

# Assessment of Stress and Related Factors among Medical Students

Quach Thai Bao<sup>1</sup>

<sup>1</sup>Faculty of medicine, Hong Bang International University, Ho Chi Minh city, Vietnam - 70000

Email address: baoqt.19@gmail.com

**Abstract— Research Objective:** This study aimed to describe the demographic characteristics and assess the stress levels among university students, as well as explore related factors. **Methods:** A cross-sectional study was conducted among 400 students using a structured questionnaire and the DASS-21 scale to evaluate stress. Data were analyzed using descriptive statistics associations between variables. **Results:** The majority of participants were female (85.5%), over 20 years old (75.5%), and lived in rented accommodation (99.5%). Most students demonstrated normal stress levels (78.0%), while 20.5% experienced mild stress and 1.5% moderate stress. Female students and those involved in extracurricular activities had higher rates of stress, whereas students with part-time jobs reported lower stress levels. These associations were statistically significant ( $p < 0.05$ ). **Conclusion:** The findings highlight a relatively high prevalence of mild stress among students, especially among females and those active in extracurricular activities. Regular mental health screening, stress management education, and targeted support are recommended to promote students' well-being.

**Keywords—** Stress, Students, DASS-21, Mental health, Extracurricular activities, Gender differences.

## I. INTRODUCTION

The World Health Organization (WHO) defines health as “a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity” [1]. Mental health is therefore a fundamental component of overall well-being, with stress being one of its most important indicators. Persistent stress can lead to various adverse effects on both physical and psychological health, impairing concentration, academic performance, and interpersonal relationships.

Stress is an important indicator of mental health and can cause various adverse effects on both physical and psychological well-being. Medical students are considered a psychologically vulnerable group. Numerous international studies have shown that the prevalence of stress, burnout, and mental health disorders among medical students is significantly higher than in the general population, reflecting the unique challenges and demanding nature of medical education [2]. These findings underscore the urgent need for regular mental health assessments and effective stress management interventions within medical schools.

A 2020 study reported that 69.5% of students experienced stress symptoms [3]. Previously, a 2021 study found a prevalence of 78.2% [4]. More recently, a 2023 study using the DASS-21 scale indicated that 51% of medical students were experiencing stress [5]. Stress has become an increasingly common issue, particularly among students. This

condition can negatively affect mental health, learning capacity, and overall quality of life [6].

However, when stress occurs with high intensity, persists over a long period, or repeats frequently, it can disrupt the body's biological balance, leading to various physical and mental health problems such as anxiety, depression, and cardiovascular, respiratory, or gastrointestinal disorders. Such forms of stress are considered harmful or pathological stress [7]. The university stage represents a period of significant transition in a student's life. It is a time when students adapt to a dynamic learning and living environment, develop independence, establish friendships and romantic relationships, and engage in various experiential activities to prepare for their future careers. This stage also marks the transition from adolescence to adulthood [8].

The stress levels among medical students are influenced by various factors such as academic year, academic performance, living conditions, health status, physical activity habits, family circumstances, and satisfaction with their field of study. Furthermore, the nature of clinical internships, characterized by demanding learning environments and pressure from overnight clinical shifts, can further increase stress risk. Therefore, assessing mental health among medical students should consider the interplay between individual characteristics, educational environment, and the context of learning and clinical practice [9].

At Hong Bang International University, studies on student stress have been conducted; however, they have not fully captured the influencing factors in the current context. Hence, this study was conducted to determine the prevalence and levels of stress among medical students and to identify associated factors.

## II. OBJECTIVES

- (1) To describe the prevalence and characteristics of stress among students.
- (2) To identify factors associated with students' stress.

## III. RESEARCH METHODOLOGY

### A. Study design

Cross-sectional descriptive study

### B. Sample

Applying the sample size formula for estimating a proportion in the community in a cross-sectional descriptive study:

From this, the calculated sample size is  $n = 358$ . Therefore,

the minimum required sample size was 358 students. In practice, we conducted the study with 400 students.

**Inclusion Criteria:**

Students currently enrolled in the regular program at the Faculty of Medicine – Hong Bang International University.

**Exclusion Criteria:**

Students who have prolonged absences or have deferred their studies during the survey period.

**C. Variables and Content**

**Variables**

General characteristics of the study participants: gender, ethnicity, religion, place of birth, financial status, family and social relationships, satisfaction with academic life, participation in student or youth union activities.

Current situation and level of stress among the study participants.

