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PREVALENCE OF SMARTPHONE ADDICTION AND ASSOCIATED FACTORS AMONG HEALTH SCIENCES STUDENTS AT DAI NAM UNIVERSITY IN 2023

Hoang Duc Hanh*, Phan Trung Hieu

Faculty of Medicine, Dai Nam University - 1 Xom Street, Phu Luong Ward, Hanoi City, Vietnam

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ABSTRACT

Objective: To describe the prevalence of smartphone addiction and identify associated factors among health sciences students at Dai Nam University in 2023.

Subjects and Methods: A cross-sectional study was conducted among 447 undergraduate students from the Faculties of Medicine, Nursing, and Pharmacy at Dai Nam University, Hanoi, Vietnam. Data were collected using a structured self-administered questionnaire. Smartphone addiction was assessed using the Smartphone Addiction Scale – Short Version (SAS-SV). Descriptive statistics, Chi-square tests, and binary logistic regression analyses were performed using Stata 16.0.

Results: The mean total SAS-SV score was 35.71 ± 8.88, ranging from 10 to 60 points. The highest mean score was observed for the item "I wouldn't be able to stand not having a smartphone" (4.31 ± 1.40). Overall, 69.80% of participants were classified as having smartphone addiction. Smartphone addiction prevalence ranged from 64.91% to 79.63% across participant groups and was highest among second-year students (79.63%) and Nursing students (77.32%). Logistic regression analysis showed that students with other living arrangements had significantly lower odds of smartphone addiction compared with those living with family (OR = 0.22; 95% CI: 0.05–0.95; p = 0.043). No statistically significant associations were found for gender, year of study, place of birth, or academic major (p > 0.05).

Conclusion: Smartphone addiction was highly prevalent among health sciences students at Dai Nam University. Psychological dependence on smartphones appeared common, highlighting the need for interventions promoting healthy smartphone use and supporting students' mental health and academic performance.

Keywords: Smartphone addiction, health sciences students, SAS-SV, university students, Vietnam.

1. INTRODUCTION

Smartphones have become an essential part of daily life among university students, particularly in health sciences education where digital learning, online communication, and social networking are increasingly common. Although smartphones provide substantial educational and communication benefits, excessive use may lead to smartphone addiction, which has emerged as an important behavioral and public health concern. Previous studies have shown that smartphone addiction is associated with poor sleep quality, insomnia, daytime dysfunction, anxiety, depression, stress, fatigue, and reduced academic performance among health sciences students [1-3].

The prevalence of smartphone addiction among health sciences students has been reported at relatively high levels worldwide. A meta-analysis among Asian medical students estimated that approximately 42% met the criteria for smartphone addiction [1], while global studies among medical students reported a prevalence of around 39% [2]. In nursing students, prevalence rates ranged from approximately 22% in meta-analyses to 40–50% in specialized nursing programs [3-5]. Among pharmacy students in Thailand, the prevalence reached approximately 49% [4], while studies involving mixed health professions reported prevalence rates ranging from 30% to 43% [6]. These findings indicate that smartphone addiction is highly prevalent among students in health-related disciplines.

Several factors have been associated with smartphone addiction in previous studies. Excessive smartphone use duration, particularly more than 4–5 hours per day, has consistently been identified as a major risk factor [4, 7, 8]. Other associated factors include academic year, psychological distress, loneliness, poor self-control, social networking needs, lack of social support, and academic pressure. However, findings regarding demographic characteristics such as gender and academic year remain inconsistent across studies [1, 7, 9, 10].

In Vietnam, smartphone use among university students has rapidly increased in recent years, especially after the expansion of online learning. However, evidence regarding smartphone addiction among health sciences students remains limited. Therefore, this study was conducted to describe the prevalence of smartphone addiction and associated factors among health sciences students at Dai Nam University in 2023.

