

## STRESS, ANXIETY, DEPRESSION AND RELATED FACTORS AMONG COLLEGE NURSING STUDENTS: A CROSS-SECTIONAL STUDY

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### ABSTRACT

**Background:** As society develops, many aspects can cause pressure on human life, so mental health is a top concern of many countries in the world. Nursing students are considered to be at high risk of experiencing mental health issues such as stress, anxiety, and depression. **Objectives:** To determine the prevalence of stress, anxiety, depression, and related factors among nursing college students. **Materials and methods:** A cross-sectional descriptive study was conducted on 533 nursing college students using the DASS 21 scale, with an online survey conducted via Google Forms. **Results:** The prevalence of stress, anxiety, and depression among nursing college students were 56.7%, 71.5%, and 51.0% respectively. Adaptability, satisfaction with appearance, ease of making new friends, and alcohol consumption were factors related to the stress, anxiety, and depression of nursing college students. **Conclusion:** Stress, anxiety, and depression were high levels among nursing students and were associated with several factors. Mental health issues in students, specifically stress, anxiety, and depression, need to be addressed. There is an urgent need to plan stress, anxiety, and depression-appropriate intervention strategies to improve students' mental health.

**Keywords:** Stress, anxiety, depression, nursing college student, DASS 21.

### I. INTRODUCTION

Students are susceptible to psychological disorders due to the pressure of academic programs and anxieties about future careers. Additionally, psychological disorders can arise from the stress of being away from family, adjusting to a new living and learning environment, lack of decision-making autonomy, and the influence of the internet, new relationships with friends and teachers [1], [2].

Medical education is one of the most academically and emotionally stressful programs, thus medical students experience more pressure than students in other fields and the general population [3]. Medical students, in general, and nursing students, in particular, face various stressful situations such as massive bleeding, shortness of breath, seizures, end-of-life care, and patient and family distress. If students cannot manage their stress, they may face health issues, reduced concentration, declining academic performance, and a decreased quality of patient care [4].

Research in Europe indicates that the levels of stress, anxiety, and depression among nursing students have increased over the past 15 years [4]. Although there have been some studies on the mental health of medical students in Vietnam, this topic has not been thoroughly investigated among nursing students, especially at the college level. Based on these realities, we conducted this study to determine the prevalence of stress, anxiety, and depression, as well as some related factors, among nursing students at Can Tho Medical College.

## II. MATERIALS AND METHODS

### 2.1. Materials

Nursing college students studying at Can Tho Medical College during the research period.

- **Inclusion criteria:** Nursing college students currently enrolled at Can Tho Medical College from the first to the third year who have agreed to participate in the study by completing the information on the pre-prepared online survey form.

- **Exclusion criteria:** Students who have withdrawn from or are currently on leave from the college as per the Rector's decision, and students who do not complete the mandatory sections of the form.

### 2.2. Research methodology

- **Research design:** A cross-sectional descriptive study.

- **Sample size:** Calculated using the following formula:

$$n = \frac{Z_{(1-\alpha/2)}^2 \times p(1 - p)}{d^2}$$

With: n is the minimum sample size. Z is the reliability value. With  $\alpha=0.05$ ,  $Z_{1-\alpha/2}=1.96$ . d: margin of error, choose  $d=5\%$ . p: prevalence of stress in the study of Nguyen Thi Minh Thanh,  $p=16.2\%$  [1]. Applying the formula, the sample size after calculation was 209 students. In practice, 533 out of 985 students responded, yielding a response rate of 54.1%, and all responses met the selection criteria.

- **Sampling method:** This study utilized purposive sampling.

- **Data collection tool:** The study employed the short form of the Depression, Anxiety, and Stress Scale (DASS 21). DASS 21 includes three subscales: Depression, Anxiety, and Stress, each subscale containing 7 items. The DASS is scored using a 4-point Likert scale ranging from 0 to 3 ("0: Did not apply to me at all" to "3: Applied to me very much or most of the time"). Based on the total scores for each subscale and the classification table by Le (2017) stress, anxiety, and depression are categorized into five levels: Normal, Mild, Moderate, Severe, and Extremely Severe [5].