**Research Content**

The questionnaire included items on students' demographic, social, and academic characteristics, such as year of study, academic performance, place of birth, family relationships, and satisfaction with their field of study. The DASS-21 scale developed by Lovibond, which has been standardized into Vietnamese [10], was used in this study.

The Stress subscale (S) of the DASS-21 consists of 7 items, each describing a manifestation of stress. Each item is rated on a 4-point Likert scale from 0 to 3, depending on the degree and frequency of the stress symptoms:

- 0 points: Did not apply to me at all
- 1 point: Applied to me to some degree, or some of the time
- 2 points: Applied to me to a considerable degree, or a good part of the time
- 3 points: Applied to me very much, or most of the time

The total stress score is obtained by summing the scores of the seven items and multiplying the total by two. The final result is then classified into different levels of stress severity according to the standard DASS-21 scoring guide.

The international DASS-21 questionnaire, recognized for its validity and reliability, was used, with the Cronbach's alpha coefficient for the stress subscale reported as 0.807 [11].

**D. Data Collection Process:**

- (1) Design the questionnaire
- (2) Train the interviewers
- (3) Arrange the time and location for data collection
- (4) Select study participants according to the inclusion criteria
- (5) Collect data using the structured questionnaire
- (6) Verify, enter, and process the data
- (7) Write the research report.

**E. DATA PROCESSING AND ANALYSIS:**

Quantitative data were cleaned and coded. Data were analyzed using R statistical software version 4.0. The data cleaning process aimed to identify and correct any missing values or miscoded entries that might have occurred during data collection.

**F. Research Ethics**

Participants were clearly informed about the study and voluntarily agreed to take part in the survey. All personal information was kept confidential, and the results were used solely for research purposes.

**IV. RESULT AND DISCUSSION**

**A. Socio demographic characteristics of the study population**

TABLE I: General characteristics of the study participants

Demographic Characteristics	Frequency	percentage (%)	
Gender	Male	58	14.5
	Female	342	85.5
Ethnicity	Kinh ethnic group	398	99.5
	Other	2	0.5
Place of residence	Living with family	2	0.5
	Renting	398	99.5
Age	18 - 20	98	24.5
	>20	302	75.5
Religion	Buddhism	399	99.8
	Others	1	0.25

In this study, the majority of participants were female (85.5%), while males accounted for 14.5%. Most students belonged to the Kinh ethnic group (99.5%), with only 0.5% from other ethnicities. Nearly all participants (99.5%) lived in rented accommodation, and only 0.5% lived with their families. Regarding age, 75.5% were over 20 years old, while 24.5% were between 18 and 20. Almost all respondents (99.8%) identified as Buddhists, indicating a relatively homogeneous study population.

TABLE II: Personal characteristics of the study participants

Demographic Characteristics	Frequency	percentage (%)	
Academic year	First year	105	26.25
	Second year	190	47.5
	Third year	105	26.25
Class position	Yes	11	2.75
	No	389	97.25
Academic performance	Excellent	1	0.25
	Good	399	99.75
Course retake	Yes	4	1
	No	396	99
Satisfaction with academic achievement	Satisfied	400	100
Academic curriculum at the university	Satisfied	400	100

Among the participants, 26.25% were first-year students, 47.5% were in the second year, and 26.25% were in the third year. Only 2.75% of students held a class position, while 97.25% did not. Regarding academic performance, almost all students (99.75%) achieved good results, and only 0.25% obtained excellent grades. A small proportion (1%) reported having retaken a course, while 99% had not. All participants (100%) were satisfied with their academic achievement and the university's academic curriculum.

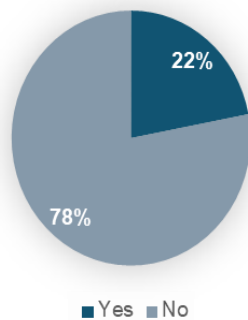
Almost all participants were satisfied with their friendships (99.75%), and 0.25% reported being very satisfied. All students (100%) were satisfied with their family relationships. Regarding extracurricular or volunteer activities, 66.75% of participants reported participation, while 33.25% did not.

Additionally, 13.25% of students had a part-time job, and 86.75% did not.

TABLE III: Social characteristics of the study participants

Demographic Characteristics		Frequency	percentage (%)
Satisfaction with friendships	Satisfied	399	99.75
	Very satisfied	1	0.25
Satisfaction with family relationships	Satisfied	400	100
Youth Union activities	Yes	267	66.75
	No	133	33.25
Part-time job	Yes	53	13.25
	No	347	86.75

B. Prevalence of stress among the study participants



According to the chart, 22% of participants answered “Yes” while 78% answered “No” This indicates that the majority of respondents selected “No” whereas a smaller proportion chose “Yes”.

