International Journal of Science Academic Research
Vol. 07, Issue 02, pp.306-309, February 2026
Available online at http://www.scienceijsar.com

ISSN: 2582-6425

Research Article

ASSESSMENT OF SMARTPHONE DEPENDENCE, EMOTIONAL RESPONSES, AND THE IMPACT OF SMARTPHONE USE ON STUDENTS' MENTAL HEALTH AND ACADEMIC PERFORMANCE

***Quach Thai Bao**

Hong Bang International University, Ho Chi Minh City, Vietnam

Received 18th December 2025; **Accepted** 24th January 2026; **Published online** 27th February 2026

Abstract

Aims: Smartphone use is increasingly common among students and may affect their mental health and academic performance. **Objectives:**To assess smartphone use characteristics, levels of psychological symptoms, and related factors among students. **Methods:**A crosssectional study was conducted among 279 students. Demographic characteristics, smartphone use behaviors, and psychological symptoms were collected using a selfadministered questionnaire. Logistic regression analysis was used to identify factors associated with psychological symptoms. **Results:**Among the participants, females accounted for 68.8% and firstyear students accounted for 74.6%. Most students showed different levels of smartphone dependence: 80.9% felt restless when they did not have their phone; 94.6% reported that smartphone use reduced their concentration in learning; and 90.3% used smartphones while studying or doing homework. Nearly 88.2% tended to use smartphones longer than intended, and 61.0% often or almost always checked their phone immediately after waking up. The highest proportion of daily smartphone use was 4 - 6 hours per day (37.6%).Regarding mental health, students with mild psychological symptoms accounted for the highest proportion, while those with moderate symptoms accounted for a lower proportion. Logistic regression analysis showed that emotional factors, smartphone use habits, and perception of smartphone impact were significantly associated with psychological symptoms ($p<0.05$). Students who felt lonely when there was no interaction on social media (OR = 0.44; 95% CI: 0.25 - 0.78) and those who perceived smartphone use as having a negative impact on mental health (OR = 0.34; 95% CI: 0.22 - 0.54) had a lower likelihood of psychological problems. **Conclusions:**Smartphone use among students was high and was significantly associated with psychological symptoms. Most students showed early-stage psychological symptoms, mainly at a mild level. The findings indicate the need for educational programs on appropriate smartphone use combined with early screening and mental health interventions in university settings.

Keywords: Students, Smartphone, Mental health, Psychological symptoms, Learning concentration, Smartphone use behavior.

INTRODUCTION

In the context of the digital era, smartphones have become an essential part of students' academic and daily life. These devices provide many benefits, such as quick access to information, improved communication, and flexible learning. However, these benefits are accompanied by potential risks. Recent studies have shown that excessive smartphone use may lead to dependence and negatively affect students' mental health and academic performance. A study among undergraduate medical students from Yenepoya Medical College, Subbaiah Institute of Medical Sciences, and Adichunchanagiri Institute of Medical Sciences reported a high prevalence of smartphone dependence. Students identified as "smartphone addicted" had significantly poorer academic performance compared with those with lower levels of smartphone use, and frequent smartphone use behaviors were associated with anxiety and depression (1). In addition to academic outcomes, smartphone use is closely related to emotional and psychological factors. Studies have shown that students who mainly use smartphones for social or entertainment purposes for a long duration (more than 5 hours per day on average) have higher levels of sadness, anxiety, and stress, indicating a relationship between smartphone use and poorer psychological status (2). Furthermore, smartphone dependence has been identified as a factor associated with academic burnout, reduced learning motivation, and an increased risk of study exhaustion among Chinese university students (3).

Corresponding Author:** ***Quach Thai Bao,
Hong Bang International University, Ho Chi Minh City, Vietnam.

These findings suggest that the impact of smartphone use on students is a double edged phenomenon. While appropriate use may support learning, excessive use or dependence is linked to negative psychological problems (such as anxiety and stress) and poorer academic performance. However, the detailed relationship between the level of dependence, emotional experiences, and academic achievement in Vietnamese students has not been fully explored, especially in the modern learning environment where smartphones are widely used. Therefore, this study aims to assess the level of dependence, emotional experiences, and the impact of smartphone use on mental health and academic performance among university students, in order to provide scientific evidence for educational and mental health policies.

MATERIALS AND METHODS

Study Design

This study used a descriptive cross-sectional design. The survey was conducted from December 2025 to January 2026. The study was carried out at a private university in Ho Chi Minh City, which provides training programs in health sciences.

Eligibility Criteria and Sample Selection

The study participants were students enrolled in the academic year 2025 - 2026.

