

A Cross-sectional Study on Associated Factors to Nursing Students' Satisfaction with the Clinical Learning Environment

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ABSTRACT

Background: A good clinical learning environment helps students practise closely to the theoretical framework, hone skills, and improve nursing practice capacity. Factors associated with learners' satisfaction with the clinical learning environment support nursing schools as a basis for enhancing and promoting teaching quality. **Objective:** This study aimed to identify the level of satisfaction with the clinical learning environment in nursing students and to explore the related factors. **Methods:** A cross-sectional descriptive study was conducted on 131 third and fourth-year nursing students using the Vietnamese version of the Clinical Learning Environment, Supervision, and Nurse Teacher scale (CLES+T). The Mann-Whitney U, Kruskal-Wallis test, and Multiple Regression analysis were used to analyse the data using SPSS version 22.0. **Results:** The nursing students' level of satisfaction with the clinical learning environment had an average score ranging from 3.84±0.61 to 4.23±0.69, and the total CLES+T was 4.07±0.56. Religion, working part-time during the learning process, clinical practice hospital, and the setup of night shift rooms in the clinical ward were associated with nursing students' satisfaction with the clinical learning environment. **Conclusion:** Nursing students were satisfied with the clinical practice environment at a relatively high level. Providing part-time employment opportunities within the healthcare model and continuously improving the facilities at clinical wards will support student learning activities.

Keywords: CLES+T; Clinical Learning Environment; Nursing Students; Satisfaction

INTRODUCTION

Clinical learning was essential for nursing and medical students, bridging theory from lectures to practical application in hospitals—a key element in showcasing nurses' abilities and assessing healthcare quality (Ahmed *et al.*, 2023; Masilaca, Kumar & Balekiwai, 2018; Kalyani *et al.*, 2019). The clinical learning environment (CLE) fostered relationships and communication, enabling students to practice patient care strategies and develop interpersonal skills (Attia & Ibrahim, 2023; Zhang *et al.*, 2022). It also provided practical experience across nursing roles, shaping professional culture and social norms (Baraz *et al.*, 2015; Manoochehri *et al.*, 2015; Rodríguez-Monforte *et al.*, 2023; Woo & Li, 2020). Through clinical practicum, students became skilled practitioners, capable of delivering high-quality care and improving public health, highlighting the indispensable role of clinical experience in nursing education (Baraz *et al.*, 2015; Miller, 2024).

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The CLE for nursing students should offer diverse contexts influenced by social, cultural, and psychological factors, shaping the learning experience and behaviours within the clinical practice (Baghdadi, Alotaibi & Abdelaliem, 2023; Lengetti *et al.*, 2021; Masilaca, Kumar & Balekiwai, 2018; Saarikoski, 2002). This sociocultural setting allowed varied opportunities for engagement and was supported by mentoring to enhance readiness for professional practice (Baraz *et al.*, 2015; Campbell *et al.*, 1994; Chan & Ip, 2007; Newton *et al.*, 2010). Positive interpersonal interactions further enriched students' experiences in this complex learning environment (Antonsen *et al.*, 2023).

The Health Belief Model (HBM) posited that health behaviour is shaped by personal beliefs about a health issue, influencing decisions to engage in certain behaviours (Etheridge *et al.*, 2023; Rosenstock, Strecher & Becker, 1988). This study applied HBM to examine nursing students' satisfaction with the CLE. Believing they were supported and able to overcome barriers increased satisfaction, a crucial factor in readiness for nursing and retention in the workplace post-graduation, affecting recruitment (Lamont, Brunero & Woods, 2015; Rodríguez-García *et al.*, 2021). Nurse shortages and early departures add pressure to healthcare systems (Miller, 2024). In competitive education, satisfaction is vital for institutional success and student achievement, with higher service quality setting institutions apart (Wong & Chapman, 2023).

Literature Review

Saarikoski (2002) suggested that nursing students' satisfaction with the CLE is influenced by factors like the pedagogical atmosphere, leadership style of the ward manager, nursing practices, supervisory relationships, and the nurse teacher's role. Studies in various countries reported differing satisfaction scores: Ghana (3.07 ± 0.84 to 3.63 ± 0.85) (Ziba *et al.*, 2021), Saudi Arabia (3.76 ± 0.64) (Aljohni *et al.*, 2023), Vietnam (3.5 ± 1 to 4.3 ± 0.6) (Papastavrou *et al.*, 2016), and Norway (4.08 ± 0.72 to 4.34 ± 0.87) (Rosenberg *et al.*, 2019). In Palestine, supervisory relationships and the nurse teacher's role scored highest (3.85 ± 0.82), while leadership style was lowest (3.8 ± 0.84) (Hammad *et al.*, 2024). In Morocco, the pedagogical atmosphere was highest, while the nurse teacher's role scored the lowest (Guejdad *et al.*, 2024).

