

# Effect of Internet Use on Health College Students at King Saud University

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## Abstract

**Background and Objective:** This study aims to evaluate the effect of Internet use on undergraduate medical and health science students living in the student residential compound at King Saud University (KSU) in Riyadh. Three dimensions are used to identify the positive and negative effects of Internet use: Academic (educational) performance, health (psychological) status, and social status.

**Methodology:** This study adopts a cross-sectional design. We included all the students of the health colleges at KSU who lived in the university dormitory in 2015, a total of 250 students. A structured self-administered questionnaire was used to gather data from the respondents.

**Results:** We found that 89.5% of the students who were able to increase their cumulative grades were using the Internet for less time per day, indicating that spending an excessive amount of time on the Internet has a negative impact on students' academic performances. 156 students (78.7%) had no changes regarding their social relations relative to their Internet usage. 78.3% of the respondents claimed to use the Internet to escape from the stress of studying; however, excessive Internet use may, in fact, increase overall pressure on students.

**Conclusion:** Moderate use of the Internet helps health college students to improve their cumulative grade point averages, and there was no significant relationship found between Internet use and changes in the students' social lives or moods.

**Key words:** Internet, Students, Academic performance, King Saud University, Saudi Arabia

## INTRODUCTION

There is no doubt that the Internet has become the most popular consumer communicating technology and also an increasingly popular medium for accessing educational material.

Internet usage is expanding rapidly, with an estimated 900.4% growth rate worldwide between 2000 and 2016. The Middle East has the second highest usage growth rate in the world, a recorded 3936.5% increase. In Saudi Arabia, there were approximately 200,000 Internet users in the year 2000, a number that has dramatically increased

in subsequent years, reaching more than 18 million users in November 2015 (65.9% of the region's population).<sup>[1]</sup>

Nowadays, the Internet is widely and readily available in educational institutes and public libraries, and web use is becoming mandatory in academic studies, for both students and teaching staff. The Internet is a practical tool for students to access and research new information, and they now rely on the web for their study more than ever before. With such widespread accessibility, it can be said that the Internet has become an integral part of our lives.<sup>[2-5]</sup>

University students are at a higher risk of developing a dependence on the Internet than others because they depend on the web as a primary source of necessary educational information. In Taiwan, for example, most students leave their homes and move toward independent lives when they enter college. Many reside in school dormitories and have convenient and free Internet access through school network systems. They find the Internet to be an important window through which they can

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communicate and interact with the world, and their free and easily accessed connections, mean that Internet use is both implicitly and explicitly encouraged by a recognized, institutional authority. Given this influence, psychologists and educators should give more attention to the issue of student dependence on the Internet.<sup>[6-8]</sup>

Communication through the Internet can reduce depression, especially among socially isolated populations, such as college students, who depend on social technology for social support. However, increases in the time of Internet have also been shown to correspond to a high level of emotional loneliness.<sup>[9,10]</sup>

Many previous studies have shown that multiple factors including the age of exposure to the Internet, the age of student, living in city, homesickness, isolation, loneliness, bad social skills, poor social support, being a freshman, and being male are all risk factors for Internet addiction among students. All of these factors could significantly contribute to developing compulsive Internet use, thus resulting in adverse performance in other activities such as work, school, or relationships.<sup>[11-13]</sup>

Most studies of Internet use focus mainly on the negative and problematic effects of the Internet use for individuals, and there has been no study on students in university dorms in Kingdom of Saudi Arabia, whom, as mentioned earlier, are more susceptible to isolation. It would therefore be useful to establish research on this group. Because the medical and health science fields are rapidly changing and require students to maintain a high standard of knowledge and independent learning, our study concentrated on students in the King Saud University's (KSU's) medical and health sciences departments.

### Hypothesis

We hypothesize that average levels of Internet use enhance the understanding of scientific curriculum topics and contribute to the improvement of the cumulative grade point average (CGPA), while excessive Internet use is associated with mood changes and the impairment of social life.

### Objectives

This work aims to evaluate the effect of Internet use on undergraduate medical and health sciences students living in the student residential compound at KSU. Three dimensions are used to identify the positive and negative effects of Internet use: Academic (educational) performance, health (psychological) status, and social status.

## METHODOLOGY

We adopted a cross-sectional design in this study. The subjects included in this study are students of KSU's health colleges (medicine, dentistry, pharmacy, and applied medical sciences) who lived in the dormitory in the 2015–2016 academic year. The study included students at different levels of education (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, and internship years). The Institutional Review Board at KSU approved this survey by No.15/0262/IRB.

### