

The Relationship between Academic Underachievement and Problematic Cell Phone Use among Medical Students

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Abstract

Background: Academic underachievement is a growing phenomenon among medical students, influenced by several factors.

Objectives: This study investigated the relationship between academic underachievement and problematic cell phone use among medical students at Kerman University of Medical Sciences.

Methods: This cross-sectional study was conducted on 300 medical students at KUMS during the academic year 2019. The Persian version of Problematic Cellular Phone Use Questionnaire was used for data collection. Also, the demographic data of the students were recorded, and they were asked to declare if they had a history of academic underachievement in the previous year. Data were analyzed by SPSS software version 20.0 using Chi-square test and logistic regression.

Results: The mean age of medical students was 22.41 ± 2.6 years, and the majority (74.3 %) of them were female. The chance of academic underachievement was 6.37 times higher in medical students who have problematic cellular phone use compared to those without it (OR=6.37, P=0.001). Also, this chance was 4.45 times higher in medical students who had a history of psychological disorders compared to those without (OR=4.45, P=0.02).

Conclusion: The current study revealed that the chance of academic underachievement was higher in medical students with problematic cellular phone use and a history of psychological disorders. Given that academic underachievement is not uncommon, its related factors must be appropriately identified and intervened on time.

Keywords: Academic, Underachievement, Cell Phone Use, Medical Students

Background

Academic underachievement is defined as reducing a student's academic performance from an acceptable level to an undesirable level. Its examples include a decrease in the grade point average compared to this amount in the previous semester, renewal or repetition of a course, extension of the study period as well as student probation. (1) According to the literature, generally, 28 percent of medical students encounter academic underachievement per year. (2)

Unfortunately, it is a growing phenomenon among medical students, which in addition to personal consequences (physical and psychosocial problems,

reluctance to continue the study and even dropping out), is a fundamental social problem. Due to the sensitivity of the medical field and its relationship with public health, the consequences will affect the health system and, ultimately, the community. Based on the previous studies, several factors, such as personality factors, the economic, social, and cultural status of the family, financial problems, the level of interest of the student in their field of study, as well as the quality and conditions of the teaching-learning environment affect academic underachievement. (1)

Another factor that can be associated with academic underachievement in medical students is problematic cell phone use. Nowadays, the high accessibility of

smartphones has caused the new generation (Digital citizens) to spend more time using them during their daily life. Although more student access to smartphones can be an opportunity to enhance the learning process, if this is not channeled in the right way, it can negatively affect students' academic performance.(3)

Yadav and Yadav revealed that more than half of medical students at the University of Western Maharashtra, India, were using mobile phones during college hours, which certainly has a negative effect on their concentration and learning.(4)

Neha Sharma et al. found that very few medical students used their mobile phones for academic purposes.(3) Arwa Jamal et al. reported sleep and concentration problems as the main side effects of smartphone use among female medical students at Taibah University in Saudi Arabia, which can affect their academic performance.(5) Najam Siddiqi et al. showed that 65% of medical students at Oman Medical College sent or received messages during the lectures, and 20% of them played games, which may distract them from concentrating on the learning process (6).

Objectives

According to the corresponding author's experience, most medical students who were referred to the counseling center of Kerman Medical School due to academic underachievement reported that unnecessary use and excessive spending time on social networks are some of the main reasons for their failure. Given the importance of identifying the dimensions of this issue, the current study was done to determine the relationship between academic underachievement and problematic cellular phone use (CPU) among medical students at Kerman University of Medical Sciences (KUMS) during the academic year 2019.

Methods

This cross-sectional study was conducted on 300 medical students at KUMS during the academic year 2019. Our statistical population was medical students who were studying at different educational levels during the study period. The participants entered the study using the quota sampling method, and those who answered less than

90% of the questions were excluded from the study.

The Persian version of the 12-item Problematic Cellular Phone Use Questionnaire (PCPU-Q) was used for data collection. The first seven questions investigate the problematic CPU symptoms in the previous year, and the following five items measure the dysfunction in academic performance, relationship with the family and friends, physical and psychological conditions, and financial problems due to problematic CPU. A Yes/No scale was used for the responses. Equal or more than four positive responses in the first seven questions implies problematic CPU. The validity and reliability of the original and Persian versions have been confirmed in previous studies. (7, 8)

Also, the demographic data of the students (age, gender, educational level, place of residence, marital status, and monthly household income) were recorded. The participants were asked to declare if they had a history of academic underachievement (a decrease in the grade point average compared to its value in the previous semester, renewal or repetition of a course, and extension of the study period in the last year.

Data were analyzed using SPSS software version 20.0 (SPSS Inc., Chicago, IL, USA) by Chi-square test and logistic regression.

Results

The mean age of medical students was 22.41±2.6 years, and the majority (74.3 %) of them were female. Table 1 shows the demographic characteristics of the participants.

Of 300 medical students at different educational levels, 59 students (19.7 %) declared that they had a history of academic underachievement in the previous semester.

Our results showed that the frequency of academic underachievement had no statistically significant difference according to the participants' characteristics except for the history of psychological disorders. The frequency of academic underachievement was higher in medical students who had a history of psychological disorders (12.4%) compared to those without it (4.6%) (P=0.03; Table 2).

Also, 139 (46.3%) students were found with equal or more than four positive responses in the first seven questions on PCPU-Q, indicating problematic CPU. This frequency had no statistically significant difference

Table 1. Demographic characteristics of the medical students

Characteristics		N (%)	Characteristics		N (%)
Gender	Male	77 (25.7)	Residence	Dormitory	113 (37.7)
	Female	223 (74.3)		With the parents	106 (35.3)
Marital status	Single	243 (81.0)		Owen's home	81 (27.0)
	Married	57 (19.0)	Poor	14 (4.7)	
Educational level	Basic sciences	117 (39.0)	Household income	Moderate	112 (37.3)
	Physiopathology	45 (15.0)		Good	152(50.7)
	Clerkship	71 (23.7)		Missing	22 (7.3)
	Internship	67 (22.3)	History of psychological disorders	Yes	18 (6.0)
		No		282 (94.0)	

according to the participants' characteristics.

The frequency of academic underachievement was higher in medical students who had problematic CPU (79.7%) compared to those without it (38.2%) (P=0.001; Table 2).

The logistic regression results revealed that among the study variables, the history of psychological disorders and the problematic CPU could significantly predict academic underachievement. The chance of academic underachievement was 6.37 times higher in medical students who had problematic CPU compared to those without it (OR=6.37, CI95%=2.93-13.87, P=0.001).

Also, this chance was 4.45 times higher in medical students who had a history of psychological disorders than

those without it (OR=4.45, CI95%=1.22-16.20, P=0.02).

Discussion

About twenty percent of the studied medical students at KUMS declared that they had academic underachievement in the previous semester. Esmailpour-Bandboni et al. (2016) reported that 28.1 percent of the students at the Guilan University of Medical Sciences confronted academic failure.(1) Derby et al. found that 11 percent of medical students in the US are seriously considering dropping out. This study also noted that about 3 percent of medical students do not graduate.(9)

Another study in Iran conducted by Azari et al. reported that about 12 percent of medical students had the

Table 2. Comparison of the academic underachievement frequency in medical students according to demographic characteristics and history of psychological disorders

Characteristics		Academic underachievement		Characteristics		Academic underachievement	
		Yes	No			Yes	No
Gender P=0.17	Male	11 (14.3)	66 (85.7)	Residence P=0.15	Dormitory	26 (23.0)	87 (77.0)
	Female	48 (21.5)	175 (78.5)		With the parents	10 (12.3)	71 (87.7)
Marital status P=0.16	Single	52 (21.5)	191 (78.5)	Household income P=0.75	Owen's home	23 (21.7)	83 (78.3)
	Married	7 (12.3)	50 (87.7)		Poor	4 (7.2)	10 (4.45)
Educational level P=0.23	Basic sciences	25 (21.6)	91 (78.4)	History of psychological disorders P=0.03	Moderate	20 (36.4)	92 (41.2)
	Physiopathology	5 (11.1)	40 (88.9)		Good	31 (56.4)	121 (54.3)
	Clerkship	18 (25.4)	53 (74.6)	Yes	7 (12.1)	12 (6.4)	
	Internship	11 (16.4)	56 (83.6)	No	52 (87.9)	229 (95.4)	

experience of academic underachievement/failure at least once.(10) According to the mentioned studies, academic failure is not uncommon among medical students. On the other hand, these students are involved in patient care in clinical settings; therefore, it is necessary that the reasons for their academic failure be carefully evaluated and intervened.

Our study showed that among all the characteristics of the participants, only the previous history of psychiatric disorders had a significant relationship with academic failure. Medical students who had a previous history of psychiatric disorders were four times more likely to fail academically. This result is consistent with the study conducted by Wanda Tempelaar et al. in the Netherlands. They found that underachievement at secondary school is associated with general mental health problems.(11)

We found that academic underachievement was about 6.5 times higher in medical students who had problematic CPU, which is consistent with studies conducted in this regard. (4-6)

Unlike the present study and the studies mentioned above, Sharma et al. revealed that about 60 percent of medical students in Rajasthan, India had acceptable marks despite the excessive use of mobile phones. They argued that this finding indicates that most of the students participating in their study have used mobile phones to improve their academic performance.(3)

As mentioned above, academic failure among medical

students is not an uncommon phenomenon, which can have irreparable consequences (due to the nature of studying medicine) in addition to numerous personal and social consequences. The present study and similar studies in this regard have identified several factors related to this phenomenon that should be carefully considered by planners, policymakers, and educational officials. The present study was cross-sectional, which limits temporal sequencing between variables. On the other hand, the history of academic underachievement was expressed by the students, and the study was limited to students of the Kerman University of Medical Sciences; thus, its generalization should be made with caution.

Conclusion

The current study revealed that the chance of academic underachievement was higher in medical students who had problematic CPU and a history of psychological disorders. Given that academic underachievement is not uncommon, its related factors must be appropriately identified and intervened on time.

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