- **Data collection method:** All eligible college nursing students were invited to participate via students' email addresses. Students who agreed to participate were required to complete the online data collection form through Google Forms.

- **Research variables:** The study includes general characteristics of students such as gender, ethnicity, permanent residence, year of the academic program, satisfaction with academic results, course failures, adaptability, satisfaction with appearance, ease of making new friends, and alcohol consumption. Stress, anxiety, and depression are assessed using the DASS 21 scale.

- **Research period and research location:** The research was conducted from December 2023 to April 2024 at Can Tho Medical College.

- **Data analysis:** The collected data were processed and analyzed using SPSS version 26.0. Descriptive statistics included frequencies and percentages for categorical variables, as well as means, standard deviations, and ranges for quantitative variables. Multivariate logistic regression analysis was employed to assess the relationships between stress, anxiety, and depression and the associated factors.

- **Ethical approval:** Our study adhered to all ethical principles and was approved by the Research Ethics Committee of Can Tho Medical College, as per Decision No. 493/QĐ-CDYT dated November 2, 2023.

### III. RESULTS

#### 3.1. Socio-demographic characteristics of the respondents

Table 1. Socio-demographic characteristics of the respondents (n=533).

Characteristics		(n, %)
Gender	Male	107 (20.1)
	Female	426 (79.9)
Ethnicity	Kinh	508 (95.3)
	Others	25 (4.7)
Permanent residence	Urban	147 (27.6)
	Rural	386 (72.4)
Year of the academic program	First-year	148 (27.8)
	Second year	206 (38.6)
	Third year	179 (33.6)
Satisfaction with academic results	Yes	316 (59.3)
	No	217 (40.7)
Course failures	Yes	31 (5.8)
	No	502 (94.2)
Adaptation	Yes	450 (84.4)
	No	83 (15.6)
Satisfaction with appearance	Yes	355 (66.6)
	No	178 (33.4)
Ease making new friends	Yes	351 (65.9)
	No	182 (34.1)
Alcohol consumption	Yes	160 (30.0)
	No	373 (70.0)

Female students and Kinh ethnic students accounted for a significant proportion, at 79.9% and 95.3%, respectively. Up to 72.4% had permanent residence in rural areas. Second-year students accounted for the highest proportion (38.6%), 59.3% were satisfied with their academic results, and 5.8% had course failure. Additionally, 15.6% of students reported difficulties in adapting, 66.6% were satisfied with their appearance, and 34.1% found it difficult to make new friends. The proportion of students who consumed alcohol was 30%.

#### 3.2. Status of stress, anxiety, and depression among nursing college students

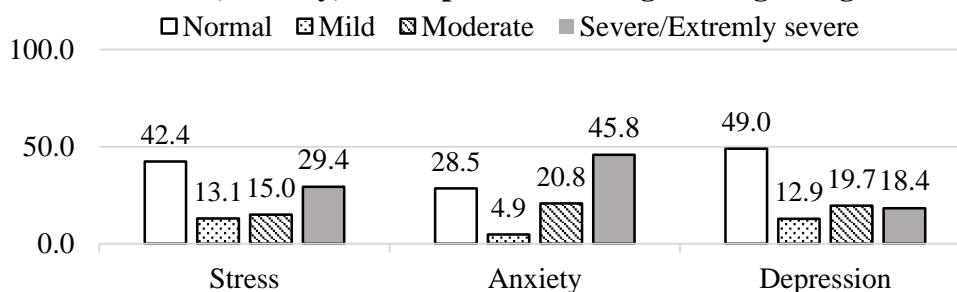


Figure 1. The distribution of severity of stress, anxiety, and depression among nursing college students

The proportions of stress, anxiety, and depression among nursing college students were 57.6%, 71.5%, and 51.0% respectively. Among these, the proportion of severe and extremely severe stress, anxiety, and depression were 29.4%, 45.8%, and 18.4% respectively.

