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Factors associated with stress among nursing students in the clinical practice environment at Nam Dinh University of Nursing in 2024

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ABSTRACT

***Objective**: To assess stress levels, and identify factors associated with perceived stress, and examine the relationships between stress and coping behaviors among nursing students during clinical practice at Nam Dinh University of Nursing in 2024. **Methods**: A descriptive cross-sectional study was conducted among 388 third- and fourth-year nursing students using the TC-SINS questionnaire and the CISS-SSC-V13 scale. **Results**: Education stress had the highest mean score (3.31 ± 0.92), followed by stress related to the clinical practice environment (2.97 ± 0.91) and social factors (2.94 ± 0.85). No statistically significant differences in stress scores were observed by gender or academic year. However, students who worked part-time reported significantly higher social stress scores than those who did not (p = .02). Emotion-focused coping was weakly and positively correlated with all three sources of stress (p < .05), whereas task-focused coping was positively associated with academic and social stress only. **Conclusion**: Nursing students reported stress across multiple domains during clinical practice, with Education stressshowing the highest mean score. Part-time employment was associated with higher social stress, and coping behaviors showed varying patterns of association with different sources of stress. These findings may inform the development of targeted psychological support and stress management programs to support nursing students' mental well-being and clinical education.*

***Keywords**: Stress, nursing students, clinical practice, coping strategies.*

INTRODUCTION

Clinical practice is an integral component of nursing education, enabling students to apply theoretical knowledge in clinical settings while developing professional competencies and clinical reasoning skills. However, clinical practice can also be a significant source of stress for nursing students due to demanding responsibilities, high expectations, and limited experience in interacting with patients and healthcare professionals. Previous international studies have reported moderate to high levels of stress among nursing students during clinical practice, which may adversely affect their academic performance, psychological well-being, and professional development [1]. Hamaideh et al. [2] (2017) identified several common stressors, including anxiety related to performing nursing procedures, insufficient support from clinical instructors, and pressure associated

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with clinical assessments. Without effective coping strategies, prolonged exposure to stress may contribute to burnout, anxiety, and compromised quality of patient care.

In Vietnam, previous studies have also documented substantial levels of stress among nursing students. Nguyen Thi Huyen Trang [3] (2021) reported that 65.2% of undergraduate nursing students in Ho Chi Minh City experienced moderate to high levels of stress during clinical practice, with academic workload and the hospital environment identified as major contributing factors. Similarly, Tran Thi Minh Huong et al. [4] (2023) found that living conditions, financial circumstances, and academic pressure were closely associated with stress levels among nursing students in northern Vietnam. Coping behaviors represent another important consideration, as they may influence the relationship between perceived stress and psychological outcomes. Yıldırım et al. [5] (2017) reported that nursing students who adopted proactive, task-focused coping strategies experienced lower stress levels and better psychological well-being than those who relied on avoidance-oriented or negative emotion-focused responses.

However, systematic quantitative evidence examining stress levels and coping behaviors among nursing students during clinical practice remains limited in northern Vietnam, particularly at Nam Dinh University of Nursing, a major institution providing nursing education. Furthermore, individual characteristics, including academic year, gender, and part-time employment status, have not been comprehensively examined in relation to both perceived stress and coping behaviors in this setting. To address these gaps, the present study aimed to assess stress levels and coping behaviors, identify factors associated with perceived stress, and examine the relationships between stress and coping behaviors among nursing students undertaking clinical practice at Nam Dinh University of Nursing in 2024. The findings are expected to provide empirical evidence to inform the development of psychological support programs, improvements in the learning environment, and strategies to enhance the quality of clinical nursing education.

RESEARCH SUBJECTS AND METHODS

Study participants: Third and fourth-year full-time nursing students undertaking clinical practice at Nam Dinh University of Nursing.

Inclusion criteria: Students who provided informed consent to participate in the study.

Exclusion criteria: Students who were absent at the time of data collection.

Study period: April 2024 to September 2024.

Study setting: Nam Dinh University of Nursing.