C. Level of stress

TABLE VI: The level of stress among the study participants

Characteristics	Frequency	Percentage (%)
Level of stress	Normal	312 78.0
	Mild	82 20.5
	Moderate	6 1.5

Among the participants, 78.0% were classified as normal, 20.5% experienced a mild level of stress, and 1.5% had a moderate level. The mild level accounted for nearly one-fifth of all respondents.

D. Factors associated with the prevalence of stress among students

TABLE V: Factors associated with stress among the study participants

Characteristics		With stress	Without stress	OR (95% CI)	p
Gender	Male	1 1.7%	57 98.3%	0.05 (0.01 - 0.38)	0.001
	Female	87 25.4%	225 74.6%		
Youth Union activities	Yes	82 30.7%	185 69.3%	9.38 (3.97- 22.1)	0.001
	No	6 4.5%	127 95.5%		
Part-time job	Yes	2 3.8%	51 96.2%	0.12 (0.03 - 0.50)	0.001
	No	86 24.8%	261 75.2%		

Among male students, 1.7% reported stress compared to 25.4% of female students. Participation in extracurricular

activities was associated with a higher proportion of stress (30.7%) compared to those who did not participate (4.5%). Students with a part-time job reported stress at 3.8%, while those without a part-time job accounted for 24.8%. Statistically significant associations were found across these variables ( $p < 0.05$ ).

V. DISCUSSION

In this study, the majority of participants were female (85.5%), while males accounted for only 14.5%. This gender imbalance reflects the general composition of students in many health-related programs in Vietnam, where female students tend to predominate. Most participants were Kinh (99.5%), lived in rented accommodation (99.5%), and identified as Buddhists (99.8%), indicating a relatively homogeneous sample in terms of ethnicity, religion, and living conditions. Such demographic uniformity helps minimize potential confounding effects related to cultural or environmental differences.

The majority of students were in their second year (47.5%), followed by first- and third-year students (26.25% each). This distribution may reflect the university’s current enrollment structure. Almost all participants achieved good academic performance (99.75%), and only a small proportion reported retaking a course (1%). High satisfaction levels with academic achievement (100%), curriculum (100%), family relationships (100%), and friendships (99.75%) suggest a generally positive psychosocial environment among the respondents.

However, 22% of participants reported symptoms of stress, with 20.5% experiencing mild stress and 1.5% moderate stress according to the DASS-21 scale. Although the majority (78%) were classified as normal, the presence of mild to moderate stress in approximately one-fifth of respondents is noteworthy, given the potential impact of stress on academic performance and well-being. Notably, female students reported a higher rate of stress (25.4%) compared to male students (1.7%), consistent with findings from other studies indicating that females are generally more susceptible to psychological distress due to biological and psychosocial factors.

Participation in extracurricular or volunteer activities was associated with higher levels of stress (30.7%) compared to those who did not participate (4.5%), possibly due to increased workload or social responsibilities. Conversely, students with part-time jobs reported lower stress levels (3.8%) than those without (24.8%), which may suggest that part-time work could serve as a coping mechanism or provide better time-management skills. These associations were statistically significant ( $p < 0.05$ ), indicating meaningful relationships between stress and the examined variables.

When compared with another study, where 51% of students were found to have stress, including 16.1% mild, 13.4% moderate, 13.4% severe, and 8.1% extremely severe levels, the prevalence in our study (22%) was considerably lower. This difference may be attributed to variations in academic pressure, institutional support, or measurement timing. In the referenced study, female students exhibited stress levels five times higher than males (84.2% vs. 15.8%),

aligning with our findings that stress was predominantly observed among females.

Overall, while the prevalence of stress in our study was lower than in other comparable studies, the gender disparity and association with extracurricular participation indicate that psychosocial factors remain important determinants of mental health among university students. Continuous mental health monitoring and stress management interventions should be integrated into student support programs to maintain well-being and academic success.

#### VI. CONCLUSION AND RECOMMENDATIONS

In conclusion, most students showed normal stress levels; however, about one-fifth experienced mild stress, with higher rates among female students and those engaged in extracurricular activities. Students with part-time jobs appeared to have lower stress levels. These results suggest the need for greater attention to student mental health. It is recommended that stress management and mental health education be integrated into the curriculum, regular screenings be implemented to identify students at risk early, and psychological counseling as well as peer-support networks be strengthened. Moreover, students should be guided to balance academic work with extracurricular activities, with special focus on supporting female students who are more vulnerable to stress.

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