Inclusion criteria: Fulltime students who voluntarily agreed to participate in the study.

Exclusion criteria: Students who had a history of mental disorders and had received treatment, or students who were unable to complete the questionnaire.

Sample Size

The study was designed as a crosssectional descriptive study and was conducted through an online survey using Google Forms with a structured questionnaire. A convenience sampling method was applied. Data were collected from December 10, 2025 to January 17, 2026.

Data Collection Tool

The data collection tool in this study was a self administered questionnaire designed in electronic form using Google Forms. The questionnaire was developed to collect information on the general characteristics of the participants and several factors related to mental health status and smartphone use behavior. The questionnaire consisted of two main parts: (1) general information of the participants; and (2) questions about factors related to mental health and smartphone use behavior. The questions were designed in multiple choice format with predefined response options to ensure consistency in data collection and to facilitate coding, data processing, and analysis. The use of an electronic questionnaire increased convenience for participants, reduced data entry errors, and improved the efficiency of data collection. The tool was pilot tested on a small group of participants to adjust the content, format, and language for suitability before being officially used in the study.

Data Analysis and Processing

Data Analysis Methods: After data collection, the data were checked, cleaned, and analyzed using two main methods: descriptive statistics and inferential statistics. Categorical variables were presented as frequencies and percentages to describe the characteristics of the study participants and the distribution of study variables. To assess the association between stress levels and related factors, the Chisquare test was used. When more than 20% of the expected cell counts were less than 5, Fisher's Exact test was applied to ensure the accuracy of the analysis results. The level of statistical significance was set at $p < 0.05$.In this study, the associations between risk factors were quantified using Odds Ratios (ORs) with 95% Confidence Intervals (CIs) to estimate the strength of the relationships between variables. Associations were considered statistically significant when the pvalue was less than 0.05 and the 95% CI did not include 1.

Data Handling: Data collected from Google Forms were transferred to Excel for coding and data cleaning, and statistical analyses were conducted using R software.

RESULTS AND DISCUSSION

Among the study participants, females accounted for a higher proportion than males. Specifically, there were 192 female students (68.8%), while the number of male students was 87 (31.2%).Regarding academic year, firstyear students made up the largest group with 208 students (74.6%). Secondyear students ranked second with 54 students (19.4%). The proportion of thirdyear students was 5.0% (14 students), while students in the fourth year or above accounted for the lowest proportion at 1.1% (3 students).Overall, the study sample mainly consisted of female and firstyear students, reflecting the distribution characteristics of students at the time of the survey.

Table 1.General characteristics of the study participants

Characteristic	Frequency	Percentage (%)
Male	87	31.2
Female	192	68.8
Firstyear	208	74.6
Secondyear	54	19.4
Thirdyear	14	5.0
Fourth year or above	3	1.1

Table 2.Psychological characteristics of the study participants

Characteristic	Severity Level	Frequency	Percentage (%)
Feeling restless or uncomfortable when not having a mobile phone nearby	Never	53	19.0
	Sometimes	141	50.5
	Often	59	21.2
	Almost always	26	9.3
Feeling that smartphone use reduces concentration in learning	Never	15	5.4
	Sometimes	105	37.6
	Often	77	27.6
	Almost always	82	29.4
Using a smartphone while studying or doing homework	Never	27	9.7
	Sometimes	180	64.5
	Often	52	18.6
	Almost always	20	7.2
Usually spending more time on the smartphone than initially planned	Never	33	11.8
	Sometimes	134	48.0
	Often	85	30.5
	Almost always	27	9.7
Usually checking the smartphone immediately after waking up	Never	11	3.9
	Sometimes	98	35.1
	Often	123	44.1
	Almost always	47	16.9

The study results showed that most students had signs of dependence on and were affected by smartphone use at different levels. Regarding the feeling of restlessness or discomfort when not having a smartphone nearby, more than half of the students reported this feeling sometimes (50.5%), while 21.2% reported it often and 9.3% reported it almost always. Only 19.0% of students reported that they never had this feeling. In terms of the perception that smartphone use reduces concentration in learning, the majority of students acknowledged this problem at different levels. Specifically, 37.6% reported reduced concentration sometimes, 27.6% reported often, and 29.4% reported almost always. Only 5.4% of students stated that smartphone use never affected their learning concentration. For the behavior of using smartphones while studying or doing homework, the highest proportion of students reported sometimes (64.5%). In addition, 18.6% reported often and 7.2% reported almost always using smartphones during study time. Only 9.7% of students reported that they never engaged in this behavior. Regarding the tendency to spend more time on smartphones than initially planned, nearly half of the students (48.0%) reported this behavior sometimes, while 30.5% reported often and 9.7% reported almost always. Only 11.8% of students did not experience this problem. Notably, checking smartphones immediately after waking up was common among the study participants. A total of 44.1% of students reported doing this often and 16.9% reported almost always. Only 3.9% of students reported never checking their smartphones after waking up. Overall, the findings indicate that a considerable proportion of students showed moderate to high levels of smartphone dependence, especially behaviors related to reduced learning concentration and the habit of checking smartphones immediately after waking up.

