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The self-efficacy in clinical practice among nursing students in Ho Chi Minh City: a cross-sectional study

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Abstract

Introduction: Self-efficacy plays a crucial role in the academic success and skill development of nursing students. Assessing self-efficacy in clinical practice is essential for implementing early interventions at nursing universities. This study aimed to explore the level of self-efficacy levels and associated factors among nursing students in a Vietnamese nursing institution.

Methods: A cross-sectional study was conducted from May to June 2022 with the third- and fourth-year nursing students at University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam. The nursing competence self-efficacy scale was used to measure their self-efficacy in clinical practice. Multiple linear regression analysis was used to performed to examine the relationship between self-efficacy scores and socio-demographic characteristics as well as clinical practice.

Results: Among 214 nursing students included in data analysis, the mean self-efficacy score in clinical practice was 230.4±27.5. Higher self-efficacy was found in fourth-year students (adjusted coef=24.8, 95% confidence intervals [CI]: 17.22; 32.37, p<0.001), those with 20–30 weeks of clinical practice outside the university (adjusted coef=10.1, 95% CI: 1.00; 19.27, p=0.030), and those with higher score assessment of clinical learning environment (adjusted coef=18.1, 95% CI: 11.64; 24.63, p<0.001). However, lower self-efficacy was observed in females (adjusted coef=–11.4, 95% CI: –22.16; –0.54, p=0.040) and students with lower academic performance (adjusted coef=–13.8, 95% CI: –23.60; –3.90, p=0.006).

Conclusions: Vietnamese nursing students exhibited a moderate level of self-efficacy in clinical practice. Regular evaluations are needed to identify areas for improvement. Updating and monitoring training programs to provide a structured and supportive practice environment will further enhance student's self-efficacy.

Keywords: self-efficacy; clinical practice; students; nursing; Vietnam

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1. INTRODUCTION

The primary objective of the nursing training program is to ensure that graduating students meet the fundamental competency standards of nursing in all aspects, including knowledge, skills, and attitudes. Clinical practice, which accounts for 50% of the total nursing training program [1], plays a crucial role in this training [2]. Unlike theoretical coursework or simulated lab exercises, clinical training provides students with numerous opportunities to deliver direct nursing care to patients, communicate with patients' relatives, and develop professional relationships with other health workers. This hands-on experience not only allows students to perform clinical procedures but also helps them develop critical skills such as effective communication with patients and their families, collaboration with other healthcare professionals, and the ability to adapt to unexpected challenges. Therefore, structured training and practical experiences are essential to help students become qualified nurses. Without these experiences, nursing students may struggle to deliver nursing care effectively to patients, regardless of their qualifications [3].

A large body of literature has confirmed that self-efficacy is an essential contributor to both academic success and skill development among nursing students [4], helping them build confidence in meeting clinical field requirement [5]. Individuals with high self-efficacy tend to adapt better to complex daily situations, which strengthens their work capabilities and professional qualities [6]. Over time, these students are more likely to successfully accumulate valuable nursing experience throughout their careers [7]. Several studies investigating self-efficacy in nursing students have been conducted in various countries. However, the results have varied significantly across study populations. For example, a high level of self-efficacy was reported among Iranian nursing students, while a relatively low level of self-efficacy was observed among the third-year nursing students in China [8,9]. A study by Mei et al. [10] found that 77.7% of the first-year students had a moderate level of self-efficacy, and only 6.7% had a high level of self-efficacy. The results also highlighted specific skills where students lacked self-efficacy, including performing cardiopulmonary resuscitation (CPR), administering suppositories, providing post-operative support for doctors, and demonstrating empathy and communication with patients. However, these findings are likely context-dependent, as clinical practice varies across different countries.

In Vietnam, the number of studies investigating self-efficacy in nursing students remains limited. Huyền [11] found that only 14.2% of the final-year nursing students at School of Medicine and Pharmacy, Thai Nguyen University had a high level of self-efficacy. Therefore, the current study aimed to identify the level of self-efficacy and associated factors in clinical practice among nursing students at a nursing school in Ho Chi Minh City. The findings can help nursing institutions better understand self-efficacy in clinical practice, allowing them to enhance training programs and make appropriate adjustments to strengthen students' self-efficacy.

