

Study on internet addiction status of students and its related factors at a medical college in Central Vietnam

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Abstract

Background: The internet has become an indispensable part of daily life. However, excessive use of the internet can lead to internet addiction, a recognized mental health condition included in the International Classification of Diseases-11 Revision (ICD-11). During the COVID-19 pandemic, this issue appears to have worsened due to increased internet use. This study aimed to determine the prevalence of internet addiction among students at Dang Thuy Tram Medical College in Quang Ngai Province in 2020 and to explore the associated factors. **Materials and methods:** A cross-sectional study was conducted among 425 full-time students at Dang Thuy Tram Medical College in Quang Ngai Province, Vietnam, in 2020, using a self-administrative questionnaire. Data were collected on demographic characteristics, mental health status and internet use behaviors. The 20-item Internet Addiction Test (IAT-20) was used to assess internet addiction. Statistic analyses including Chi-square tests and multivariate logistic regression to explore factors related to students' internet addiction. **Results:** The prevalence of medical college students showing mild internet addiction or more severe conditions was 348 among them, 79.9% had mild internet addiction, 19.8% showed internet addiction and 0.3% had a severe condition. Regression analysis indicated that internet addiction was significantly associated with school year (aOR = 2.39, 95%CI:1.08 - 5.29, 2nd year vs 1st year), living arrangement (aOR = 4.15, 95%CI:1.59 - 10.79, living with friends vs living with family), warnings from academic advisors about internet use (aOR = 1.7, 95%CI:1.5 - 6.9), and the time spent for the main purpose of internet use. **Conclusion:** Internet addiction is highly prevalent among medical college students, especially during the pandemic period. Efforts should be made to raise awareness among student, families, and academic institutions about the risks of internet addiction and promote healthier internet use behaviors.

Keywords: COVID-19 pandemic, internet addiction, students, medical college, central Vietnam.

1. INTRODUCTION

The internet has become an indispensable part of our daily lives, offering numerous benefits such as access to online information, entertainment, and social interaction. It has a particularly significant impact on education and training [1, 2, 3]. However, excessive use can lead to internet addiction, a mental health condition recognized by the World Health Organization. Gaming disorder is now included in the addictive behavior disorders of the ICD-11 classification [4].

Internet addiction has both immediate and long-term consequences for individuals and society. Changes in brain structure and neurochemical activities caused by excessive internet use are a growing concern among researchers and educators, particularly regarding the development of young people [5, 6]. Several studies have identified adverse functional and psychosocial outcomes associated with problematic internet use. Unsurprisingly, these studies also report evidence of declines in both

official academic performance and self-reported scores among children and adolescents [7]. Regarding physical health, Nguyen Minh Tam et al (2017) found that 57.3% of school students experienced poor sleep quality due to excessive internet use, while the rate of colleges/universities was 51.6%. In Vietnam, the internet is considered a highly popular communication tool among young people, including schoolchildren and college/university students [8].

The Internet has become a widely used and essential tool for supporting student's learning, especially those in the health sector - an important workforce for public health care [9]. Currently, no studies have investigated internet addiction among students at the medical and pharmacy college in Quang Ngai Province. To address this gap in knowledge, we conducted a study titled "Internet Addiction Status and Related Factors of Students and its related factors at Dang Thuy Tram Medical College, Quang Ngai Province." The aim of this study is to identify students who show early signs of internet addiction, enabling

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timely interventions and helping to prevent potential mental health problems associated with excessive internet use. The study has two aims:

1. To determine the prevalence of internet addiction among students at Dang Thuy Tram Medical College, Quang Ngai province.

2. To explore the factors related to internet addiction among the students.

2. SUBJECTS AND METHODOLOGY

2.1. Participants

The participants in this study were full-time students actively enrolled at Dang Thuy Tram Medical College during the 2019 - 2020 academic year. Students with a known history of mental health disorders or communication difficulties were excluded. Written informed consent was obtained from all participants prior to their inclusion in the study.