2. SUBJECT AND METHODS

2.1. Study design and study population

*Corresponding author
Email: hoangduchanh@dainam.edu.vn **Phone:** (+84) 913395879 **Https:**//doi.org/10.52163/yhc.v67iE1.5257

A cross-sectional study was carried out among undergraduate students enrolled in the Faculties of Medicine, Nursing, and Pharmacy at Dai Nam University, Hanoi, Vietnam, in 2023. The study targeted full-time students who were at least 18 years old and agreed to participate voluntarily. Students who were absent during the survey period or submitted incomplete questionnaires were excluded from the final analysis. All 447 students participated in the study.

2.2. Data collection and study instruments

Data collection was conducted using a structured self-administered questionnaire distributed directly to students during class sessions. Before participation, all students received information regarding the study objectives, confidentiality principles, and voluntary nature of participation. The average completion time for the questionnaire was approximately 15–20 minutes.

The questionnaire consisted of two major components. The first component collected demographic and academic information, including gender, year of study, place of birth, current living arrangement, and academic major. The second component assessed smartphone addiction using the Smartphone Addiction Scale – Short Version (SAS-SV) developed by Kwon et al. (2013). The SAS-SV includes 10 items evaluating symptoms related to excessive smartphone use, withdrawal, daily-life disturbance, and psychological dependence. Each item is rated on a 6-point Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"), resulting in a total score ranging from 10 to 60 points. Higher scores indicate a greater level of smartphone addiction. Based on the original recommendation of the scale, smartphone addiction was defined as a total score of ≥31 for males and ≥33 for females [11].

2.3. Statistical analysis

Collected data were coded, entered, and analyzed using Stata version 16.0. Descriptive statistics were used to summarize participant characteristics and SAS-SV scores. Continuous variables were expressed as mean ± standard deviation (SD), whereas categorical variables were presented as frequencies and percentages.

Associations between participant characteristics and smartphone addiction were initially explored using Chi-square tests. Variables of interest were subsequently entered into binary logistic regression models to identify factors associated with smartphone addiction. The results were reported as odds ratios (ORs) with corresponding 95% confidence intervals (95% CIs). A p-value of less than 0.05 was considered statistically significant.

2.4. Ethical considerations

The study was conducted in accordance with ethical principles for research involving human participants. Participation was entirely voluntary, and informed consent was obtained from all students prior to data collection. No personal identifiers were collected, and all information was kept confidential and used solely for research purposes. Participants were informed that they could withdraw from the study at any stage without any academic or personal consequences.

3. RESULTS

Among the 447 participants, females accounted for the majority (63.31%). Fourth-year students represented the largest proportion (29.75%), while first-year students accounted for the lowest proportion (20.58%). Most participants were from rural areas (59.51%) and were living in rented accommodation (55.70%). Regarding majors, Pharmacy students accounted for the highest proportion (41.61%), followed by Medicine (36.69%) and Nursing students (21.70%)(Table 1).

Table 1. General characteristics of the study participants

Characteristics	n	%
Gender		
Male	164	36.69
Female	283	63.31
Year of study		
First-year students	92	20.58
Second-year students	108	24.16
Third-year students	114	25.50
Fourth-year students	133	29.75
Place of birth		
Rural area	266	59.51
Urban area	181	40.49
Current living arrangement		
Living with family	136	30.43
Renting accommodation	249	55.70
Dormitory	53	11.86
Others	9	2.01
Major		
Medicine	164	36.69
Nursing	97	21.70
Pharmacy	186	41.61

Table 2. Smartphone addiction scores among the study participants based on the SAS-SV scale (n = 447)

SAS-SV items	Mean ± SD	Min–Max
1. I miss work that I planned, due to smartphone use.	3.52 ± 1.32	1–6
2. I have a hard time concentrating in class, while doing assignments, or while working, due to smartphone use.	3.66 ± 1.31	1–6
3. I feel pain in my wrists or at the back of my neck while using a smartphone.	3.55 ± 1.40	1–6
4. I wouldn't be able to stand not having a smartphone.	4.31 ± 1.40	1–6
5. I feel impatient and fretful when I am not holding my smartphone.	3.46 ± 1.37	1–6
6. I have my smartphone on my mind even when I am not using it.	3.22 ± 1.35	1–6