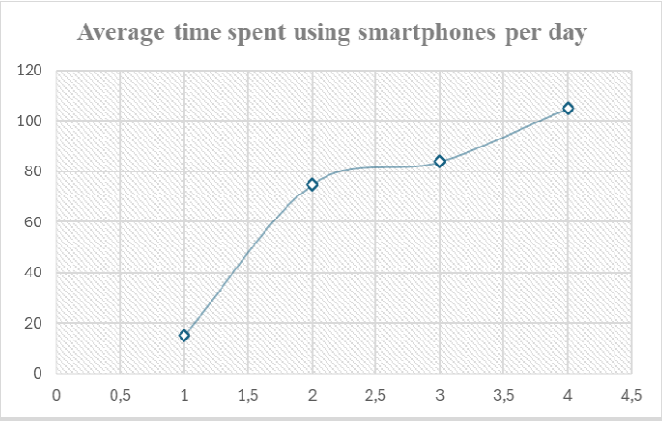

Figure 1. Average daily smartphone use time

The results showed that the daily smartphone use time among students was unevenly distributed across groups. The group of students using smartphones for 4 - 6 hours per day accounted for the highest proportion, with 105 students, indicating that this was the most common level of use in the study sample. This was followed by the group using smartphones for 2 - 4 hours per day with 84 students, and the group using smartphones for more than 6 hours per day with 75 students. In contrast, the group using smartphones for less than 2 hours per day had the lowest number, with only 15 students. Overall, most students used smartphones for 2 hours or more per day, and the proportion of students using smartphones for more than 4 hours per day was dominant, suggesting a relatively high level of smartphone use among students.

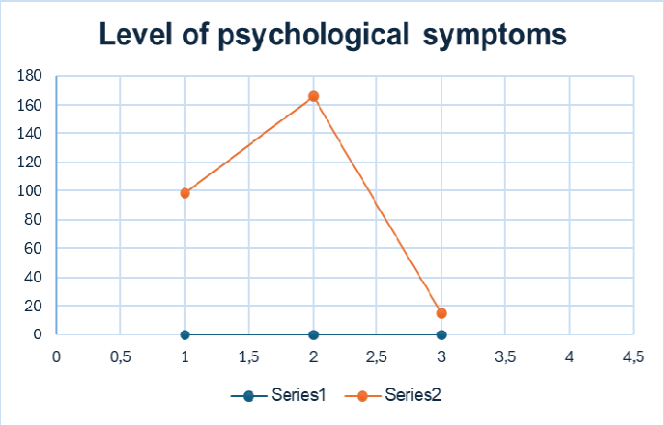

Figure 2. Levels of psychological symptoms

The results shown in the figure indicate that the levels of psychological symptoms among students were unevenly distributed across groups. The group with mild psychological symptoms accounted for the highest proportion, with about 165 students, showing that most students had psychological symptoms at a mild level. The normal group ranked second, with about 98 students. Meanwhile, the number of students with moderate psychological symptoms was the lowest, at approximately 15 students. Overall, the findings suggest that the majority of students had psychological symptoms, mainly at a mild level, while the proportion of students with moderate psychological problems was relatively low. This indicates that psychological disorders among students have appeared at an early stage and need to be detected, screened, and managed early to prevent further progression.

Table 3. Association between selected characteristics and psychological symptoms

Characteristic	Odds ratios	95% CI	p
Feeling lonely when there is no interaction on social media	0.44	0.25 - 0.78	0.005
Belief that smartphone use has a negative effect on mental health	0.34	0.22 - 0.54	0.001

The logistic regression analysis showed that several related factors were statistically associated with students psychological symptoms. Students who felt lonely when there was no interaction on social media had a lower likelihood of having psychological problems compared with others (OR = 0.44; 95% CI: 0.25 - 0.78; p = 0.005). Students who believed that smartphone use had a negative effect on mental health also had a lower likelihood of psychological problems than those without this perception (OR = 0.34; 95% CI: 0.22 - 0.54; p = 0.001).Therefore, emotional factors, smartphone use behaviors, and awareness of the impact of smartphone use were significantly associated with students' psychological status.