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

Sample size and sampling method: All eligible third and fourth-year full-time nursing students undertaking clinical practice at Nam Dinh University of Nursing were invited to participate. The minimum required sample size was calculated using the formula for estimating a population mean with a specified absolute precision:

$$n = \frac{Z^2_{1-\alpha/2}\sigma^2}{d^2}$$

In there: n: required sample size. α: statistical level set at 0.05 ($Z_{1-\alpha/2}$ = 1.96).

σ: Expected standard deviation of the SINS score (= 1,2 according to previous research by Nguyen Thi Bich Ngoc and Nguyen Van Tuan [6] on nursing students of Hai Phong Medical College). d: Desired absolute precision set at 0.12

Based on these parameters, the minimum required sample size was estimated to be 385 students. A total of 388 nursing students participated in the study.

Data collection instruments: Data were collected using a structured questionnaire comprising three sections.

Section 1: Sociodemographic characteristics

The first section collected participants' demographic and academic information through three items assessing gender, academic year, and part-time employment status.

Section 2: Traditional Chinese Stressors in Nursing Students Scale (TC-SINS)

The second section consisted of the Traditional Chinese Stressors Inventory for Nursing Students (TC-SINS), developed by Perng et al. [7] (2022). The instrument comprises 20 items distributed across three subscales: social (10 items), clinical (6 items), and education (4 items). Each item is rated on a 5-point Likert scale ranging from 1 (not at all stressful) to 5 (extremely stressful). Subscale scores were calculated as the mean of their respective items, with higher scores indicating greater perceived stress. In the present study, the instrument demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of .949.

Section 3: Vietnamese 13-item version of the Coping Inventory for Stressful Situations – Situation-Specific Coping (CISS-SSC-V13)

The third section used the 13-item version of the Coping Inventory for Stressful Situations (CISS-SSC-V13), which was translated and culturally adapted for Vietnamese students by Le Dai Minh [8]. The instrument assesses four dimensions of coping: task-oriented coping, emotion-focused coping, avoidance-oriented coping through social diversion, and avoidance-oriented coping through distraction. Responses are rated on a 5-point Likert scale ranging from 1 to 5, with higher mean scores indicating more frequent use of the corresponding coping strategy. The instrument has a reported Cronbach's alpha coefficient of .88.

Data analysis: Data were entered and cleaned using Microsoft Excel and subsequently analyzed using Stata version 16.0. Descriptive statistics included frequencies, percentages, means, and standard deviations. Data distributions and homogeneity of variance were assessed before conducting inferential analyses. Independent-samples t tests and analysis of variance (ANOVA) were applied when the relevant statistical assumptions were met.

Pearson's correlation coefficients were calculated to examine relationships between perceived stress scores and coping behavior scores. Simple linear regression analyses were performed to examine the associations between individual characteristics and stress scores. Separate regression models were fitted for each stress domain, with the corresponding stress score as the dependent variable and gender, academic year, or part-time employment status as the independent variable. Regression results were reported as unstandardized regression coefficients (β), 95% confidence intervals (CIs). A two-sided p value $< .05$ was considered statistically significant.

Ethical considerations: The study was approved by the Ethics Committee of Nam Dinh University of Nursing (Approval No. 726/GCN-HDDD, dated April 8, 2024). Participation was voluntary, and all participants provided informed consent. The confidentiality of participants' personal information was strictly maintained throughout the study. Data collection and analysis were conducted in a transparent and systematic manner, and the findings were reported exclusively for scientific purposes.

RESULT

Characteristics of the study participants

Table 1 . Sociodemographic characteristics of nursing students (n = 388)

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	30	7.7
	Female	358	92.3
Academic year	Year 3	189	48.7
	Year 4	199	51.3
part-time employment status	Yes	209	53.9
	No	179	46.1

A total of 388 nursing students participated in the study, the majority of whom were female (92.3%). Third-year and fourth-year students accounted for 48.7% and 51.3% of the sample, respectively, indicating a relatively balanced distribution across academic years. Nearly half of the participants (46.1%) reported having part-time employment.

