

Exploring The Relationship Between Clinical Learning Environments, Stress Perception, And Coping Behaviors In Nursing Students

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Abstract

Introduction

Clinical learning environments play a crucial role in shaping nursing students' stress perception and coping behaviors. Understanding these relationships can improve student outcomes and well-being.

Methods

A cross-sectional descriptive study was conducted with 304 third- and fourth-year nursing students at Nguyen Tat Thanh University. Data were collected using the Clinical Learning Environment Inventory (CLEI), Perceived Stress Scale, and Coping Behavior Inventory (CBI). Statistical analyses included regression and path analysis.

Results

Students rated the clinical environment ($M = 3.65$) and coping behaviors ($M = 3.32$) as "Good," while perceived stress was rated "High" ($M = 3.20$). Stress from assignments, lack of professional knowledge, and environmental stressors were significant predictors of coping behaviors. The clinical environment indirectly influenced coping through perceived stress (indirect effect = 0.202, $p < 0.001$).

Conclusion

A supportive clinical learning environment reduces perceived stress and enhances effective coping behaviors. Targeted interventions are recommended to improve students' resilience during clinical training.

1. Introduction

Nursing education is a complex and multifaceted process that integrates theoretical instruction with practical clinical training. The clinical learning environment is crucial for shaping nursing students' development and their preparedness for the profession [1]. This environment encompasses various physical, social, and psychological components that significantly influence students' well-being and educational outcomes [2].

In recent years, the challenges and stressors faced by nursing students during clinical training have gained increasing attention. These students often contend with demanding situations, such as providing care for critically ill patients, which can be both emotionally and physically taxing [3]. The emotional burden of witnessing patient suffering, coupled with the pressure to apply theoretical knowledge in practice, contributes to heightened stress levels [4]. Additionally, navigating the hierarchical dynamics of healthcare and balancing clinical responsibilities with academic demands further exacerbates their stress [5,6]. Such cumulative stress can lead to reduced academic performance, increased anxiety, and burnout, ultimately impacting the quality of patient care [7].

While prior research has identified various coping strategies employed by nursing students, gaps remain in understanding how these strategies relate to the clinical learning environment and perceived stress. Notably, existing studies have primarily focused on the types of coping mechanisms without exploring the factors influencing their effectiveness (Dias et al., 2024). This study aims to address these gaps by investigating the relationships between clinical learning environments, stress perception, and coping behaviors among nursing students in Nguyen Tat Thanh University.

2. Materials And Methods

2.1. Study Design

A cross-sectional descriptive study was conducted.

2.2. Research Locale

The study took place at Nguyen Tat Thanh University from January 2025 to May 2025.

2.3. Population and Sample

The target population consisted of third-year and four-year nursing students who completed at least one semester of hospital internship. The sample size was calculated using G*Power software, with an alpha of 0.01 and 99% power, resulting in a required sample size of 304 participants (effect size = 0.1, alpha error = 0.01, power error = 0.99, number of predictors = 3).

2.4. Sampling Technique

A stratified random sampling technique was employed to ensure representative sampling.

2.5. Research Instrument

The Clinical Learning Environment Inventory (CLEI), originally developed by Chan (2002) and later adapted into Vietnamese by Truong Thi Hue (2015), consists of 25 items assessing students' perceptions of their clinical environments [8,9]. Additionally, the Perceived Stress Scale (29 items) measures stress levels with a Cronbach's alpha of 0.84, while the Coping Behavior Inventory (CBI) includes 19 items across four coping behavior categories, demonstrating excellent reliability (Cronbach's alpha of 0.91) by from Hamaideh (2017) [10]. The CBI employs a 5-point Likert scale to assess coping behaviors.

