

# STRESS FROM SOCIAL MEDIA NEGLECT AND NEGATIVE REACTIONS AMONG FIRST-YEAR MEDICAL DOCTOR STUDENTS IN 2024

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Received: 04/06/2025

Revised: 15/06/2025; Accepted: 20/06/2025

## ABSTRACT

**Objective:** To assess the stress levels and to analyze the associated factors caused by social networks on first-year medical students at Phenikaa University.

**Methods:** The cross-sectional study included 219 first-year students enrolled in a 6-year program in Medicine, Dentistry, or Traditional Medicine at Phenikaa University, Hanoi, Vietnam. A structured questionnaire was used, covering three domains: socio-demographic information, health risk behaviors, and social media-related stress. Univariate and multivariate linear regression analyses were conducted to explore the associations between social media-related stress scores and other variables.

**Results:** The median stress score was 8 (interquartile range [IQR]: 4–12) for social media neglect and 12 (IQR: 6–13) for adverse reactions on social media. Students who smoked had 4.5 times higher odds of experiencing stress related to neglect and 4.7 times higher odds of adverse reactions. Additionally, students who used social media for more than two hours before sleep reported higher stress scores. In contrast, those who studied for at least two hours per day had significantly lower odds of stress from neglect (OR: 2.1; 95% CI: -3.4 to -0.7).

**Conclusions:** Stress related to social media neglect and adverse reactions was more prevalent among first-year medical students at Phenikaa University who smoked or spent over two hours on social media before bedtime. Conversely, students who dedicated more time to self-study experienced lower levels of stress from neglect. These findings highlight the importance of promoting healthier lifestyle choices and academic habits among first-year medical students.

**Keywords:** Social media, stress neglect, stress negative, undergraduate students, Phenikaa University.

## 1. INTRODUCTION

In 2025, about one-third of the global population engages with social networks, with the highest usage observed among young adults in Eastern Asia [1]. Social media-induced stress refers to the psychological distress caused by neglect or negative interactions on these platforms, potentially impacting overall well-being, academic performance, and interpersonal relationships.

Several factors have been identified to be associated with social media-induced stress, with the frequency and duration of social media use being

the most prominent [2]. Individuals who spend excessive time on social media may develop a dependence on online validation, making them more susceptible to distress when they receive unfavorable reactions. Additionally, personal characteristics and lifestyle factors, including gender, smoking, and drinking, further exacerbate the impact of social media neglect and adverse reactions [2].

Medical doctor students are susceptible to stress related to social media. A global meta-analysis of

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77 studies published in 2016 revealed that one in four medical students reported stress, with the prevalence peaking in the first year and gradually decreasing to the last year [3]. Despite extensive research on stress among medical students, the specific impact of social media-induced stress and its contributing factors, particularly among medical doctor students in Vietnam, remains underexplored. To address these gaps, this study aims to explore the factors associated with social media-related stress among first-year medical doctor students at Phenikaa University.

## 2. METHODS

### 2.1. Study design and participants

This cross-sectional study investigated factors associated with stress from neglect and adverse reactions on social media among first-year doctoral students. The study population consisted of all first-year students enrolled in a 6-year doctoral program in medicine, dentistry, or traditional medicine at Phenikaa University, Hanoi, Vietnam. Eligibility criteria included voluntary agreement to participate, while students who had temporarily suspended their studies during the research period were excluded. The study spanned from September 2024 to April 2025, with data collection taking place between November 2024 and January 2025.

### 2.2. Sample size and sampling technique

A total population sampling approach was employed, targeting all 311 eligible students (sinh viên hệ bác sĩ năm thứ nhất). Of these, 219 participated, resulting in a response rate of 70.4%. Data collectors visited all classes to introduce the study and invite participation.

### 2.3. Measurements and instruments

A structured questionnaire was administered, capturing three domains: (1) socio-demographic information, (2) health risk behaviors, and (3) stress related to neglect and adverse reactions from online peers.