2.2. Time and location of research

The study was conducted from June 2020 to December 2020 at Dang Thuy Tram Medical College in Quang Ngai Province, Vietnam.

2.3. Study design, sample selection and variables

A cross-sectional design was employed, including all 425 students who met the inclusion and exclusion criteria.

Variables collected included personal characteristics, as well as characteristics of their family, friends and learning environment. The main variables and their corresponding measurement tools are as follows:

- Depression: Assessed using the CES-D scale to evaluate the participants' level of depression during the week prior to the study [9]. The cut-off points were defined as follows: scores above 21 indicated the presence of depression symptoms, while scores above 25 indicated probable depression [4].

- Internet Addiction: Measured using the Young's (1998) 20-item Internet Addiction Test (IAT), a widely used instrument for assessing the severity of internet addiction in various studies worldwide. Each question has the following options: Not appropriate (0 points), rarely (1 point), occasionally (2 points), often (3 points), more often (4 points) and always (5 points) [10].

The IAT scale is evaluated by many researchers for its high value and reliability. According to the study of Le Minh Cong, the reliability of the scale is quite high with Cronbach's alpha equal to 0.83 [2]. The level of use is calculated based on the total score of the scale. The higher the score, the higher the level of addiction [10].

In this study, addiction levels were categorized as follows:

≤ 30 points: no Internet addiction

31 - 100 points: Internet addiction (31 - 49 points: mild internet addiction; 50 - 79 points: internet addiction; ≥ 80 points: severe Internet addiction) [10].

2.4. Data collection

Data were collected using self-administered questionnaire distributed to participants. The principal investigator provided instructions and was available to clarify any questions during the data collection process.

2.5. Statistical analysis

Analyses including Chi-square test and multivariate logistic regression to explore related factor of the students' internet addiction.

3. RESULTS

3.1. Characteristics of studied participants

The majority of participants (86.6%) were over 20 years old. Females accounted for a significantly larger proportion (83.5%) than males (16.5%). Third-year students represented the highest representation (37.4%), although participants from all three academic year were equally distributed. Most students belonged to The Kinh ethnic group (75.8%). Regarding vision, the majority (75.1%) had normal eyesight, while myopia was the most common visual impairment (21.4%). Pharmacy students comprised the largest group (72.5%). Additionally, 43.1% of the students reported having a part-time job.

3.2. Prevalence of internet addiction among students at Dang Thuy Tram Medical College

The study results showed that all participating students had used the internet. However, only 18.1% participants showed no signs of internet addiction.

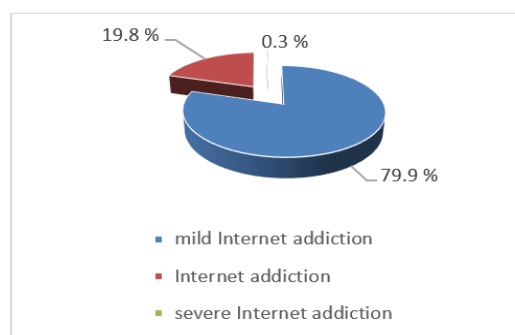


Chart 1. Distribution of internet addiction levels among participants with signs of addiction

In chart 3.1, Among the 348 students who showed signs of internet addiction, the majority (79.9%) had mild internet addiction; 19.8% met the criteria for internet addiction, and only 0.3% were classified as having severe addiction.