Effective clinical learning for nursing students faces challenges such as student-related issues, nursing staff shortages, limited teaching time from hospital nurses, inexperienced faculty, and the crucial role of the clinical learning environment in nursing education (Miller, 2024; Nool, 2024; Ramoeletsi & Tlou, 2024).

A study in Pakistan found that nursing students faced challenges in applying theory to practice, which caused confusion and helplessness (Nasiri & Adib-Hajbaghery, 2022). Similarly, a qualitative study in Iran revealed inefficiencies in the CLE, such as inadequate instruction, poor planning, and unsuitable environments (Kalyani *et al.*, 2019). Since nursing care directly impacted patient health (Khiem *et al.*, 2024), the CLE helped students bridge the gap between theory and practice, enabling them to overcome obstacles and confusion through experience (Flott & Linden, 2016; Lillekroken *et al.*, 2024). It also strengthened their understanding of the nursing profession (Woo & Li, 2020). The culture of a new clinical setting left a lasting impact on student learning (Inocian *et al.*, 2022; Rodríguez-Monforte *et al.*, 2023).

Student readiness for learning in a clinical environment was a key factor influencing the quality of clinical training (Joolae *et al.*, 2015). The CLE elements played a crucial role in developing clinical competence and guiding students' goal orientation during their education (Adam *et al.*, 2021; Mikkonen *et al.*, 2020; Pitkänen *et al.*, 2018). To prepare nursing students for their future roles, clinical learning must be well-structured (Kaphagawani & Useh, 2013; Lillekroken *et al.*, 2024; Tang & Chan, 2019). Improving clinical teaching quality and patient care directly enhanced the CLE, leading to greater student satisfaction and retention (Mihanović *et al.*, 2016; Wong & Chapman, 2023). Gathering student feedback was essential for developing effective improvement plans and refining teaching strategies (Cohen, 1980).

Can Tho University of Medicine and Pharmacy, a large institution in southern Vietnam, and quality control is a constant problem. However, no survey on nursing students' satisfaction with the CLE has been

conducted. Therefore, the researchers undertook this study to assess student satisfaction with the CLE and explore related factors.

METHODOLOGY

Design: A cross-sectional descriptive-analytical investigation was conducted

Research Questions

- 1) What is the current status of nursing students' satisfaction with the clinical learning environment?
- 2) What are the associated factors with nursing students' satisfaction with the clinical learning environment?

Sample

Data were collected from third- and fourth-year nursing students at Can Tho University of Medicine and Pharmacy between January and April 2023. A sample of 131 students was selected using purposive sampling.

Inclusion Criteria: Third- and fourth-year students who completed at least one clinical practice module and consented to participate.

Exclusion Criteria: Students missing over 20% of clinical practice hours or absent during the survey period.

Data Collection and Instrument

Students were interviewed using pre-made questions to assess general traits (age, gender, religion, clinical practice hospital, ward, and on-call room setup). The CLES+T scale (Saarikoski *et al.*, 2008) was used to measure satisfaction with the physical learning environment, comprising 37 questions across five areas: pedagogical atmosphere (12 items), leadership style (4 items), nursing care (4 items), supervisory relationship (8 items), and nurse teacher role (9 items). Responses were rated on a 5-point Likert scale, with higher scores indicating greater satisfaction. The scale's reliability was confirmed with a Cronbach's Alpha of 0.83, and a Vietnamese version was used (Papastavrou *et al.*, 2016).

Statistical Analysis

Data were analysed using SPSS Version 22.0. Frequency (n) and percentage (%) described qualitative variables, while weighted mean and SD were used for quantitative variables. Mann-Whitney U and Kruskal-Wallis tests assessed relationships between student demographics and CLE+T. Multiple regression analysis identified CLE+T predictors, with categorical variables coded as dummy variables. Statistical significance was set at $p < 0.05$ (Landau, Everitt & Everitt, 2004).

Ethical Consideration

The research obtained ethical clearance from the Ethical Council for Biomedical Research at Can Tho University of Medicine and Pharmacy, Vietnam, with reference number, 22.033.GV/PCT-HDDD on 30th November 2022.