(We used the stress from neglect and negative reactions on social media questionnaire. The current BCH has not been standardized in Vietnam, we referred to similar Vietnamese BCH questionnaires and translated them under the guidance and control of experts). The primary outcome—stress from neglect and negative reactions on social media—was assessed using a validated scale previously applied in Vietnamese populations (1). This scale comprised 8 items divided into two subscales: neglect by other users (4 items) and negative reactions from other users (4 items). Each item was scored on

a 5-point Likert scale (1 = "strongly disagree," 5 = "strongly agree"), with higher scores indicating greater perceived neglect or negative reactions.

Additional variables collected included age, gender (male or female), residence (housing, on-campus, or off-campus), smoking status, alcohol consumption, duration of daily social media use, social media use before sleep, and self-study duration.

### 2.4. Data Analysis

Data were cleaned and analyzed using STATA version 17. Descriptive statistics summarized demographic characteristics, with categorical variables reported as frequencies and percentages. Due to the non-normal distribution of stress scores, medians and interquartile ranges (IQRs) were calculated. Univariable and multivariable linear regression analyses were conducted to explore associations between stress scores and demographic and health risk behavior variables.

### 2.5. Ethical approval and consent to participate

The study protocol received approval from the Research Ethics Committee of Phenikaa University (Approval No. 024-03/ĐHP-HĐĐĐ). All participants provided informed consent after being informed of the study's objectives, procedures, potential risks, and benefits. Data were anonymized, and confidentiality was rigorously maintained throughout the study.

## 3. RESULTS

Table 1 presents the median stress scores related to social media neglect and adverse reactions, stratified by participant characteristics. The median stress scores were 8 (interquartile range [IQR]: 4–12) for social media neglect and 12 (IQR: 6–13) for social media adverse reactions. Stress scores were significantly elevated among students who smoked and those who engaged in prolonged social media use before sleep. In contrast, students who devoted more time to self-study reported lower stress scores.

Over half of the participants were male (60.3%) and resided in their own homes (50.2%). There were no significant differences in stress scores related to neglect or adverse reactions between male and female participants. Likewise, stress scores did not differ significantly across residence types (i.e., housing, on-campus, and off-campus).

Participants who smoked reported a median stress score of 12 (IQR: 12–16) for social media neglect, significantly higher than the median score of 8 (IQR: 4–12) reported by non-smokers ( $p = 0.003$ ). Similarly,

smokers reported a median stress score of 14 (IQR: 12–16) for adverse reactions, compared to 11 (IQR: 6–12) among non-smokers ( $p = 0.001$ ). In contrast, stress scores did not vary significantly according to alcohol consumption.

The duration of social media use before sleep was significantly associated with stress scores. Participants engaging in social media for at least two hours before sleep reported elevated stress scores from neglect (median [IQR]: 12 [8–13]) compared to those using it for less than one hour (8 [4–12],

$p = 0.033$ ). A similar pattern emerged for adverse reactions, with a median stress score of 12 (IQR: 8–12) among those who used social media for two or more hours, compared to 10 (IQR: 4–12) for those who used it for less than one hour ( $p = 0.015$ ). Furthermore, the duration of self-study was significantly associated with stress from neglect ( $p = 0.021$ ). Participants who studied for less than one hour per day reported higher stress levels (median [IQR]: 10 [4–12]) than those who studied for at least one hour (median [IQR]: 8 [4–12]).

**Table 1. Median Stress Scores associated with Social Media Neglect and Negative Reactions by participant characteristics**