2. MATERIALS AND METHODS

2.1. Background and study design

A cross-sectional study was conducted from May to June 2022 on nursing students at University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam. This institution offers a 4-year training program for the Bachelor of Nursing degree. In the first and second years, students mainly study fundamental subjects and basic practice on standardized patients or models in the skill laboratory. In the third and fourth years, students have intensive courses and clinical practice mainly at hospitals. The total number of credits for clinical practice in the third and fourth year are 17 and 19, respectively, out of a total of 134 credits for the bachelor's program, respectively. In the academic year 2021–2022, there were a total of 650 students, of whom 292 were third- and final-year students.

2.2. Sample size and sampling section

The sample size was calculated based on the formula to estimate a mean score of the nursing competence self-efficacy scale (NCSES). With a standard deviation of 1.24 [11], a marginal error of 0.18 and an estimate of 10% of participation refusal rate, at least 204 students were needed. Eligible participants were individuals who were third- and fourth-

year in the Bachelor of Nursing program who had participated in clinical practice and agreed to join in the study. 'Participation in clinical practice' refered to students engaging in clinical training as part of the official and mandatory curriculum, typically conducted at affiliated hospitals, such as Cho Ray Hospital and the University Medical Center Ho Chi Minh city. Students who had not registered for any clinical practice credits or had deferred their studies were excluded.

After obtaining a list of students from the institution, all eligible students were invited to participate in this study via a survey link sent through their official email using Microsoft Forms. Consent was obtained when students checked the "Agree to join study" box. Participants were then automatically directed to the online questionnaire. If a student did not complete the survey within one week of the initial email, a reminder email was sent.

2.3. Measures

The online questionnaire consisted of questions about gender, academic year, grade point avarage (GPA) in the last semester, interest in nursing, duration of clinical practice (in weeks), the clinical learning environment, and the self-efficacy levels in nursing skills. Online surveys were used to maximize reach, as all students were undertaking clinical practice at various hospitals in Ho Chi Minh City.

The Clinical Learning Environment, Supervision and Nurse Teacher Scale (CLES+T), introduced by Saarikoski et al. [12], was used to evaluate the clinical learning environment in undergraduate nursing education. This scale included 34 items divided into five subscales: pedagogical atmosphere on the ward (9 items), supervisory relationship (8 items), leadership style of the ward manager (4 items), premises of nursing on the ward (4 items) and the role of nurse teachers (9 items). A 5-point Likert scale was used, and a higher score indicated stronger agreement with the statement mentioned in each item. The Cronbach's alpha coefficients ranged from 0.83 to 0.95 for each subscale [12]. The CLES+T was previously used in a Vietnamese study [13]. In this study, we used three subscales: pedagogical atmosphere in the ward (9 items), leadership style of the ward manager (4 items), and premises of nursing in the ward (4 items) to ensure applicability to the clinical practice training program for third- and fourth-year students. The overall assessment of the clinical learning environment was calculated as the mean score of these three subscales.

The main outcome of this study, the overall self-efficacy of nursing students in clinical practice, was quantified by using the adjusted-NCSES, developed by Abdal et al. [8]. The adjusted-NCSES consists of 30 items evaluating the clinical practice of nursing students on a 10-point scale from 1 ("I don't think I can do that") to 10 ("I am very confident that I can do that"). The total score of the scale ranges from 30 to 300 points. In this study, the score was divided into three levels of self-efficacy in clinical practice including: low (30–89 points), moderate (90–269 points), and high (270–300 points), based on a previous study by Abdal et al. [8].

A standardized forward-backward translation of this scale was performed with the involvement of nursing experts at the university and the study hospitals. A pilot study by Abdal confirmed the scale's face validity and revealed a high level of internal consistency, with a Cronbach's alpha of 0.95 [8], while a Vietnamese version studied by Nguyen NH had a Cronbach's alpha of 0.816 [11].