2.6. Data Analysis

Data entry and analysis were conducted using Jamovi software. Descriptive statistics, including frequency and percentage for demographic characteristics and mean for age, were used. Weighted means and verbal interpretations assessed clinical learning environments, stressors, and coping behaviors. Relationships among variables were analyzed using Spearman's rho or Pearson's r, based on data normality. Multiple linear regression analysis was employed to evaluate the relationships between clinical learning environment, clinical stressors, and coping behaviors. Path analysis was conducted to develop a model promoting effective coping behaviors among nursing students in Vietnam.

3. Results

The research was conducted on 304 third- and fourth-year nursing students who had completed at least one semester of clinical internship. The results were as follows:

Table 1: Clinical Learning Environment Inventory According to Nursing Students

Item	Mean ± SD	Descriptive Interpretation
Student Learning	3.88 ± 1.00	Good
Satisfaction with Clinical Experience	3.69 ± 0.92	Good
Teaching-Learning Interaction	3.68 ± 0.92	Good
Students as the Center of the Teaching-Learning Process	3.62 ± 0.94	Good
Support for Students in Clinical Studies	3.63 ± 0.96	Good
Overall mean	3.65 ± 0.89	Good

Legend: 4.21 – 5.00: **Very good**; 3.41 – 4.20: **Good**; 2.61 – 3.40: **Moderate**; 1.81 – 2.60: **Poor**; 1.00 – 1.80: **Very Poor**

Table 1 indicates that "Student Learning" received a mean score of 3.88 ± 1.00 , "Satisfaction with Clinical Experience" scored 3.69 ± 0.92 , "Teaching-Learning Interaction" was rated at 3.68 ± 0.92 , and "Support for Students in Clinical Studies" achieved a mean of 3.63 ± 0.96 . The overall mean score was 3.65 ± 0.89 . All factors within the clinical learning environment were assessed "Good" by nursing students.

Table 2: The Perceived Stress According to Nursing Students

Item	Mean \pm SD	Descriptive Interpretation
Stress from taking care of patients	3.24 ± 0.96	High Stress
Stress from assignments and workload	3.15 ± 0.98	High Stress
Stress from peers and daily life	3.23 ± 0.97	High Stress
Stress from lack of professional knowledge and skills	3.11 ± 0.96	Moderate Stress
Stress from the environment	3.28 ± 0.98	High Stress
Overall mean	3.20 ± 0.90	High Stress

Legend: 4.21 – 5.00: **Very High Stress**; 3.41 – 4.20: **High Stress**; 2.61 – 3.40: **Moderate Stress**; 1.81 – 2.60: **Low Stress**; 1.00 – 1.80: **Very Low Stress**

The results in Table 2 illustrate the perceived stress levels among nursing students, with an overall mean score of 3.20 ± 0.90 , categorized as High Stress. Most factors, including "Stress from taking care of patients" (3.24 ± 0.96), "Stress from peers and daily life" (3.23 ± 0.97), and "Stress from assignments and workload" (3.15 ± 0.98), all reflect high stress levels. Only "Stress from lack of professional knowledge and skills" was rated as Moderate Stress at 3.11 ± 0.96 .

Table 3: The Coping Behavior Inventory According to Nursing Students

Item	Mean \pm SD	Descriptive Interpretation
Avoidance	2.92 ± 0.97	Moderate
Problem Solving	3.52 ± 0.90	Good
Stay Optimistic	3.29 ± 0.86	Moderate
Transference	3.50 ± 1.00	Good
Overall Mean	3.32 ± 0.79	Good

Legend: 4.21 – 5.00: **Very good**; 3.41 – 4.20: **Good**; 2.61 – 3.40: **Moderate**; 1.81 – 2.60: **Poor**; 1.00 – 1.80: **Very Poor**

The findings presented in Table 3 elucidate the coping behaviors of nursing students, yielding an overall mean score of 3.32 ± 0.79 , which is classified as Good. Notably, the "Problem Solving" strategy achieved a mean of 3.52 ± 0.90 , alongside "Transference," which scored 3.50 ± 1.00 , both indicative of effective coping mechanisms. In contrast, "Avoidance" and "Stay Optimistic" were rated lower, with mean scores of 2.92 ± 0.97 and 3.29 ± 0.86 respectively, both categorized as Moderate.