Characteristics	n (%)	Stress from neglect, median (IQR) <sup>1</sup>	p-value <sup>2</sup>	Stress from negative reactions, median (IQR)	p-value <sup>2</sup>
Total	219	8 (4 - 12)		12 (6 - 13)	
Sex					
Male	132 (60.3)	8 (4 - 12)	0.158	11 (5 - 12)	0.133
Female	87 (39.7)	8 (6 - 12)		12 (8 - 14)	
Residence					
Housing	110 (50.2)	8 (4 - 12)	0.835	12 (6 - 13)	0.836
In campus	47 (21.5)	8 (4 - 12)		12 (6 - 13)	
Off campus	62 (28.3)	8.5 (4 - 12)		10.5 (6 - 12)	
Smoking					
No	210 (95.9)	8 (4 - 12)	0.003	11 (6 - 12)	0.001
Yes	9 (4.1)	12 (12 - 16)		14 (12 - 16)	
Drinking					
No	174 (79.5)	8 (4 - 12)	0.269	11.5 (6 - 13)	0.225
Yes	45 (20.5)	9 (5 - 12)		12 (9 - 12)	
Duration of social media use per day					
< 1 hour	44 (20.1)	8 (4 - 12)	0.230	9 (4 - 12)	0.102
1 to <2 hours	64 (29.2)	8 (4 - 12)		11.5 (7-12)	
≥2 hours	111 (50.7)	9 (4 - 12)		12 (8 – 14)	
Duration of social media use before sleep					
< 1 hour	143 (65.3)	8 (4 - 12)	0.033	10 (4 – 12)	0.015
1 to <2 hours	42 (19.2)	8.5 (4 - 12)		12 (9 – 15)	
≥2 hours	34 (15.5)	12 (8 - 13)		12 (8 – 12)	
Self-study duration					
< 1 hour	66 (30.1)	10 (4 - 12)	0.021	12 (7 – 14)	0.631
1 to <2 hours	66 (30.1)	8 (4 - 12)		12 (8 – 13)	
≥2 hours	87 (39.7)	8 (4 - 12)		10 (4 – 12)	

<sup>1</sup>IQR: Interquartile range; <sup>2</sup>p-values were calculated from the Wilcoxon Rank-Sum test (for two groups) or the Kruskal-Wallis test (for three groups)

Table 2 illustrates the factors associated with stress from social media neglect and adverse reactions, as determined by multivariable linear regression. Smoking, time spent on social media before sleep, and duration of self-study emerged as significant predictors of stress scores. In contrast, variables such as sex, residence type, alcohol consumption, and total daily social media use did not exhibit statistically significant correlations with stress scores for either neglect or adverse reactions.

Smokers demonstrated higher odds of elevated stress scores compared to non-smokers, with OR (Odd ratio) of 4.5 (95% confidence interval [CI]: 1.6–7.4,  $p = 0.002$ ) for stress from neglect and OR of 4.7 (95% CI: 1.7–7.7,  $p = 0.002$ ) for stress from adverse reactions. Students who used social media for two

or more hours before sleep had 1.9 times (95% CI: 0.1–3.7,  $p = 0.038$ ) higher odds of increased stress scores compared to those using it for less than one hour. Similarly, students who used social media before sleep for at least 1 hour had 1.8 times (95% CI: 0.2–3.4,  $p = 0.031$ ) higher odds of increased stress scores than those who used it for less than one hour.

Self-study time was a protective factor against increasing stress scores. Students who engaged in self-study for at least one hour per day exhibited lower odds of stress from neglect compared to those studying for less than one hour. Notably, participants studying for at least two hours per day had 2.1 times (95% CI: -3.4 - -0.7,  $p$ -value: 0.002) lower odds of stress from neglect.