RESULTS

Sample Characteristics

A total of 131 nursing students participated in the survey, 78.6% of whom were female. Third-year students made up 51.9%, and 22.9% reported having religious beliefs. Additionally, 19.1% worked part-time during their studies. The largest group, 29%, interned at paediatric hospitals, while another 29% were assigned to the paediatric department. Notably, 9.2% did not have night duty rooms set up during their internship (Table 1).

Table 1: Characteristics of Nursing Students

Variable		Frequency (n)	Percentage (%)
Gender	Female	103	78.6
	Male	28	21.4
School year following the curriculum	Third year	68	51.9
	Final year	63	48.1
Religion	Yes	30	22.9
	No	101	77.1
Worked part-time during the learning process	Yes	25	19.1
	No	106	80.9
Clinical practice hospital	Can Tho Central General Hospital	35	26.7
	Specialised hospitals in Can Tho	27	20.6
	Can Tho Children's Hospital	38	29
	Can Tho University of Medicine and Pharmacy Hospital	31	23.7
Clinical ward	Internal Medicine Department	26	19.8
	Surgical Department	29	22.1
	Paediatric Department	38	29
	Infectious Diseases Department	13	9.9
	Others	25	19.1
Set up night shift rooms in the clinical ward	Not set	12	9.2
	Stayed in the same room as the on-call nurse	81	61.8
	Stayed in the classroom	18	13.7
	Not on-call	20	15.3
Total		131	100

Satisfaction with the Clinical Learning Environment in Nursing Students

Table 2 describes nursing students' satisfaction with the CLE across the 5 dimensions of the CLES+T scale ranges from 3.84 to 4.23. The overall average satisfaction score of students regarding the CLE was 4.07.

Table 2: Mean Score on the CLES+T and Dimensions

Item	Mean (SD)
Total CLES+T	4.07 (0.56)
Dimensions of CLES+T	
1) Pedagogical atmosphere	3.84 (0.61)
2) Leadership style of the ward manager	3.92 (0.83)
3) Premise of nursing on the ward	4.16 (0.67)
4) Supervisory relationship	4.23 (0.69)
5) Role of the nurse teacher in clinical practice	4.18 (0.63)

Associated Factors to Nursing Students' Satisfaction with the Clinical Learning Environment

The Mann-Whitney *U* test showed that religious students (e.g., Buddhism, Christianity, Hoa Hao) had

lower satisfaction with the CLE than non-religious peers ($U=1134, p=0.037$). Part-time workers also reported lower satisfaction ($U=949, p=0.028$). The Kruskal-Wallis test revealed significant differences in satisfaction based on hospital and ward ($X^2=16.5, p<0.001$ and $X^2=16.9, p<0.001$, respectively). Additionally, the availability of night shift rooms significantly affected satisfaction ($X^2=16.9, p<0.001$). These findings, as summarised in Table 3, highlight the association between student demographic profiles and the mean score of the dimensions of CLES+T.

Table 3: Association between Student Demographic Profiles and Mean Score of the Dimensions of CLES+T

Factor	Mean (SD)	Test statistic
Gender		
Female	4.08 (0.56)	$U=1369, p=0.658$
Male	4.02 (0.58)	
Level (year)		
Third year	4.03 (0.54)	$U=1934, p=0.338$
Four years	4.1 (0.59)	
Religion		
Yes	3.86 (0.62)	$U=1134, p=0.037$
No	4.13 (0.53)	
Worked part-time during the learning process		
Yes	3.85 (0.56)	$U=949, p=0.028$
No	4.12 (0.56)	
Clinical practice hospital		
Can Tho Central General Hospital	4.01 (0.54)	$X^2=16.5, p<0.001$
Specialised hospitals in Can Tho	4.43 (0.32)	
Can Tho Children's Hospital	3.87 (0.62)	
Can Tho University of Medicine and Pharmacy Hospital	4.05 (0.56)	
Clinical ward		
Internal Medicine Department	3.91 (0.53)	$X^2=19.4, p<0.001$
Surgical Department	4.09 (0.57)	
Paediatric Department	3.87 (0.62)	
Infectious Diseases Department	4.15 (0.47)	
Others	4.45 (0.32)	
Setup of night shift rooms in the clinical ward		
Not set	3.52 (0.56)	$X^2=16.9, p<0.001$
Stayed in the same room as the on-call nurse	4.06 (0.54)	
Stayed in the classroom	4.07 (0.6)	
Have not on-call	4.39 (0.36)	