Table 4: Factors Affecting Coping Ability of Nursing Students: Regression Analysis Model Fit Measures

Model Fit Measures				Overall Model Test			
Model	R	R ²	Adjusted R ²	F	df1	df2	p
1	0.848	0.72	0.71	75.2	10	293	<.001

The results from the Overall Model Test in Table 4 indicate a strong model fit for factors influencing the coping ability of nursing students. The correlation coefficient $R=0.848$ suggests a robust positive relationship between the predictors and coping ability. The R^2 value of 0.7200.7200.720 indicates that approximately 72% of the variance in coping ability is explained by the model, which is significant in social science research. The Adjusted R^2 of 0.7100.7100.710 confirms this finding while accounting for the number of predictors. The F-statistic of 0.75.275.275.2 with degrees of freedom $df1=10$ and $df2=293$ is highly significant ($p<0.001$), demonstrating that the model is statistically significant and that at least one predictor contributes meaningfully to understanding coping behaviors among nursing students. In there:

Predictor	Estimate	SE	t	p
Intercept	7.32038	2.217	3.3013	0.001
Student learning	0.19351	0.261	0.74216	0.459

"Satisfaction with clinical experience"	0.20772	0.208	1.00015	0.318
"Teaching-learning interaction"	0.3953	0.256	1.5421	0.124
Students are the center of the teaching-learning process"	0.57492	0.303	1.90044	0.058
Support students in clinical studies	-0.06505	0.286	-0.22743	0.82
Stress from taking care of patients	-0.05572	0.13	-0.42752	0.669
Stress from assignments and workload	0.7965	0.229	3.47311	< .001
Stress from peers and daily life	-0.00109	0.258	-0.00423	0.997
Stress from lack of professional knowledge and skills	0.36245	0.179	2.02295	0.044
Stress from the environment	0.80517	0.324	2.48572	0.013

The regression analysis results indicate several predictors influencing the coping behavior of nursing students. The intercept is significant at 7.32038, establishing a baseline. Among the predictors, stress from assignments and workload significantly enhances coping behavior with an estimate of 0.79650 and a p-value less than 0.001. Additionally, stress from lack of professional knowledge and skills shows a significant positive impact (estimate of 0.36245, $p = 0.044$), as does stress from the environment (estimate of 0.80517, $p = 0.013$). In contrast, factors such as student learning, satisfaction with clinical experience, and support for students in clinical studies do not demonstrate significant effects on coping behavior.

Table 5: Indirect and Total Effects on Coping Behavior of Nursing Students

Type	Effect	Estimate	SE	95% C.I. (a)		β	z	p
				Lower	Upper			
Indirect	Clinical learning environment inventory \Rightarrow The Perceived Stress \Rightarrow Coping behavior inventory	0.202	0.0235	0.156	0.248	0.294	8.59	< .001
Component	Clinical learning environment inventory \Rightarrow The Perceived Stress	0.598	0.059	0.483	0.714	0.502	10.13	< .001
	The Perceived Stress \Rightarrow Coping behavior inventory	0.337	0.0208	0.297	0.378	0.585	16.22	< .001
Direct	Clinical learning environment inventory \Rightarrow Coping behavior inventory	0.258	0.0248	0.21	0.307	0.376	10.44	< .001
Total	Clinical learning environment inventory \Rightarrow Coping behavior inventory	0.46	0.0293	0.403	0.518	0.67	15.71	< .001

Note. Confidence intervals computed with method: Standard (Delta method)