2.4. Data analysis

For descriptive analysis, continuous variables were reported using the mean and standard deviation, while categorical variables were reported using frequencies and proportions. Given the data's normal distribution, confirmed through histogram and quantile-quantile (Q–Q) plot analysis, independent t-tests and analysis of variance (ANOVA) were used to evaluate the association between nursing self-efficacy scores, characteristics of socio-demographic and clinical practice. The Pearson correlation coefficient was used to identify the correlation between self-efficacy (based on the adjusted-NCSES score) and student's assessments of the clinical learning environment (based on the CLES+T score). A multiple linear regression model was used to determine the independent factors related to self-efficacy scores. This approach was particularly suitable for our study design (i.e., observational study) and study outcome (i.e., continuous variable), as it allowed us to simultaneously adjust for mul-

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tiple covariates and account for their potential confounding effects. Variables with a *p*-value<0.2 and those supported by literature were included in the model. Assumptions for the final linear regression model, including linearity, independence of errors and normality of residuals were verified. Results were considered statistically significant when $p<0.05$ and the 95% confidence interval did not contain the value 0.

2.5. Ethics approval

Ethics approval was obtained from the Ethics Committee at the study university (Number: 486/HĐĐĐ-ĐHYD). Consent was established by participants ticking the "agree" box on the informed consent forms in the Microsoft Forms system. Once students agreed to participate in the study, the system automatically redirected them to the online questionnaire.

3. RESULTS

During the study period, a total of 223 third- and fourth-year students participated in the study, representing 76.4% of all third- and fourth-year students. Nine students submitted incomplete questionnaires and were thus excluded from data analysis. Among 214 students included in data analysis, most were female (90.2%). Nearly three fourths of students had a GPA in the last semester at a very good to excellent level (74.3%). Additionally, 37.9% had at least 40 weeks of clinical practice at the university. The mean self-efficacy score in clinical practice was 230.4 (standard deviation=27.5). Significant differences in the score of self-efficacy scores were found among students based on academic year (p=0.004), GPA of the latest semester (p<0.001), duration of clinical practice (both at school and at healthcare facilities) (p<0.001) (Table 1).

More than one third of students (39.2%) participated in clinical practice at healthcare facilities, with the majority joined in COVID-19 prevention (83.9%) and having clinical practice duration of more than 10 weeks. There was a significant difference in the score of self-efficacy scores in clinical practice between the students who participated in clinical practice at healthcare facilities and those who did not (p=0.041) (Table 1). Fig. 1 presents results on student's assessment of the clinical learning environment and the correlation between this aspect with their scores of self-efficacy. The highest score was observed in the assessment of premise of nursing on the ward (mean=4.2, SD=0.6). However, the score of this subscale was not significantly correlated with the score of self-efficacy scores (r=0.123, p=0.074). In contrast, the score for pedagogical atmosphere on the ward (r=0.290, p<0.001), leadership style of the ward manager (r=0.168, p=0.014) were significantly correlated with the self-efficacy scores. The overall score assessing the clinical learning environment was also positively correlated with the self-efficacy score (r=0.257, p<0.001).

Table 2 presents results from univariable and multiple linear regression to identify factors associated with self-efficacy scores. Female students (adjusted coef=–11.4, 95% confidence intervals [CI]: –22.16; –0.54, p=0.040) and those who with a low GPA (adjusted coef=–13.8, 95% CI: –23.60; –3.90, p=0.006) had a significant lower self-efficacy than their counter partners and those who had a high GPA. In contrast, fourth-year students had higher self-efficacy scores than third-year students (adjusted coef=24.8, 95% CI: 17,22; 32.37, p<0.001). Students who had a higher assessments of the clinical learning environment also had higher self-efficacy score in clinical practice (adjusted coef=18.1; 95% CI: 11.64; 24.63, p<0.001).