### 3.3. Factors associated with stress, anxiety, and depression among nursing college students

Table 2. Stress, anxiety, depression, and some associated factors (n=533)

Variables	Stress			Anxiety			Depression		
	Yes n (%)	No n (%)	OR (CI 95%)	Yes n (%)	No n (%)	OR (CI 95%)	Yes n (%)	No n (%)	OR (CI 95%)
<b>Adaptability</b>									
No	57 (68.7)	26 (31.3)	1.8* (1.1-3.3)	-	-	-	60 (72.3)	23 (27.7)	3.7* (2.0-6.8)
Yes	250 (55.6)	200 (44.4)	1	-	-	-	212 (47.1)	233 (52.9)	1
<b>Satisfaction with appearance</b>									
No	-	-	-	145 (81.5)	33 (18.5)	1.9* (1.2-3.1)	115 (64.6)	63 (35.4)	1.8* (1.2-2.8)
Yes	-	-	-	236 (66.5)	119 (33.5)	1	157 (44.2)	198 (55.8)	1
<b>Ease making new friends</b>									
No	127 (69.8)	55 (30.2)	2.1* (1.4-3.2)	-	-	-	119 (65.4)	63 (34.6)	2.5* (1.6-3.8)
Yes	180 (51.3)	171 (48.7)	1	-	-	-	153 (43.6)	198 (56.4)	1
<b>Alcohol consumption</b>									
Always	5 (83.3)	1 (16.7)	9.20 (0.81-104.9)	5 (83.3)	1 (16.7)	4.16 (0.3-55.5)	5 (83.3)	1 (16.7)	23.4* (1.8-304.4)
Some time	107 (69.5)	47 (30.5)	2.2* (1.4-3.4)	127 (82.5)	27 (17.5)	2.3* (1.4-3.8)	94 (61.0)	60 (39.0)	1.8* (1.1-2.7)
Never	197 (52.3)	178 (47.7)	1	249 (66.8)	124 (33.2)	1	173 (46.4)	200 (53.6)	1

\*p-value <0.05

Multivariate logistic regression analysis showed that adaptability, satisfaction with appearance, ease of making new friends, and alcohol consumption were related to stress, anxiety, and depression among nursing college students.

## IV. DISCUSSION

### 4.1. Status of stress, anxiety, and depression among nursing college students

The proportion of students suffering from stress, anxiety, and depression in our study was 57.6%, 71.5%, and 51.0%, respectively. Although using the same DASS 21 scale, we found that the studies reporting rates of stress, anxiety, and depression were very different. Nguyen Thi Minh Thanh reported rates of stress, anxiety, and depression of 16.2%, 14.6%, and 3% respectively [1], which were lower than our results. These rates were 53.6%, 77.7%,

and 70.9%, respectively, according to Tran Van Thien et al [2]. This author's result was also different from our results.

Regarding the proportion of stress among students, our findings are quite similar to those of Diaz-Godino (59.9%) [6] but higher than those reported by Periasamy (31.04%) [4], and Das Narayan (46.9%) [7]. In terms of anxiety, our study's rate (71.5%) was lower compared to Das Narayan (85.3%) [7] but higher than the results from several other authors such as Amadu (58.4%) [8], and Periasamy (40.39%) [3]. For depression, the prevalence of our study (51.0%) is higher than Periasamy's results (40.29%) [4] but lower than those reported by Amadu (58%) [8], and Das Narayan (67.7%) [7]. These differences may be attributed to variations in study locations and populations, including differences in lifestyle, academic pressure, family circumstances, and living environments, which could contribute to discrepancies in the rates of stress, anxiety, and depression among studies. One concerning finding in our study is that the rate of students experiencing stress, anxiety, or depression was above 50%. This was a warning sign regarding the mental health status of nursing college students. The college needs to enhance outdoor activities to provide students with valuable opportunities to relax their minds after stressful study hours and exams. In addition, society and families need to pay more attention to providing mental support to students, creating a friendly and positive environment to help them overcome academic and life pressures.