Perceived Stress and asociated factors

Table 2. Perceived stress scores by stress domain (n = 388)

Stress domain	TC-SINS Point	
	Mean	SD
Clinical	2.97	0.911
Education	3.31	0.915
Social	2.94	0.849

As shown in Table 2, Education stress had the highest mean score (3.31 ± 0.915), followed by tress related to the clinical practice environment (2.97 ± 0.911) and social stress (2.94 ± 0.849).

Table 3. Associations between gender and perceived stress scores (n = 388)

Stress domain / Gender	Mean	SD	β	95%CI	p
Clinical stress					
Male	2.83	0.81	Ref.		
Female	2.98	0.70	0.15	-0.12 - 0.41	0.28
Education stress					
Male	3.15	0.68	Ref.		
Female	3.25	0.76	0.10	-0.19 – 0.38	0.50
Social stress					
Male	2.84	0.76	Ref.		
Female	2.93	0.61	0.09	-0.14 – 0.33	0.43

Note: SD = standard deviation; β = unstandardized simple linear regression coefficient; CI = confidence interval. Male students were used as the reference group.

As presented in Table 3, no statistically significant associations were observed between gender and perceived stress scores across the three domains: clinical (β = 0.15, 95% CI [−0.12, 0.41], p = 0.28), Education (β = 0.10, 95% CI [−0.19, 0.38], p = .50), and social (β = 0.09, 95% CI [−0.14, 0.33], p = 0.43).

Table 4. Associations between academic year and perceived stress scores (n = 388)

Stress domain / Academic year	Mean	SD	β	95%CI	p
Clinical					
Year 3	2.99	0.81	Ref.		
Year 4	2.95	0.61	-0.04	-0.18 – 0.10	0.56
Education					
Year 3	3.21	0.90	Ref.		
Year 4	3.27	0.61	0.06	-0.09 – 0.22	0.40
Social					
Year 3	2.94	0.75	Ref.		
Year 4	2.91	0.47	-0.04	-0.16 – 0.09	0.57

Note. SD = standard deviation; β = unstandardized simple linear regression coefficient; CI = confidence interval. Third-year students were used as the reference group.

As shown in Table 4, academic year was not significantly associated with perceived stress scores in any of the three domains: clinical (β = −0.04, 95% CI [−0.18, 0.10], p = 0.56), Education (β = 0.06, 95% CI [−0.09, 0.22], p = 0.40), or social (β = −0.04, 95% CI [−0.16, 0.09], p = 0.57).

Table 5. Associations between part-time employment status and perceived stress scores (n = 388)

Stress domain/ Part-Time Employment Status	Mean	SD	β	95%CI	p
Clinical					
No	2.93	0.72	Ref.		
Yes	3.01	0.70	0.08	-0.06 – 0.23	0.25
Education					
No	3.19	0.74	Ref.		
Yes	3.31	0.79	0.12	-0.03 – 0.27	0.12
Social					
No	2.86	0.63	Ref.		
Yes	3.00	0.60	0.14	0.02 – 0.27	0.02

Note. SD = standard deviation; β = unstandardized simple linear regression coefficient; CI = confidence interval. Students without part-time employment were used as the reference group.

As presented in Table 5, students with part-time employment reported significantly higher social stress scores than those without part-time employment (M = 3.00 vs. 2.86; β = 0.14, 95% CI [0.02, 0.27], p = 0.02). However, no statistically significant associations were found between part-time employment and stress related to the clinical (β = 0.08, p = 0.25) or education (β = 0.12, p = 0.12).

Table 6. Pearson correlations between perceived stress domains and coping behaviors (n = 388)

Coping strategy	Stress		
	Clinical	Education	Social
Emotion-focused coping	r = 0.1427* p = 0.0049	r = 0.1875* p = 0.0002	r = 0.2922* p = 0.0000
Task-oriented coping	r = 0.0301 p = 0.5543	r = 0.1561* p = 0.0020	r = 0.1063* p = 0.0364
Avoidance-oriented coping: social diversion	r = 0.0775 p = 0.1276	r = 0.1113* p=0.0284	r = 0.1564* p = 0.0020
Avoidance-oriented coping: distraction	r = -0.0102 p = 0.8418	r = 0.0884 p = 0.0819	r = 0.1146* p = 0.0240

*Note. r = Pearson's correlation coefficient. * p < .05.*

As shown in Table 6, emotion-focused coping was weakly and positively correlated with all three stress domains (r = 0.143–0.292, all p < 0.05). Task-oriented coping and social diversion showed weak positive correlations with education and social stress (r = 0.106–0.156, all p < 0.05), whereas distraction was weakly correlated only with social stress (r = 0.115, p = 0.024).