4. DISCUSSION

This study aimed to evaluate self-efficacy in the clinical practice environment among third- and fourth-year nursing students. Out of 292 eligible nursing students, 214 participated in the study. The results showed that self-efficacy levels in clinical practice among participating nursing students were moderate (230.4±27.5). The mean score in our study was higher than the findings from Abdal et al. [8] study using the same adjusted-NCSES tool, at 219.28±35.8, although both studies reported scores within the same level. Our findings were consistent with those reported in another study by Huyền [11], in which 85.8% of nursing students had a moderate level of self-efficacy. Jin & Lv [9] reported a

Table 1. Relationship between the score of overall self-efficacy in clinical practice of nursing students and their demographic and clinical practice characteristics (n=214)

Variables	n (%)	NCSES score Mean±SD	*p*-value
Overall		230.4±27.5	
Gender			
Male	21 (9.8)	238.9±29.1	0.136[1)]
Female	193 (90.2)	229.4±27.2	
Academic year			
Third year	115 (53.7)	221.6±30.0	<0.001[1)]
Fourth year	99 (46.3)	240.5±20.1	
GPA of the last semester			
Excellent	38 (17.8)	236.0±28.1	0.004[2)]
Very good	121 (56.5)	233.4±26.7	
Good and below	55 (25.7)	219.8±26.6	
Duration of clinical practice at the school (weeks)			
10–19	75 (35.0)	218.9±29.4	<0.001[2)]
20–29	40 (18.7)	226.6±30.7	
30–39	18 (8.4)	241.4±19.3	
≥40	81 (37.9)	240.3±20.4	
Having clinical practice in healthcare facilities			
Yes	84 (39.2)	235.1±28.5	0.041[1)]
No	130 (60.8)	227.3±26.5	
Task when having clinical practice in healthcare facilities (n=84)			
Home nursing (yes)	5 (6.0)	253.0±33.5	0.150[1)]
Clinic nursing (yes)	19 (22.6)	236.1±28.2	0.865[1)]
COVID-19 prevention (yes)	75 (89.3)	234.4±29.4	0.516[1)]
Duration of clinical practice in healthcare facilities (week) (n=84)			
<10	41 (48.8)	228.7±26.3	0.218[2)]
10–19	26 (31.0)	243.4±30.6	
20–29	9 (10.7)	237.9±31.1	
≥30	8 (9.5)	238.4±27.2	

[1)] Independent t test; [2)] One-way ANOVA.
NCSES, nursing competence self-efficacy scale; GPA, grade point avarage.

mean score of self-efficacy was 23.62±3.98 when using the General Self-Efficacy Scale (GSES) for 10 skills. Additionally, another study by Hart [14] used the Clinical Skills Self Efficacy Scale (CSES) to evaluate 14 skills and found that the mean score of self-efficacy among nursing students was 7.24. The difference across these studies is likely due to the differences in training programs. The number of credits for clinical practice at our university was 39, which is equivalent to Thailand' s program, higher than this figure in the United States, but lower than in the Philippines [15,16]. Despite variations across these studies due to different assessment tools and training programs, overall, the level of self-efficacy among students in our study was appropriate. The process of gaining knowledge and experience at university and in other healthcare facilities has enabled students to accumulate more experiences and enhance their self-efficacy.

Our study also indicated that self-efficacy scores among fourth-year nursing students were higher than those of third-year students, which was consistent with findings from other studies by Van Horn & Christman [17] and by Khodaveisi et al. [18]. This result can be explained by the accumulation of knowledge and expertise over years of repeated study and clinical practice, which promoted nursing students to gain experience and become more proficient in their knowledge