Note. Betas are completely standardized effect sizes

The analysis reveals significant effects between the clinical learning environment, perceived stress, and coping behavior. The indirect effect from the clinical learning environment to coping behavior through perceived stress is estimated at 0.202, indicating a substantial influence ($\beta = 0.294$, $p < 0.001$). The component effect from the clinical learning environment to perceived stress is strong at 0.598 ($\beta = 0.502$, $p < 0.001$), suggesting that a supportive environment reduces stress. Additionally, perceived stress negatively impacts coping behavior (estimate of 0.337, $\beta = 0.585$, $p < 0.001$). The direct effect from the clinical learning environment to coping behavior is also significant at 0.258 ($\beta = 0.376$, $p < 0.001$). Overall, the total effect is 0.460 ($\beta = 0.670$, $p < 0.001$), underscoring the critical role of the clinical learning environment in enhancing coping strategies among nursing students. (Table 5)

4. Discussion

This study provided valuable insights into the clinical learning environment, perceived stress, and coping behaviors among nursing students. The average ratings for factors such as Student Learning at 3.88 and Satisfaction with Clinical Experience at 3.69 indicated a generally favorable clinical environment, demonstrating that the internship facilities, clinical instructors, and healthcare staff created conducive conditions for nursing students during their practice. These results align with the research conducted by Agueda Cervera-Gasch, Minimole Vijayan, and Laila Al-Daken [11–13].

However, the overall perceived stress level among nursing students was high, with a mean score of 3.20. Notably, specific stressors, such as stress from taking care of patients (mean score of 3.24) and stress from assignments and workload (mean score of 3.15), contributed significantly to this assessment. These findings are higher compared to other studies, such as the research conducted by Thi Thu Huong Chan at Duy Tan University, which reported a moderate level of perceived stress during clinical internships with a mean score of 2.50 [14]. Similarly, the study by Foozieh Rafati, María Dolores Onieva-Zafra, and Thilanka Jagoda also indicated average stress levels [6,15,16,16]. This discrepancy may be attributed to the fact that 68% of the participants in the present study

were third-year students, who were experiencing clinical internships for the first time. This lack of prior experience may have heightened their stress levels compared to students in other studies.

The coping behaviors exhibited by students received an overall mean score of 3.32, categorized as Good. Notably, problem-solving strategies scored 3.52, reflecting their effectiveness in managing stress. This result is higher compared to the findings of Dalia Toqan and Kieu Thi Phuong Thao [17,18]. Several factors may explain this discrepancy. Since this study was conducted after the research by Kieu Thi Phuong Thao, clinical instructors and students had undergone training on coping strategies following that study. As a result, the ability to cope effectively may have improved significantly among the participants in this research. This enhancement in coping skills highlights the importance of ongoing training and support in fostering resilience among nursing students.

Regression analysis revealed that stress from assignments and workload significantly enhances coping behavior with an estimate of 0.79650 and a p-value of less than 0.001, while stress from lack of professional knowledge at 0.36245 and environmental factors at 0.80517 also have a notable impact. In contrast, factors like student learning and satisfaction with clinical experience did not show significant effects on coping behavior. This contrasts with Lee et al. in 2021, who found a stronger correlation between satisfaction with clinical experiences and coping strategies, suggesting that contextual differences may influence these outcomes.

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The study also highlighted the indirect effects of the clinical learning environment on coping behavior through perceived stress, with an indirect estimate of 0.202 and a beta value of 0.294, both significant at p less than 0.001. This supports the notion that a supportive learning environment can mitigate stress and enhance coping abilities. The total effect of 0.460 with a beta value of 0.670, also significant, underscores the environment's critical role in shaping student resilience.

5.Recommendations

To enhance the well-being of nursing students, two key recommendations are essential.

First, it is crucial to foster a supportive clinical environment by implementing targeted training programs for clinical instructors and students focused on stress management and coping strategies. This training will equip students with practical tools to handle stress effectively during their internships.

Second, integrating coursework on stress management and coping skills into the nursing curriculum will ensure that students are better prepared to navigate the challenges of their clinical experiences.

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