Multiple regression analysis revealed key factors influencing nursing students' satisfaction with the CLE. Religious students (e.g., Buddhism, Christianity, Hoa Hao) reported lower satisfaction than non-religious peers ($\beta=-0.276$; 95% CI: -0.49, -0.06; $p=0.011$). Part-time workers also had lower satisfaction ($\beta=-0.27$; 95% CI: -0.5, -0.04; $p=0.041$). Students with access to night shift rooms, either shared with on-call nurses or designated classrooms, showed higher satisfaction ($\beta=0.367$; 95% CI: 0.021, 0.713; $p=0.038$ and $\beta=0.444$; 95% CI: 0.056, 0.833; $p=0.025$). Furthermore, students at Can Tho Central General and Children's hospitals were less satisfied compared to those at specialised hospitals ($\beta=-0.372$; 95% CI: -0.74, -0.002; $p=0.049$ and $\beta=-0.435$; 95% CI: -0.822, -0.048; $p=0.028$). These factors explained 19.8% of the model's variance. Table 4 presents the detailed results of the multiple regression analysis.

Table 4: Factors Related to Nursing Students' Satisfaction with the Clinical Practice Environment

Background Variable	β	Adjusted p-value	Adjusted 95% CI for β	Adjusted R square
Religion	-0.276	0.011	(-0.49 -0.06)	0.198
Working during the learning process	-0.27	0.024	(-0.5 -0.04)	
Specialised hospitals in Can Tho	Can Tho Central General Hospital	-0.372	(-0.74 -0.002)	
	Can Tho Children's Hospital	-0.435	(-0.822 -0.048)	
Not setup in night shift rooms in the clinical ward	Staying in the same room as the on-call nurse	0.367	(0.021 0.713)	
	Staying in the classroom	0.444	(0.056; 0.833)	

DISCUSSION

Nursing students reported high satisfaction with the CLE (4.07/5, SD=0.56), with the supervisory relationship receiving the highest score and the pedagogical atmosphere the lowest. This satisfaction reflects improvements in training quality through sessions aligned with the Ministry of Health Vietnam's standards, including contributions from experienced faculty and hospital head nurses. Compared to other studies, this result was higher than those by Papastavrou (2016) in Vietnam (3.5±1 to 4.3±0.6) and Ziba *et al.* (2021) in Ghana (3.07±0.84 to 3.63±0.85), as well as Aljohani *et al.* (2023) in Saudi Arabia (3.76±0.64). However, it was lower than Rosenberg *et al.* (2019) in Norway (4.08±0.72 to 4.34±0.87). Research in Palestine identified "supervisory relationship" and "nurse teacher's role" as highest-rated factors, while Morocco ranked "pedagogical atmosphere" highest (Guejdad *et al.*, 2024; Hammad *et al.*, 2024). These differences may reflect variations in practice settings, educational cultures, and developmental stages, underscoring the need for improvements in the CLE atmosphere.

In Vietnam, the collectivist culture, which emphasises hierarchical relationships and respect for authority, likely influences nursing students' satisfaction with the CLE. This may explain the high satisfaction with the supervisory relationship, as students value guidance from experienced instructors. However, this structure may limit autonomy and critical thinking, contributing to lower satisfaction with the pedagogical atmosphere. In contrast, in European countries, where education systems promote independence and critical thinking, satisfaction with the CLE is higher, as seen in Norway (D'Souza *et al.*, 2015). Understanding these cultural differences is crucial for developing educational approaches that balance autonomy and satisfaction in Vietnam. Institutions should continue improving the pedagogical atmosphere while enhancing supervisory relationships and infrastructure. Educators should also foster student autonomy and critical thinking while respecting cultural norms.

Nursing students' clinical learning experiences are shaped by multiple factors (Baghdadi, Alotaibi & Abdelaliam, 2023; Inocian *et al.*, 2022; Jamshidi *et al.*, 2016; Lengetti *et al.*, 2021), which highlight significant gaps between their views of the current and desired CLE (Inocian *et al.*, 2022). Students prefer environments characterised by personalisation, engagement, satisfaction, task focus, teaching innovation, and individualised attention (Inocian *et al.*, 2022). The results of the multiple regression analysis indicated that four factors—religion, part-time work during studies, clinical practice hospital, and the setup of night shift rooms—were significantly related to nursing students' satisfaction with the CLE.