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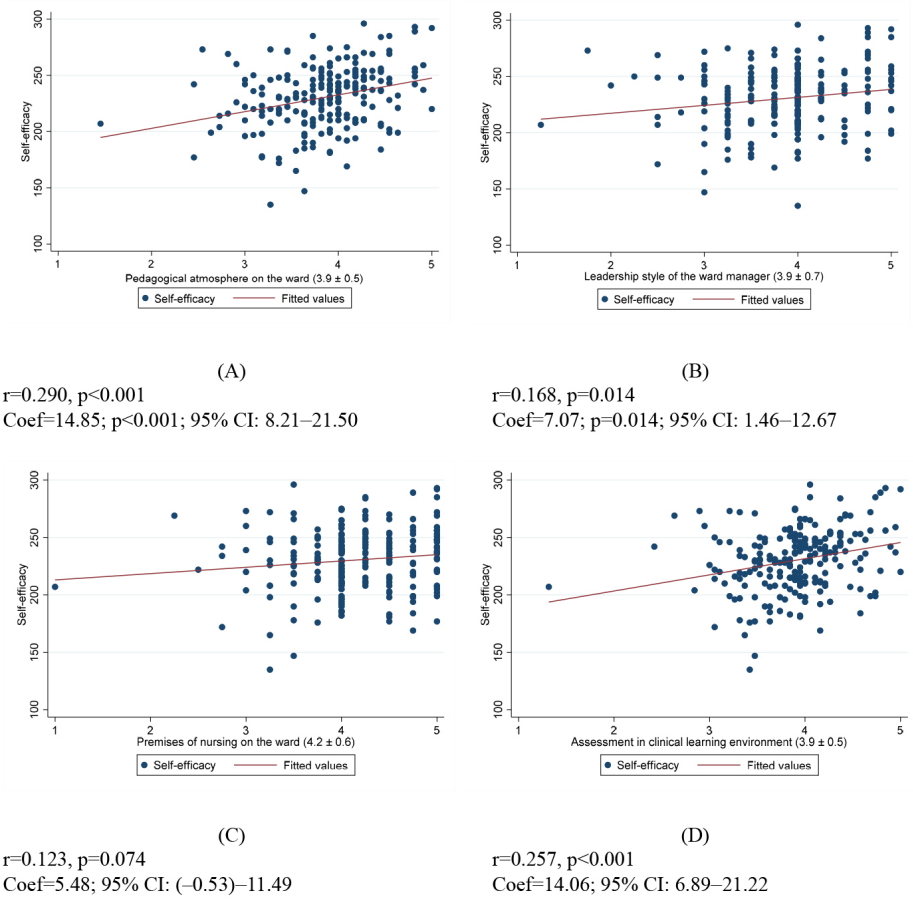

Fig. 1. The correlation between the score of overall self-efficacy in clinical practice among nursing students and their assessment score of the clinical learning environment. (A) Pedagogical atmosphere on the ward, (B) leadership style of the ward manager, (C) premises of nursing on the ward, (D) overall assessment in clinical learning environment. CI, confidence intervals.

Table 2. Univariate and multiple linear regression model between the score of overall self-efficacy with other characteristics

Characteristic	Crude			Adjusted		
	Coef	95% CI	*p*-value[1)]	Coef	95% CI	*p*-value[1)]
Gender (female)	–9.4	–21.85; 2.99	0.136	–11.4	–22.16; –0.54	0.040
Academic year (fourth year)	18.9	11.91;25.90	<0.001	24.8	17.22; 32.37	<0.001
GPA of the last semester						
Excellent	Ref			Ref		
Very good	–2.6	–12.51; 7.25	0.600	–0.99	–9.72; 7.73	0.822
Good or below	–16.2	–27.37; –5.00	0.005	–13.8	–23.60; –3.90	0.006
Duration of clinical practice (weeks)						
10–19	Ref			Ref		
20–29	7.7	–2.29; 17.68	0.130	10.1	1.00; 19.27	0.030
30–39	22.5	9.13; 35.90	0.001	–0.2	–12.35; 11.93	0.973
≥40	21.4	13.20; 29.55	<0.001	-	-	-
Having clinical practice in healthcare facilities (yes)	7.8	0.31; 15.37	0.041			
Assessment of the clinical learning environment	14.1	6.89; 21.22	<0.001	18.1	11.64; 24.63	<0.001

[1)] Significance test based on t-statistics from linear regression for each coefficient.
CI, confidence intervals.

and skills over time. According to Bandura [6], proficiency is the strongest factor in improving a person's self-efficacy. For this reason, fourth-year students tend to have more clinical experience than third-year students. In particular, emergency and critical care, as well as palliative care, are taught to fourth-year students but not to third-year students, thus contributing to the differences in the self-efficacy between the two groups. In addition, our results were also consistent with findings from a study by Soudagar et al. [19], where experienced nurses demonstrated higher self-efficacy in clinical practice. With this evidence, clinical experience is a crucial factor in enhancing self-efficacy in clinical practice among nursing students. This finding encourages the expansion of clinical practice time in nursing programs alongside theoretical courses.