SAS-SV items	Mean ± SD	Min–Max
7. I would never give up using my smartphone even if my daily life were greatly affected by it.	3.67 ± 1.34	1–6
8. I constantly check my smartphone so as not to miss conversations between other people on Twitter, Facebook, Snapchat, Instagram, TikTok, or other social media.	3.55 ± 1.34	1–6
9. I use my smartphone longer than I intend.	3.76 ± 1.28	1–6
10. People around me tell me that I use my smartphone too much.	3.02 ± 1.33	1–6
Total SAS-SV score	35.71 ± 8.88	10–60

The mean total SAS-SV score among the participants was 35.71 ± 8.88, with scores ranging from 10 to 60. Among the ten items, the highest mean score was observed for the statement "I wouldn't be able to stand not having a smartphone" (4.31 ± 1.40), indicating a strong psychological attachment to smartphones among participants. In contrast, the lowest mean score was found for the item "People around me tell me that I use my smartphone too much" (3.02 ± 1.33). Overall, the findings suggest that problematic smartphone use behaviors and dependence-related symptoms were relatively common among the study participants.

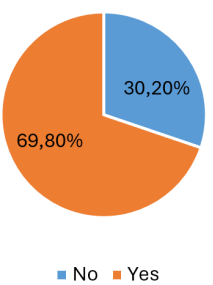


Figure 1. Prevalence of smartphone addiction among the study participants according to the SAS-SV scale

Among the 447 participants, 69.80% were classified as having smartphone addiction according to the SAS-SV scale, while 30.20% were categorized as non-addicted. The proportion of participants with smartphone addiction was notably higher than those without addiction.

Table 3. Factors associated with smartphone addiction among the study participants (n = 447)

Variables	Non-addicted n (%)	Addicted n (%)	OR (95% CI)	p-value
Gender				
Male	49 (29.88)	115 (70.12)	Reference	0.645
Female	86 (30.39)	197 (69.61)	0.89 (0.56–1.44)	
Year of study				
First-year	31 (33.70)	61 (66.30)	Reference	
Second-year	22 (20.37)	86 (79.63)	1.70 (0.86–3.36)	0.124
Third-year	40 (35.09)	74 (64.91)	0.95 (0.52–1.73)	0.872
Fourth-year	42 (31.58)	91 (68.42)	1.04 (0.52–2.06)	0.921
Place of birth				
Rural area	79 (29.70)	187 (70.30)	Reference	0.602
Urban area	56 (30.94)	125 (69.06)	0.88 (0.55–1.41)	
Current living arrangement				
Living with family	38 (27.94)	98 (72.06)	Reference	
Renting accommo-dation	75 (30.12)	174 (69.88)	0.89 (0.53–1.49)	0.661
Dormitory	16 (30.19)	37 (69.81)	0.90 (0.42–1.94)	0.791
Others	6 (66.67)	3 (33.33)	0.22 (0.05–0.95)	0.043
Major				
Medicine	55 (33.54)	109 (66.46)	Reference	
Nursing	22 (22.68)	75 (77.32)	1.42 (0.71–2.85)	0.326
Pharmacy	58 (31.18)	128 (68.82)	1.08 (0.59–1.99)	0.794

The prevalence of smartphone addiction was high across most participant groups, ranging from 64.91% to 79.63%. The highest proportion of smartphone addiction was observed among second-year students (79.63%) and Nursing students (77.32%). Logistic regression analysis showed that only participants with other living arrangements had significantly lower odds of smartphone addiction compared with those living with family (OR = 0.22; p = 0.043). No significant associations were found for gender, year of study, place of birth, or major (p > 0.05).

4. DISCUSION

The present study revealed a high prevalence of smartphone addiction among health sciences students at Dai Nam University, with 69.80% of participants classified as addicted according to the SAS-SV scale. The mean total SAS-SV score was 35.71 ± 8.88, indicating a relatively high level of problematic smartphone use among students. Among the addiction-related behaviors, the statement "I wouldn't be able to stand not having a smartphone" had the highest mean score, reflecting a considerable degree of

psychological dependence on smartphones. In addition, smartphone addiction was prevalent across most participant groups, particularly among second-year students and Nursing students. However, logistic regression analysis showed that only the category of "other living arrangements" was significantly associated with smartphone addiction.

