auscultate heart sounds” were also identified among the least applied skills, and “Assess PERRLA” was not performed in clinical settings [6]. Ayşegül Korkmaz Doğdu reported low levels of performance for “Auscultation of heart sounds” among nursing students [7]. Emel Gülnar identified “Auscultate heart sounds” and “Auscultate lung sounds” as skills not performed by students during clinical practice [10]. Across studies, limited use or lack of proficiency in specific physical assessment skills suggests that, despite inclusion in nursing curricula, several techniques required in clinical practice may remain insufficiently emphasized during training [9].

4.2. Factors associated with the level of physical assessment skills

The academic year showed a significant relationship with the level of physical assessment skills, with fourth-year students demonstrating more frequent practice than third-year students, likely reflecting greater clinical exposure. An association between the year of study and some skills of physical assessment was also identified in the study by Nguyen Thi Hong Hanh [6]. Egilsdottir reported an association between the level of application of 17 physical assessment skills and the academic year of nursing students [8]. The association between physical assessment skills and nursing students' academic year was also observed in the study conducted by Tan MW [9].

The present study did not demonstrate an association between physical assessment skills and gender, academic performance, or theoretical and practical scores in Fundamental Nursing II. This pattern aligns with the findings of Douglas, who found no relationship between gender, age, or nationality and the level of physical assessment skill utilization among nursing students [3]. By contrast, Nguyen Thi Hong Hanh identified gender as being associated with the application of four physical assessment skills ($p < 0.05$), while academic performance was related to seven skills [6]. Associations between gender, academic achievement, and physical assessment skills were also documented by Tan MW's study. [9]. Dela Cruz, in a study involving 208 third- and fourth-year nursing students, found a significant correlation between perceived knowledge and performance competency in physical assessment skills, while no association was observed with academic performance, highlighting the role of repeated practice and feedback in improving clinical competency [11]. Among practicing nurses, Ola Ahmad Kutah identified relationships between gender, work experience, and the level of physical assessment skill application [12].

V. CONCLUSION

Nursing students at Can Tho University of Medicine and Pharmacy applied physical assessment skills at an occasional or rare level during clinical practice. Although nursing students performed physical assessment skills at an occasional or rare level, only 13 skills were applied always or frequently, and 16 skills were applied occasionally or rarely. The level of physical assessment skills shows no association with academic performance or with theoretical and practical scores in Fundamental Nursing II, but it demonstrates an association with the year of academic performance. These findings highlight the need to improve educational strategies, including enhanced clinical exposure and skill reinforcement of physical assessment training throughout the nursing curriculum to promote students' application of physical assessment skills in clinical settings.

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