



The Relationship between Internet Addiction and Academic Enthusiasm among Medical Sciences Students

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ARTICLE INFO

Article Type:

Research Article

Article History:

Received
22 April 2024

Received in revised form
14 May 2024

Accepted
17 November 2024

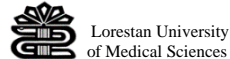
Available online
1 January 2025

ABSTRACT

Excessive Internet usage has been identified as a potential cause of psychological, social, educational, and occupational issues. Students, in particular, are at risk of experiencing complications arising from excessive Internet use. This study examines the correlation between Internet addiction and academic enthusiasm among students at Lorestan University of Medical Sciences (Iran). Conducted as an analytical cross-sectional study, the research encompassed undergraduate students from the university in 2022, with a sample size of 295 participants selected through simple random sampling. The research instruments employed were Young's Internet Addiction Questionnaire and Fredericks et al.'s Academic Enthusiasm Questionnaire. Data analysis was executed using an independent t-test and one-way ANOVA via Stata17 software. The findings revealed that 25.42% of students were susceptible to Internet addiction. The overall scores for academic enthusiasm, along with its emotional, behavioral, and cognitive components, ranged from moderate to high. A statistically significant difference was observed in the cognitive passion component across different age groups ($P=0.01$) and marital statuses ($P=0.005$). However, no significant statistical relationship was found between Internet addiction and other components of academic enthusiasm or other demographic characteristics. In conclusion, excessive Internet use among students leads to health issues and hinders their ability to engage in activities such as continuing education, completing assignments, studying, and exam preparation. Consequently, it is recommended that this study be replicated following the implementation of psychological interventions, emotion-control training, and strategies to enhance academic motivation.

Keywords: Academic Success; Behavior; Medical Students; Internet Addiction Disorder

Publisher:



Cite this article: Galehdar N, Souri Z, Mokhayeri Y, Ahmadi H, Falahi B. The relationship between Internet addiction and academic enthusiasm among Medical Sciences students. *Interdiscip. J. Acute Care*.2025; 6(1): 17-22. <https://doi.org/10.22087/ijac.2025.517363.1058>

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Introduction

With technological advancement, the Internet, smartphone devices, iPads, and tablets have become integral to people's lives, including students, teachers, business people, and government officials [1]. Excessive use of the Internet is called Internet addiction, which can cause psychological, social, academic, or occupational problems in a person's life [2]. University students are more prone to internet addiction. In China, the phenomenon of Internet addiction among student groups is severe [3]. Studies have reported internet addiction among students of Tehran University of Medical Sciences, Ahvaz, Bojnord, and Shahrekord, respectively 9%, 15.8%, 20.7%, and 7.3%, respectively. In Gonabad University, 9.5% of students were addicted to the Internet, and 21.5% were exposed to Internet addiction [4].

According to Statista, India has the highest internet users after China [1]. In the last few years, the number of internet users in Iran has increased 25 times, most of whom are young [5]. The prevalence of Internet addiction in Iran seems moderate. Therefore, it is necessary to identify, treat, and prevent age groups at risk by the responsible authorities [4].

With the increase in Internet use, the quality-of-life decreases. Those people who use the Internet addictively have less responsibility towards issues and society [6]. Access to cyberspace has caused students to constantly work with their phones, even during classes, which can lower people's productivity and work efficiency, especially in education [7]. Such people distance themselves from their academic life and suffer from a lack of work and concentration in the classroom [4]. Internet addiction can seriously threaten the personal health and academic performance of students and hurt psychological health [8]; it can also lead to academic failure [3]. The excessive and pathological use of the Internet by students is the basis for disrupting their mental health and academic performance [9].

Academic enthusiasm is one factor contributing to the success of students' academic performance and the index of university quality in some countries such as Australia [8, 10]. According to studies, one factor influencing students' progress and academic performance is academic enthusiasm [11, 12]. Academic enthusiasm is the energy and time students spend on intelligent educational activities. Academic enthusiasm refers to the quantity and quality of the physical and mental energy of students that they invest during their academic careers [5]. It has three dimensions: absorption, vigor, and dedication [10].