DISCUSSION

A total of 388 third and fourth-year nursing students at Nam Dinh University of Nursing participated in this study, which examined perceived stress and associated factors during clinical practice. The study sample was predominantly female, with women accounting for 92.3% (n = 358) and men accounting for 7.7% (n = 30). This gender distribution is consistent with the female predominance traditionally observed in nursing education in Vietnam and many other countries [3]. Consequently, the findings primarily reflect the experiences and coping behaviors of female nursing students, which should be considered when interpreting and generalizing the results.

Regarding academic year, third-year students represented 48.7% of the sample, while fourth-year students accounted for 51.3%, indicating a relatively balanced distribution between the two academic years. This distribution allowed the study to examine stress and coping behaviors among students at different stages of clinical training, potentially involving varying levels of clinical exposure and experience.

Nearly half of the participants (46.1%) reported having part-time employment, whereas 53.9% did not. This finding suggests that a substantial proportion of nursing students balance academic responsibilities with employment commitments, potentially creating additional demands on their time and resources. Consistent with this observation, Labrague et al. [1] (2018) reported that employment-related demands may negatively affect nursing students' psychological well-being and academic performance.

Among the three stress domains assessed, Education stress had the highest mean score (Mean = 3.31), followed by stress related to the clinical practice environment (Mean = 2.97) and social stress (Mean = 2.94). This finding is consistent with Labrague et al. [1] (2018), who identified education workload and performance expectations as important sources of stress among nursing students. Similarly, Nguyen Thi Huyen Trang [3] (2021) reported a mean education stress score of 3.45 among nursing students in Ho Chi Minh City, suggesting that education demands may represent a common source of stress in Vietnamese nursing education. The relatively higher education stress observed in the present study may be attributable to the concurrent demands of theoretical coursework, clinical practice, and academic assessments among third- and fourth-year students. Furthermore, limited clinical experience may increase the perceived pressure associated with applying theoretical knowledge to patient care, thereby contributing to education stress during clinical training.

With respect to sociodemographic characteristics, no statistically significant associations were observed between gender and perceived stress across the three domains (all p > 0.05). Similarly, stress scores did not differ significantly between third- and fourth-year students (all p > 0.05). These findings contrast with those of Alzayyat [9] (2016), who reported higher stress levels among female nursing students

in Jordan, potentially reflecting gender-related expectations and sociocultural influences. However, the present findings are consistent with those of Nguyen Thi Bich Ngoc and Nguyen Van Tuan [6] (2021) in Hai Phong, who found no significant associations between gender, academic year, and perceived stress. Differences across studies may reflect variations in sociocultural contexts, institutional learning environments, and students' clinical training experiences. Nevertheless, the absence of statistically significant associations in the present study should not be interpreted as evidence that gender or academic year has no influence on perceived stress.

A notable finding was that students with part-time employment reported significantly higher social stress scores than those without part-time employment (M = 3.00 vs. 2.86; β = 0.14, 95% CI [0.02, 0.27], p = 0.02). This finding is consistent with Oonyu (2019), who highlighted the potential adverse effects of part-time employment on students' psychological well-being. Balancing employment and academic responsibilities may increase time constraints and limit opportunities for rest and social interaction, potentially contributing to greater perceived social stress. Similarly, Tran Thi Thuan and Le Nguyen Ngoc Phuong Thao [10] (2022) reported that nursing students engaged in part-time employment often experienced limited time for rest and social activities, which may exacerbate perceived stress. However, given the cross-sectional design of the present study, this association does not establish a causal relationship between part-time employment and social stress.