**Table 2. Factors Related to Stress Associated with Social Media Neglect and Negative Reactions**

Characteristics	Stress from neglect, OR (95%CI) <sup>1</sup>	p-value	Stress from adverse reactions, OR (95%CI)	p-value
<b>Sex (ref: male)</b>				
Female	0.8 (-0.3, 2)	0.148	0.8 (-0.4, 2)	0.190
<b>Residence (ref: housing)</b>				
In campus	0 (-1.4, 1.4)	0.984	-0.1 (-1.6, 1.3)	0.846
Off campus	-0.3 (-1.6, 1)	0.630	-0.7 (-2, 0.7)	0.328
<b>Smoking (ref: no)</b>				
Yes	4.5 (1.6, 7.4)	0.002	4.7 (1.7, 7.7)	0.002
<b>Drinking (ref: no)</b>				
Yes	0.1 (-1.3, 1.5)	0.868	0.2 (-1.2, 1.7)	0.740
<b>Duration of social media use per day (ref: &lt;1 hour)</b>				
1 to <2 hours	0 (-1.6, 1.6)	0.982	0.9 (-0.8, 2.5)	0.312
≥2 hours	0.3 (-1.3, 1.9)	0.722	0.9 (-0.8, 2.6)	0.275
<b>Duration of social media use before sleep (ref: &lt;1 hour)</b>				
1 to <2 hours	0.7 (-0.8, 2.3)	0.368	1.8 (0.2, 3.4)	0.031
≥2 hours	1.9 (0.1, 3.7)	0.038	0.5 (-1.4, 2.3)	0.619
<b>Self-study duration (ref: &lt;1 hour)</b>				
1 to <2 hours	-1 (-2.4, 0.5)	0.185	-0.7 (-2.2, 0.8)	0.361
≥2 hours	-2.1 (-3.4, -0.7)	0.002	-0.9 (-2.3, 0.5)	0.189

<sup>1</sup>OR (95% CI): Odds ratio, 95% confidence intervals

#### 4. DISCUSSION

Our study shows that stress levels caused by neglect and negative reactions on social media are closely related to students' lifestyle habits, including social media usage, smoking, and time spent on self-study. Specifically, students who habitually use social media and smoke before going to bed tend to experience higher levels of stress, while those who spend more time on self-study report lower stress levels.

We found that students who smoke are 4.5 times more likely to experience stress related to neglect and 4.7 times more likely to experience stress due to negative reactions on social media. This finding is also supported by another cross-sectional study in over 1000 undergraduate students using the Depression, Anxiety, and Stress Scale (DASS-21), which indicated that those who smoked had higher odds of stress compared to non-smokers [4].

Our study results indicate that social media use before bedtime can lead to stress and anxiety, especially when the usage exceeds one hour before sleeping. Using social media before sleep reduces sleep quality and increases stress levels the following day [5]. Furthermore, exposure to information on social media, particularly when comparing oneself to others, can lead to dissatisfaction and anxiety, resulting in heightened stress. Excessive time spent on social media can create a sense of pressure and distraction, increasing anxiety levels. Previous research also suggests that reducing social media use and engaging in positive activities can help reduce stress.

Our study also reveals that students who spend more time on self-study experience lower levels of stress compared to those who study for less than two hours per day. This finding aligns with current evidence that self-study helps students develop time management skills and provides a sense of control, thereby reducing stress [6]. Reducing social media use and increasing self-study time can lower stress and improve students' mental health [7].

We acknowledge some limitations. Our study design is a cross-sectional study, collecting data from only one semester of students. Therefore, it cannot determine causal relationships but can only highlight correlations between factors and stress levels [8]. Although the study considers factors such as self-study time and residence, the learning environment and support from professors or peers, which could influence stress levels, were not adequately considered. The study focuses solely on social media use before sleep. It does not examine other forms of social media use (such as the purpose of use), which may limit the understanding

of the overall impact of social media on stress. Furthermore, factors such as smoking, social media use, and self-study time may interact and influence each other, but the study does not explore these complex relationships. Data collected from self-reported questionnaires may be biased, as participants may not be truthful or accurate when recalling their stress levels, or there may be bias in self-assessing their condition.

#### 5. CONCLUSION

This study found that among first-year medical students, stress from social media neglect and negative reactions was more likely in those who smoked or used social media for over two hours before sleep. In contrast, over two hours of self-study reduced this stress. The findings underscore the importance of first-year students improving their lifestyle and academic habits. Limiting social media use, especially before sleep, may enhance sleep quality and reduce stress. Strengthening health education on smoking is also recommended to help students eliminate harmful behaviors linked to social media-induced stress.

#### Declaration of competing interest

The authors declare that they have no competing interests

#### Acknowledgements

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