Students with academic passion focus more on learning goals and perform better in exams. Studies

have shown that there is a negative and significant relationship between Internet addiction and academic progress and academic motivation [13, 14]. Students who are involved in internet addiction are more likely to have procrastination behaviors, and for this reason, they show poor academic performance [15]. Academic enthusiasm causes more study and academic satisfaction and is very valuable and logically connected to educational outcomes [10].

Since students have a special role and position as the basic pillar of the educational system, paying attention to this segment of society in terms of education and training will make the educational system flourish more and more [15] and identify the student's academic enthusiasm and Factors affecting it can be considered in the adjustment of policies, strategies and educational programs [10]. This research investigated the relationship between Internet addiction and academic enthusiasm in Lorestan University of Medical Sciences students.

Materials and Methods

In this cross-sectional analytical study, the research population was continuous undergraduate students of Lorestan University of Medical Sciences from 2022. First, permission was obtained from the University Research and Technology Vice-Chancellor and Ethics Committee and (IR.LUMS.REC.1399.065) in coordination with the Faculties of Nursing, Midwifery, Health and Nutrition, and Paramedicine by multistage cluster sampling method based on the number of students in each faculty. Each faculty was considered a cluster to reflect the diversity of academic disciplines and demographic characteristics in the sampling framework. The sample size was calculated using Cochran's formula based on prior studies (estimated internet addiction prevalence: 25%, margin of error: 5%, confidence level: 95%). Questionnaire reliability was confirmed with Cronbach's alpha = 0.89, and five medical education experts verified content validity. Two hundred ninety-five undergraduate students were selected. After explaining the study's objectives, obtaining written informed consent, ensuring the anonymity and confidentiality of the information, and observing the principle of confidentiality, questionnaires were distributed electronically (via the university's LMS platform) and in print (for students without online access). The questionnaires were collected from the students after a two-week deadline for completion, and incomplete or contradictory data (less than %5) were eliminated. The entry criteria were continuous undergraduate studies and willingness to participate. Unwillingness to continue cooperation and withdrawal from the study were the criteria for exclusion.

Yang's Internet Addiction Questionnaire was used to measure Internet addiction. This questionnaire was designed by Kimberly Young in 1998 and contains 20 items with a 6-point Likert scale from Strongly disagree (0) to agree [5] Strongly. Scores range from 0 to 100. A higher score indicates more problems and dependence in connection with Internet use. Scores between 20-49 were equivalent to no addiction, 79-50 to internet addiction, and 80-100 to internet addiction. The reliability of this questionnaire using Cronbach's alpha coefficient is 0.84. It has been calculated in other studies [5].

Fredericks et al. [16] used an academic enthusiasm questionnaire to measure academic enthusiasm. This questionnaire contains 14 questions with a 5-point Likert scale from strongly disagree [1] to agree [5] strongly. These items measure three behavioral, emotional, and cognitive components among students. Ganji and colleagues have reported the reliability coefficient of this scale as 0.86 [5]. Data analysis was done using descriptive and inferential statistics, measuring the mean and standard deviation, independent t-test, and one-way ANOVA at a significance level 0.05 and using Stata software v.17.

Results

Out of 295 students studied, 221 were women (74.92%), and 246 were single (83.39%). Internet addiction score was between 20-86, and the mean and standard deviation was 41.11 ± 12.98 . According to the results, 25.42% were exposed to internet addiction. The mean and standard deviation of the total academic enthusiasm score and its components are presented in Table 1. Among the components of academic enthusiasm, the highest average was related to emotional enthusiasm (17.6 ± 4.64).

Table 1. The mean and standard deviation (SD) of the components of academic enthusiasm

Components	Mean \pm SD	Min	Max
Behavioral enthusiasm	14.54 \pm 2.95	4	20
Emotional enthusiasm	17.6 \pm 4.64	6	30
Cognitive enthusiasm	15.83 \pm 3.59	5	25
Total academic enthusiasm	47.98 \pm 9.98	15	75

Table 2 shows the mean and standard deviation of the total academic enthusiasm score by age group. According to the analysis of the variance test, there is no statistically significant difference in the average score of total academic enthusiasm between age groups ($p=0.11$).