#### **4.2. Factors associated with stress, anxiety, and depression among nursing students at Can Tho Medical College**

Our research findings indicated that factors such as adaptability, satisfaction with appearance, ease of making new friends, and alcohol consumption were related to stress, anxiety, and depression among nursing college students.

The research findings revealed that students with poor adaptability were 1.8 times more likely to experience stress and 3.7 times more likely to suffer from depression compared to their counterparts with higher adaptability levels. These results were consistent with previous studies that have examined the association between adaptability and mental health outcomes [9]. A plausible explanation for this is that students are required to adapt to new academic and social environments, as well as establish relationships with peers and instructors. Those with greater adaptability are better equipped to integrate smoothly into these environments, thus minimizing the potential for conflict. The study by Le Ngoc Nhu Y (2024) showed that resilience has an inverse effect on depression, proving that resilience helps reduce depression in students [10]. These findings underscore the importance of fostering adaptability skills among young people, particularly students, by encouraging families, educational institutions, and broader societal initiatives to focus on this area of development.

Body image confidence was found to have a significant impact on the risk of anxiety and depression among nursing college students, with OR of 1.9 and 1.8, respectively. These findings are consistent with international literature highlighting the detrimental effects of body dissatisfaction on mental health outcomes, specifically anxiety and depression [11], [12]. According Lim (2023), insecurity regarding one's appearance may hinder social integration and lead to negative self-perceptions due to external judgments [11]. Furthermore, such insecurities can adversely affect self-esteem, thereby contributing to the development of depression, anxiety, and stress [13]. Consequently, it is imperative for educational institutions, educators, and families to closely monitor students' perceptions of

their appearance. Establishing clubs focused on enhancing external appearances such as makeup, fashion, and fitness clubs. They can provide students with essential skills and promote positive body image.

Stress, anxiety, and depression are significantly influenced by the quality of friendships. The results indicated that students who find it difficult to make new friends are at a higher risk for stress and depression compared to those who find it easier to make friends, with odds ratios of 2.1 and 2.5, respectively. This is consistent with findings by Tran Van Thien, who reported that the absence of close friends increases the risk of stress and depression by 3.1 and 2.9 times, respectively [2]. Finding new friends in a new educational environment helps students share academic challenges, adapt to the new environment together, and reduce pressure. The institution should organize extracurricular activities or clubs to encourage students to participate, interact, and make new friends.

Additionally, our study found that students who occasionally consume alcohol are at a higher risk of stress, anxiety, and depression compared to those who do not consume alcohol, with odds ratios of 2.2, 2.3, and 1.8, respectively. This finding aligns with previous studies by Chow (2021) and Silva (2018) [14],[15]. However, Silva noted that the correlation between alcohol consumption patterns and anxiety levels did not persist after intervention. When students shifted to a lower-risk drinking pattern, their anxiety levels remained similar to those before the intervention. This result suggests that specific interventions for students with risky drinking patterns may not directly impact anxiety levels, highlighting the need for targeted measures to address anxiety, as it is a risk factor that can lead to increased alcohol misuse [15].

## V. CONCLUSION

The rates of stress, anxiety, and depression among nursing college students are 56.7%, 71.5%, and 51.0%, respectively. Factors such as adaptability, satisfaction with appearance, ease of making new friends, and alcohol consumption have been identified as related to stress, anxiety, and depression among students. It is essential to screen and identify students experiencing stress, anxiety, and depression early to provide appropriate and timely support. Furthermore, the institution should collaborate with relevant individuals and organizations to establish clubs and groups that support students in adapting, socializing, and developing soft skills. Additionally, organizing sports events and fitness activities can engage students and help reduce alcohol dependence.

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