Conclusion

The study recorded a higher proportion of female students than male students, and most participants were firstyear students. This structure reflects the student distribution at the time of the survey and is consistent with previous studies showing that females are more likely to participate in mental health surveys and tend to report psychological symptoms more clearly than males. In addition, first year students are more vulnerable to changes in the learning environment, adaptation pressure, and new learning methods. Therefore, they have a higher risk of psychological problems as well as excessive smartphone use. The study results show that a considerable proportion of students had moderate to high levels of smartphone dependence. Most students reported feeling restless or uncomfortable when they did not have their smartphones nearby and believed that smartphone use reduced their concentration in learning. This finding is consistent with a 2017 study showing that excessive smartphone use was strongly associated with anxiety, depression, and reduced academic concentration among university students(4). The authors suggested that smartphones may act as a tool to avoid negative emotions, leading to dependence and reduced ability to selfregulate behavior. In addition, using smartphones while studying and extending usage time beyond the original plan were common in this study. This result is similar to a 2015 study showing that smartphone addiction was significantly associated with sleep disturbances, daytime fatigue, and reduced academic performance among students(5). The authors explained that prolonged exposure to screens and online content disrupts biological rhythms, which indirectly affects psychological status and learning ability. Regarding smartphone use time, most students used smartphones for two hours or more per day, and a high proportion used them for more than four hours per day. This finding reflects the increasing trend of smartphone use among students, especially in the context of online learning, social media, and digital entertainment. Long-term high-level use may increase the risk of dependence and reduce time for studying and physical activity, which may negatively affect mental health. Concerning psychological symptom levels, most students showed mild symptoms, while the proportion with moderate symptoms was low.

This suggests that psychological problems have appeared at an early stage but have not yet become severe, creating favorable conditions for early screening and timely intervention. This result is consistent with many international studies showing that most students have mild to moderate psychological symptoms related to academic pressure and prolonged use of electronic devices. Logistic regression analysis showed that emotional factors, habits, and perceptions related to smartphone use were significantly associated with psychological symptoms. The finding that students who believed smartphone use had negative effects on mental health had a lower likelihood of psychological problems may reflect the role of awareness and self-regulation. Students who are aware of the harmful effects of smartphones may actively change their usage habits, thereby reducing the risk of mental disorders. This result is consistent with health behavior models, in which risk perception is an important factor promoting protective mental health behaviors. Overall, the study results indicate that smartphone use is significantly associated with students' mental health and academic performance. This highlights the need for educational programs on appropriate smartphone use, together with early screening for psychological problems in university settings, in order to reduce the risk of progression to more severe mental disorders.

Acknowledgements

The author would like to express sincere gratitude to all individuals who provided support throughout the conduct of this independent study. Special thanks are extended to colleagues who offered valuable feedback during the preparation of the manuscript. This study received no external funding. No funding agency was involved in the study design, data collection, analysis, interpretation, or manuscript preparation. The author is deeply grateful to all participants who generously dedicated their time and cooperated with this research.

Competing interests

The authors declare no conflict of interest.

Authors' contributions

The author conducted the entire research process, including study design, data collection, data analysis, and manuscript preparation. The author has read and approved the final version of the manuscript.

Consent

The author confirms that written informed consent was obtained from all participants for the use of their data in this study.

Ethical Approval

This study was conducted in accordance with ethical research principles, ensuring the rights, privacy, and confidentiality of all participants.

REFERENCES

1. Zeerak Q, Imran M, Azeez K, Lokanathan TH, Ismail IM. The Effects of Smartphone Addiction on Academic Performance Among Undergraduate Medical Students in Karnataka, India: A Multi-centric Study. Cureus. 2024;16(6):e62796.
2. Prafull K, Rao A, Doijad V, Patil P, Daulatabad VS, John NA. Impact of smartphone on mental health among medical undergraduates: A cross-sectional study. Journal of education and health promotion. 2024;13:137.
3. Li N, Fu L, Yang H, Zhao W, Wang X, Yan Y, et al. The relationship between mobile phone dependence and academic burnout in Chinese college students: a moderated mediator model. Frontiers in psychiatry. 2024;15:1382264.
4. Elhai JD, Dvorak RD, Levine JC, Hall BJ. Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. Journal of affective disorders. 2017;207:251-9.
5. Demirci K, Akgönül M, Akpinar A. Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. Journal of behavioral addictions. 2015;4(2):85-92.

****