Table 2. Mean and SD of Academic Enthusiasm Score by Age Groups

Age group	Mean \pm SD
18-20	48.71 \pm 10.59
21-23	47.52 \pm 9.68
24-26	45.58 \pm 8.58
27-30	45.5 \pm 13.64
31<	51.52 \pm 10.43

The mean score of Internet addiction in men is higher than that of women, while the average score of academic enthusiasm in women is higher than that of men. Based on the independent t-test to compare the mean of internet addiction ($p=0.85$) and the total academic enthusiasm and its components ($p=0.32$) in the studied women and men, there was no significant difference (Table 3).

Table 3. Comparing the Difference between Internet Addiction and Academic Enthusiasm by Gender

	Female	Male	Sig
Internet addiction	41.35 \pm 13.11	41.02 \pm 12.96	.85
Academic enthusiasm	46.96 \pm 11.01	48.30 \pm 9.60	.32

According to Table 4, married students had higher average academic enthusiasm ($p=0.04$), while unmarried students had higher average internet addiction scores ($p=0.04$). Based on the linear regression test, for each one-unit increase in the Internet addiction score (adjusted for age and gender confounders), the beta coefficient for the academic enthusiasm score equals -0.04 (95% CI: -0.12, 0.04). The point estimate shows an inverse relationship between Internet addiction and academic enthusiasm, although it is not statistically significant (P -value=0.35).

Table 4. Comparing the differences between Internet addicti on and academic enthusiasm by marital status

Variable	Married	Single	Sig
Internet addiction	37.59 \pm 11.90	41.74 \pm 13	0.04
Academic enthusiasm	50.68 \pm 11.30	47.46 \pm 9.64	0.04

Discussion

This study aimed to investigate the relationship between Internet addiction and the academic enthusiasm of Lorestan University of Medical Sciences students. The results showed that students were exposed to Internet addiction 25.42%. The average score of overall academic enthusiasm and its components was higher than average. Married and older people had higher cognitive desire. A meta-analysis conducted in 2022 on 16,585 Iranian students indicated that the overall prevalence of internet addiction is 31.51% [17]. Another study in 2017, with

a sample size of 130,531, estimated the prevalence to be 20%, which reflects the diversity in measurement methods and operational definitions [18]. During the COVID-19 pandemic, research showed a significant increase in internet addiction scores (from 34.44 to 48.47) and daily usage duration (from 1.87 to 3.95 hours) [19]. The differences in prevalence may be due to the following factors: Measurement instruments: The use of different questionnaires (such as YDQ, IAT) [7, 19]. Study samples: A focus on medical students in the current study versus diverse samples (school students, non-medical students) in other research [19, 20].

The results of Ganji et al.'s study indicate the negative role of Internet addiction in the academic enthusiasm of students [5]. In a case study, Panahian and Beiranvand showed that with the reduction of Internet addiction, enthusiasm for school increases [21]. Zhang et al. studied 2407 students from 47 classes in China for six months. They showed that Internet addiction hurts the subsequent academic progress of adolescents by reducing academic enthusiasm. These results remained after controlling the gender, age, and academic progress of the person in the first semester and the size of the class and school [3]. Yip et al. showed that Internet addiction had a negative and significant effect on students' academic energy but did not significantly affect academic enthusiasm [22]. Sin and Shrivastava investigated the effect of Internet addiction on students' academic enthusiasm and showed that Internet addiction has a negative and significant effect on academic energy and dedication [23]. However, other studies did not observe a significant relationship between academic enthusiasm and Internet addiction [24, 25], which is inconsistent with the results of the present study. Based on three reasons, academic motivation and enthusiasm may be negatively related to Internet addiction. First, people addicted to the Internet show dysfunction in the limbic system, which is related to the motivation and inhibition of behavior [26]. Second, academic enthusiasm and Internet addiction are measured based on specific behaviors and emotions. For example, anxiety is one of the basic symptoms of Internet addiction and the consequence related to addiction [27], as well as a very related emotion, which is described as dissatisfaction with learning activities [21]. A study on 2,407 Chinese students showed that internet addiction is associated with decreased academic progress. Research in Iran found a significant correlation between internet addiction and decreased academic performance among nursing and midwifery students [28]. Internet addiction is accompanied by psychological symptoms

such as depression and anxiety, which directly affect educational motivation [7, 20].