Students practicing a religion (e.g., Buddhism, Christianity, Hoa Hao) had lower average satisfaction scores compared to non-religious students ($\beta=-0.276$; 95% CI: -0.49, -0.06; $p=0.011$). This could be due to religious students seeking fulfillment beyond their current state or focusing more on emotional well-being from their spiritual practices (Davis *et al.*, 2023). Religion, although beneficial to patient care (Whitley, 2012), has not yet been formally integrated into Vietnam's healthcare education system. Given that religious activities can also influence happiness indices (Mitchell, 2019), educational institutions might consider addressing the specific emotional and spiritual needs of religious students to enhance their satisfaction with the CLE.

Students who worked part-time reported lower satisfaction with the CLE compared to those who did not ($\beta=-0.27$; 95% CI: -0.5, -0.04; $p=0.041$). While part-time work offers financial support and experience, it also causes stress and fatigue, particularly in nursing (Kishwer *et al.*, 2023; Tessema, Ready & Astani, 2014; Wang *et al.*, 2010). In Vietnam, where academic and family pressures are high, balancing work and study is especially challenging. Part-time work can negatively affect academic performance and satisfaction, particularly in demanding fields like nursing (Alanazi *et al.*, 2023; Attia & Ibrahim, 2023; Lillekroken *et al.*, 2024). Educators should develop support systems and offer flexible job opportunities within healthcare to help students manage work-study demands.

The choice of clinical practice hospital significantly affected student satisfaction (Rodríguez-Monforte *et al.*, 2023). Students at Can Tho Central General Hospital and Can Tho Children's Hospital have reported lower satisfaction than those at specialised hospitals ($\beta=-0.372$; 95% CI: -0.74, -0.002, $p=0.049$ and $\beta=-0.435$, 95% CI: -0.822, -0.048; $p=0.028$, respectively). Le's research also showed higher satisfaction at specialised hospitals (Papastavrou, 2016). This may be due to specialised hospitals having shorter practice periods, smaller groups, and fewer patients, while general hospitals with higher patient loads offer less personalised instruction,

leading to lower satisfaction (Pham *et al.*, 2023). Truong (2015) found longer practice periods correlated with lower satisfaction, but shorter periods reduced learning quality (Truong, 2015). Miller (2024) noted that mentoring adds extra burdens to nurses, impacting student learning. Clinical placements are essential for enhancing competencies and integrating theory with practice (Masilaca, Kumar & Balekiwai, 2018). Therefore, selecting appropriate clinical hospitals and optimising placement durations are vital for maintaining student satisfaction.

The study found that night shift room availability in clinical wards significantly influenced student satisfaction. Students with access to designated rooms for on-call duties reported higher satisfaction ($\beta=0.367$; 95% CI: 0.021, 0.713; $p=0.038$ and $\beta=0.444$; 95% CI: 0.056, 0.833; $p=0.025$). On-call duty, a critical learning opportunity, allowed students to engage more deeply in patient care and nursing practice (Manoochehri *et al.*, 2015; Woo & Li, 2020). It provided valuable experience and supported future careers (Amukugo *et al.*, 2017; Goren *et al.*, 2015; Kaphagawani & Useh, 2013; Palese *et al.*, 2017). However, the absence of on-call rooms, needed for storing tools, changing attire, and resting, could lead to increased stress and fatigue, negatively impacting satisfaction. Some studies noted that students often felt bored during night shifts and performed non-nursing tasks (Dobrowolska *et al.*, 2020). Adequate facilities, including night shift rooms, are essential to support students, as they provide spaces for rest and storage, helping reduce stress and fatigue. Universities should ensure clinical hospitals are properly equipped for student placements.

Limitation

The study has some limitations that the cross-sectional design prevented the identification of causal relationships, highlighting the need for future longitudinal or qualitative studies, such as interviews or focus groups, to gain deeper insights. Additionally, focusing on a single university limits the generalisability of the findings. Comparative studies across multiple universities could offer broader and more generalisable recommendations for improving clinical education in Vietnam.

CONCLUSION

Nursing students reported high satisfaction with the CLE, influenced by factors such as religion, part-time work, clinical practice hospitals, and night shift room setups. Educational institutions should improve student satisfaction by enhancing the pedagogical atmosphere, addressing religious needs, and offering flexible support and part-time job opportunities. Additionally, selecting suitable clinical hospitals, optimising placement durations, and ensuring facilities like night shift rooms are crucial. Future research should expand to include qualitative studies to explore causal relationships between these factors and the CLE. This study enhanced understanding of factors influencing nursing students' satisfaction with the CLE in Vietnam, where research is limited. It offers valuable insights for developing strategies to improve clinical training.

Conflict of Interest

The authors declare that they have no competing interests.

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