3.3. Related factors of internet addiction among students at Dang Thuy Tram Medical College

Table 1. Relationships between learning environment characteristics and internet addiction among participants

Characteristics		Internet addiction				p
		Yes		No		
		n	%	n	%	
Received warnings from academic advisors regarding Internet use	Yes	317	83.6	62	16.4	0.001
	No	31	67.4	15	32.6	
Worked night shifts at the hospital in the previous month	≥ 3 sessions/1 week	37	67.3	18	32.7	< 0.05
	1 - 2 sessions/week	94	87.9	13	12.1	
	None	217	82.5	46	17.5	
Satisfaction with academic achievement in the previous semester	Unsatisfied	103	88	14	12	< 0.05
	Satisfied	31	66	16	34	
	Normal	214	82	47	18	
Missed extracurricular activities due to Internet use	Very often	7	100	0	0	< 0.05
	Frequent	17	89.5	2	10.5	
	Sometimes	105	86.1	17	13.9	
	Seldom	63	88.7	8	11.3	
	Never	156	75.7	50	24.3	
Availability of internet access at school	Very easy	27	65.9	14	34.1	< 0.05
	Easy	26	96.3	1	3.7	
	Normal	90	78.9	24	21.1	
	A little difficult	90	86.5	14	13.5	
	Very difficult	115	82.7	24	17.3	

In table 1, The findings of this study indicate that several factors related to learning environment are statistically associated with internet addiction. These factors include receiving warnings from academic advisors regarding internet use, participating in hospital night shifts during the previous month, dissatisfaction with academic performance in the semester before last, and missing sports or extracurricular activities due to excessive internet use. Additionally, having internet access at school was found to be a significant contributing factor.

Table 2. Relationships between the purpose, duration, and cost of internet use and participants' internet addiction status

Characteristics		Internet addiction				p
		Yes		No		
		n	%	n	%	
Purpose of Internet use	Look for information	189	80.4	46	19.6	< 0.05
	Contact/chat	266	83.9	51	16.1	
	Entertainment	261	86.7	40	13.3	
	Online business	89	83.2	18	16.8	
	Learning	218	85.5	37	14.5	

Characteristics		Internet addiction				p
		Yes		No		
		n	%	n	%	
The main purpose of Internet use	Look for information	74	69.2	33	31.5	< 0.05
	Exchange, contact	143	84.6	26	15.4	
	Entertainment	119	89.5	14	10.5	
	Business	12	7.5	4	2.5	
Duration spent for the main purpose of Internet use	From 1 hour/day or less	54	65.1	29	34.9	< 0.05
	1.1 to 5 hours/day	249	84.7	45	15.3	
	Over 5 hours/day	45	93.8	3	6.2	

In table 2, This study identified statistically significant relationships between internet addiction and several factors related to internet use. These factors include the purpose of internet use, duration spent online, cost of internet access, primary purpose of use, and duration spent on the primary purpose.

Table 3. The relationship between the level of depression according to the CES - D scale and the Internet addiction of the participants

Characteristic		Internet addiction				p
		Yes		No		
		n	%	n	%	
Levels of depression according to the CES-D scale	No depression	233	78.2	65	21.8	< 0.05
	Having symptoms of depression	46	85.2	8	14.8	
	Probable depression	69	94.5	4	5.5	

In table 3, There was a relationship found between Internet addiction status and the level of depression according to the CES-D scale with $p < 0.05$.

Table 4. Multivariate logistic regression analysis of factors related to Internet addiction among students

Variables		OR	p	95%CI	
				Low	High
Academic year	1 st year	1	-	-	-
	2 nd year	2.39	< 0.05	1.08	5.29
	3 rd year	1.22	> 0.05	0.61	2.45
Living arrangement	Live with family	1	-	-	-
	Live with friends	4.15	< 0.05	1.59	10.79
	Live alone	1.14	> 0.05	0.37	3.51
Received warnings from academic advisor about using the Internet	No	1	-	-	-
	Yes	1.7	< 0.05	1.5	6.9
Duration spent for the main purpose of Internet use	From 1 hour/day or less	1	-	-	-
	1.1 - 5 hours/day	1.95	< 0.05	1.01	3.75
	Over 5 hours/day	6.96	< 0.05	1.76	27.53

In table 4, Our multivariable logistic regression analysis revealed significant associations between internet addiction and several student characteristics, including academic year, living arrangement, received warnings from academic advisor about using the internet and the amount of time spent on the main purpose.