In the current study, married and older individuals showed higher cognitive tendencies [19]. According to research, single individuals and city residents are more prone to internet addiction. Female students had higher addiction scores in some Iranian studies [29]. Family communication patterns (such as low emotional support) are associated with increased internet addiction among adolescents [30].

Finally, the mutual effects of academic burnout and excessive Internet use have been shown [31]. In addition, many Internet-based activities are engaging and require individuals' participation and continuous effort to reach a new stage of the game or maintain mutually satisfying social relationships. According to the theory of autonomy [32], students' participation in learning largely meets their internal needs through the educational and social environments in the classroom. Therefore, compared to the Internet, traditional learning may not be able to meet people's needs, increasing their dissatisfaction with learning activities and participation in the Internet [24]. Although the current study and other aligned research confirm the negative relationship between internet addiction and academic enthusiasm, diversity in methodology and external factors (such as the COVID-19 pandemic) have led to inconsistent results. For example, the prevalence of internet addiction in Iran ranges from 20% to 31.51% [17, 18]. Moreover, emphasizing the mediating role of psychological variables (such as depression) and social factors (such as family patterns) is essential [30]. These findings highlight the necessity of educational and psychological interventions to reduce the adverse effects of internet addiction in academic settings [29].

One limitation of the study was the research units' non-cooperation, which the study tried to increase by providing more information about the benefits of conducting the research. Due to the spread of COVID-19, the forced use of virtual education, and the greater connection of students with the Internet and virtual space, it is suggested that this study be repeated.

Conclusion

The present study highlights a negative relationship between internet addiction and academic enthusiasm.

The findings indicate that students were exposed to internet addiction, while their average academic enthusiasm and its components were above average. These results align with previous studies, which associate increased internet addiction with reduced

academic enthusiasm and progress. However, discrepancies with other studies may stem from differences in sample characteristics (age, cultural context, marital status) or measurement tools.

Given the variability in global research outcomes, future studies should adopt longitudinal approaches, diversify samples (including students from various disciplines and age groups), and utilize standardized tools (e.g., IAT or YDQ). Additionally, investigating the mediating roles of psychological (e.g., anxiety, depression) and social factors (e.g., family support) in this relationship is crucial. These findings underscore the need for educational and psychological interventions to mitigate the adverse effects of internet addiction and enhance academic enthusiasm in university settings.

Policymakers can contribute by implementing awareness programs, restricting access to non-essential online content, and fostering real-world interactions to improve students' mental health and academic performance. Therefore, such situations may destroy the optimistic spirit of education and reduce learners' enthusiasm for education. On the other hand, regarding the observation of a higher level of cognitive desire to study in the age group of 31 years and above and married people, it may be possible to point out the role of rational choice in this age group and married people who try to choose based on the logic and beliefs that They are engaged in various activities so, conducting this study after conducting psychological interventions, teaching emotion control methods and increasing academic motivation can lead to valuable results for higher education. It is also suggested that other variables, such as parents' parenting style, be studied, in order to determine the direct or indirect effect of these variables on students' academic enthusiasm and use of the Internet.

Authorship contribution statement

All authors have reviewed and approved the final version of the manuscript. NG conceived and designed the study. ZS and MA conducted the study and collected the data; YM performed the data analysis and interpretation; and BF guided the study design.

Ethical Consideration

The research obtained approval from the Ethics Committee of Lorestan University of Medical Sciences (ethics code: IR.LUMS.REC.1399.065).

Declaration of Competing Interest

The authors have no conflict of interests related to this article

Acknowledgments

We thank everyone who assisted us in researching students' enthusiasm for medical education. Your efforts are greatly appreciated.

Funding

This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Declaration of Generative AI

The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of tables, or their corresponding captions.

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