The prevalence of smartphone addiction observed in this study was higher than that reported in many international studies involving health sciences students. A meta-analysis conducted among Asian medical students reported a pooled prevalence of approximately 42%, while global studies among medical students found a prevalence of around 39% [1, 2]. Among nursing students, the prevalence was estimated at approximately 22% in meta-analyses, although some specialized nursing programs reported rates ranging from 40% to 50% [3, 4, 10, 12]. Therefore, the prevalence of 69.80% identified in the current study suggests that problematic smartphone use is highly common among health sciences students in Vietnam. This finding may be associated with the widespread use of social media, online learning activities, frequent communication needs, and increasing academic pressure within university settings.

Analysis of the SAS-SV items demonstrated that smartphone addiction among students was characterized not only by prolonged smartphone use but also by strong psychological attachment to smartphones. High scores on the items "I wouldn't be able to stand not having a smartphone" and "I use my smartphone longer than I intend" reflected behavioral dependence and difficulties in controlling smartphone use. These findings are consistent with previous studies indicating that health sciences students frequently use smartphones for academic purposes, entertainment, and online social interaction [4, 7, 8]. Moreover, the frequent checking of smartphones to avoid missing conversations on social media platforms was also common, supporting previous reports that online social interaction needs are an important risk factor for smartphone addiction among university students [3, 8, 13, 14].

This study did not identify statistically significant associations between smartphone addiction and gender, academic year, place of birth, or major. These findings are consistent with previous international studies showing inconsistent relationships between gender and smartphone addiction, with some studies reporting higher addiction levels among males, while others found higher prevalence among females or no significant gender differences [1, 7, 9]. Although second-year students and Nursing students demonstrated higher addiction prevalence than other groups, the differences were not statistically significant. This suggests that smartphone addiction may represent a widespread behavioral issue affecting most groups of health sciences students rather than being concentrated in a particular subgroup.

One noteworthy finding was that students with "other" living arrangements had significantly lower odds of smartphone addiction compared with students living with family. However, this result should be interpreted cautiously because the sample size of the "other" category was relatively small. Nevertheless, the finding suggests that living environments, levels of social supervision, and daily lifestyle patterns may influence smartphone use behaviors. Previous studies have similarly reported that lack of social support, loneliness, and increased online interaction needs are associated with a higher risk of smartphone addiction among health sciences students [3, 8, 13, 14].

Based on these findings, universities should strengthen educational and health promotion programs regarding appropriate smartphone use among health sciences students. Awareness campaigns focusing on the negative effects of excessive smartphone use on mental health, sleep quality, and academic performance should be implemented. Interventions promoting time management skills, behavioral self-control, and participation in offline extracurricular activities may also help reduce problematic smartphone use. In addition, integrating digital health literacy and safe technology use into health sciences curricula may contribute to preventing smartphone addiction among future healthcare professionals.

Several limitations of this study should be acknowledged. First, the cross-sectional design does not allow causal relationships between associated factors and smartphone addiction to be established. Second, data was collected using self-administered questionnaires, which may be affected by recall bias and social desirability bias. Furthermore, the study did not evaluate several important variables such as daily smartphone use duration, sleep quality, stress, anxiety, or depression, although these factors have been consistently associated with smartphone addiction in previous studies [1-3, 8]. Future studies should employ longitudinal designs and include additional psychological and behavioral variables to better clarify the mechanisms underlying smartphone addiction.

5. CONCLUSION

In conclusion, smartphone addiction among health sciences students at Dai Nam University in 2023 was highly prevalent, with nearly 70% of students classified as addicted according to the SAS-SV scale. Psychological dependence on smartphones appeared to be common among participants. Although most demographic variables were not significantly associated with smartphone addiction, the findings emphasize the need for interventions aimed at promoting healthy smartphone use and protecting students' mental health and academic performance.

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