Regarding coping behaviors, emotion-focused coping demonstrated weak but statistically significant positive correlations with all three stress domains (r = 0.1427–0.2922, all $p < 0.05$). This finding is consistent with Labrague et al.[1] (2018), who reported that nursing students frequently adopted emotion-focused coping strategies when confronted with stressful clinical situations, particularly those perceived as difficult to control. Similarly, Le Dai Minh [8] (2021), in a study examining the Vietnamese adaptation of the CISS-SSC-V13, reported an association between emotion-focused coping and negative psychological responses, including anxiety and helplessness. The positive correlations observed in the present study suggest that students reporting higher perceived stress also tended to use emotion-focused coping strategies more frequently. However, the relatively small correlation coefficients indicate weak relationships, and the cross-sectional nature of the data precludes conclusions about whether emotion-focused coping increases or reduces perceived stress.

In contrast, task-oriented coping was weakly and positively correlated with Education stress (r = 0.1561, p = 0.0020) and social stress (r = 0.1063, p = 0.0364), but not with stress related to the clinical. These findings suggest that students experiencing greater education or social stress may be more likely to engage in active problem-solving strategies, such as organizing study schedules or seeking additional learning resources. This observation is consistent with Zhao et al. [11] (2015), who reported the use of task-oriented coping strategies among Chinese nursing students to address education demands and improve learning outcomes. Nevertheless, the observed correlations do not establish the effectiveness of task-oriented coping in reducing stress. In particular, the lack of a significant association with clinical practice-

related stress warrants further investigation through longitudinal or intervention studies.

Avoidance-oriented coping, particularly social diversion, also demonstrated weak positive correlations with education stress (r = 0.1113, p = 0.0284) and social stress (r = 0.1564, p = 0.0020). This finding is consistent with Labrague et al. [1] (2018), who noted that nursing students may seek interactions with friends or family members as a means of temporarily managing stressful experiences. However, Al-Gamal et al. [12] (2018) suggested that reliance on avoidance-oriented coping may not adequately address underlying sources of stress and could contribute to dependence on external support. Similarly, Le Dai Minh[8] (2021) indicated that although social diversion may provide temporary stress relief, its benefits for developing independent problem-solving and self-regulation skills may be limited. These findings suggest the potential value of incorporating training in task-oriented coping and emotional self-regulation into nursing education to support students in managing stress during clinical practice. However, the effectiveness of such approaches requires further empirical evaluation.

Study limitations

Several limitations should be acknowledged. First, the cross-sectional study design limits the ability to establish temporal or causal relationships between perceived stress, individual characteristics, and coping behaviors. Second, the use of self-reported questionnaires may have introduced response bias, including recall bias and social desirability bias. Third, the study included only third- and fourth-year nursing students from a single institution, which may limit the generalizability of the findings to nursing students at other educational institutions in Vietnam. Finally, potentially relevant factors, such as previous mental health status, perceived social support, and emotional self-regulation skills, were not assessed. These unmeasured variables may have influenced the observed associations between stress and coping behaviors.

CONCLUSION

This study found that nursing students at Nam Dinh University of Nursing experienced stress across multiple domains during clinical practice, with education stress having the highest mean score (3.31 ± 0.92), followed by stress related to the clinical (2.97 ± 0.91) and social factors (2.94 ± 0.85). No statistically significant associations were observed between stress levels and gender or academic year. However, students with part-time employment reported significantly higher social stress scores than those without part-time employment (p = .02). Emotion-focused coping was weakly and positively correlated with all three stress domains, whereas task-oriented coping and avoidance-oriented coping through social diversion were positively correlated with education and social stress. These findings highlight the importance of developing targeted psychological support programs and strengthening adaptive coping skills among nursing students, particularly those balancing academic responsibilities with part-time employment.

RECOMMENDATION

To reduce perceived stress among nursing students during clinical practice, Nam Dinh University of Nursing should consider implementing comprehensive psychological support programs, strengthening guidance from clinical instructors, and improving the

clinical learning environment. Specifically, potential strategies include providing regular psychological counseling services, offering stress management and adaptive coping skills training before clinical placements, establishing peer support groups, and developing monitoring and academic support mechanisms for students with part-time employment. These measures may contribute to improving students' psychological well-being and enhancing the quality of clinical nursing education.

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