Our analysis also found that nursing students with better academic performance had a higher level of self-efficacy. This relationship was consistent with the considerable correlation between the self-efficacy score of nursing students and their academic achievement in a study by Andrew [20], as well as in other studies [21,22]. There are two ways to explain this relationship. Students with higher self-efficacy are more likely to achieve better grades in their courses. In contrast, individuals achieving better grades in multiple courses may possess a greater ability to absorb knowledge better, leading to the rise in self-efficacy in clinical practice by applying theory into practice. Moreover, unlike theoretical courses at school, clinical practice in nursing regularly occurs in a complex and unstable clinical context under the effect of numerous factors. However, students' perceptions and behaviors may undergo changes in the clinical environment [23]. As a result, an optimal clinical learning environment can have a positive effect on the career path of students, while a poor academic can bring negative implications. In our study, we also found that there was a positive correlation between clinical learning environment assessment scores and score of self-efficacy [24]. The training program at our study university offers nursing students opportunities to practice in a broad spectrum of healthcare facilities, from primary care to tertiary hospitals. When practicing in diverse hospitals, students gain exposure and provide nursing care for patients with varying disease severity and specialties which is beneficial for students to develop their nursing skills.

The results indicated a significant variation in the self-efficacy scores among nursing students across different professional skills. Skills related to end-of-life or palliative care (5.36), surgical assistance (5.68), and performing CPR (5.86) were rated with the lowest self-efficacy. These complex skills, which require substantial clinical experience, are typically practiced later in the training program (e.g., during the fourth year). The observed low self-efficacy may be attributed to insufficient practical experience or the psychological pressure associated with handling critical situations that demand high precision and decisiveness. Conversely, skills with the highest self-efficacy scores included accurately recording vital signs in the relevant chart (9.05), administering enemas or suppositories (8.96), and providing oxygen therapy while adjusting oxygen flow (8.72). These skills are frequently practiced throughout clinical training, which enhances familiarity with the procedures and boosts self-efficacy. Additionally, skills such as wound care (8.71), instructing patients on usithe use of insulin pens (8.70), and performing electrocardiograms (8.69) also achieved high self-efficacy scores, highlighting the importance of consistent and repetitive practice.

Our findings suggest that nursing students' self-efficacy is strongly correlated with both the frequency of practice and the nature of the skills. Skills that are regularly practiced in the educational setting tend to have higher self-efficacy scores. To improve self-efficacy in more challenging and less-practiced skills, it is recommended that the training program include additional pre-clinical sessions, scenario-based exercises, video demonstrations of rare or complex procedures, and psychological support to assist students in managing emergency situations effectively.

There were several limitations to this study. First, the study was conducted at a single university, so it may not be representative of all other nursing students. Second, the cross-sectional design of this study prevented us from interpreting causal relationships. Therefore, further studies are needed at different universities using longitudinal designs to quantify the self-efficacy in nursing students, especially after gradua-

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tion. Third, the results were based on the self-reported questionnaire, which may have reporting biases. Further studies are recommended to incorporate evaluations from lecturers to enable better comparisons.

5. CONCLUSION

Our study found that nursing students at an institution in Ho Chi Minh City demonstrated a moderate level of self-efficacy in clinical practice. Self-efficacy is significantly associated with factors such as gender, academic year, academic performance, and the clinical practice environment. The results suggest that nursing training programs should prioritize regular assessments of self-efficacy to identify students needing additional support and to tailor interventions to enhance their practical skills. Additionally, increasing practical experience and fostering a positive clinical environment can bridge the gap between theory and practice, thereby improving nursing students' self-efficacy.

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Conflict of interest

No potential conflict of interest relevant to this article was reported.

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Availability of data and material

Upon reasonable request, the datasets of this study can be available from the corresponding author.

Ethics approval

Ethics approval was obtained from the Ethics Committee at the study university (Number: 486/HĐĐĐ-ĐHYD).
Completing and submitting the online questionnaires indicated the student's consent to participate in this study.

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