4. DISCUSSION

As expected, all participants in this study reported using the internet. The COVID-19 pandemic has clearly highlighted the internet's essential role in supporting education and training, particularly through the widespread adoption of online learning and remote work. However, despite its convenience, this accessibility often lacks appropriate control mechanisms, leading to potential negative consequences. Our investigation revealed that 81.9% of the student population exhibited signs of internet addiction, ranging from mild to severe. Notably, 20.1% of participants met the criteria for either addiction or severe addiction. This prevalence is consistent with findings from Tran Xuan Bach's study on internet addiction among young Vietnamese adults, which reported a rate of 21.2% [8]. However, it is lower than the prevalence reported in a 2012 study conducted at Nepal Medical University, where 85.8% students were found to be addicted to the internet addiction) [11]. The difference may be attributed to variations in assessment tools, culture norms surrounding internet use, or the specific measurement criteria in each study.

Our study reveals a higher rate of internet addiction compared to previous studies conducted in Dong Nai Province among adolescents and young adults. Le Minh Cong's research on internet addiction among junior high school students in Bien Hoa, Dong Nai, using Young's internet addiction scale, found that 12.3% of students were classified as addicted [5]. Notably, Cong's study utilized a two-step screening process, initially using Young's 20-item scale, followed by an 8-item scale for students identified as potential cases of addiction [5]. This methodology difference may partially account for the variation in results. Given the high prevalence of internet addiction observed in our study, family and educational institutions should prioritize this issue, as it significantly impacts the behaviors and lifestyles of affected students. Those struggling with internet addiction frequently report challenges in self-care, difficulty managing daily routines, physical discomfort, anxiety, and symptoms of depression [12].

The potential risk factors of internet addiction including being males, residing in urban areas, having middle and high socioeconomic status, internet availability at home, and ownership of a personal laptop or mobile phone. Other studies identified a negative correlation between problematic internet

use and academic achievement [8]. In the previous study of Ha Ngoc Do et al (2019) the prevalence of daily Internet use among Vietnamese youth aged 16 - 30 was 65% [13]. Furthermore, 34.3% of participants stated that they felt anxious or uncomfortable after a day without internet use, regardless of sexes, and 40% believed that regular internet use did not negatively impact their health.

The study has several key limitations. First, the cross-sectional design only captures associations at a single point in time and cannot establish causal relationships between factors and internet addiction. Second, the use of self-administered questionnaires may lead to information bias due to inaccurate or dishonest responses, or misunderstandings of the questions. Additionally, the study sample was limited to students from a single medical college in Quang Ngai, which reduces the generalizability of the findings to other student populations or regions.

5. CONCLUSION

Our study involved 425 students at Dang Thuy Tram Medical College in Quang Ngai Province in 2020 revealed that all participants reported internet use, which 81.9% exhibiting sign of internet addiction ranging from mild to severe. Notably, 20.1% met the criteria for either addiction or severe addiction. Several factors were found to be significantly associated with internet addiction, including academic year, living arrangement and warnings from academic advisors are associated with the students' internet addiction. Students in higher academic years were at greater risk compared to first-year students.

Regression analysis indicated that internet addiction was significantly associated with school year (aOR = 2.39, 95%CI:1.08 - 5.29, 2nd year vs 1st year), living arrangement (aOR = 4.15, 95%CI:1.59 - 10.79, living with friends vs living with family), warnings from academic advisors about internet use (aOR = 1.7, 95%CI:1.5 - 6.9), and the time spent for the main purpose of internet use.

6. RECOMMENDATIONS

The College and Families should strengthen supervision of internet use and its purposes among students, particularly those in higher academic and those living far away from their families. Student engagement should be promoted by enhancing extracurricular activities and incorporating educational content on the signs of internet addiction, prevention strategies, and relevant

regulations/requirements for internet use. In addition, broader societal efforts are needed to enforce stronger regulatory measures for internet service providers to promote responsible and healthy internet use practices.

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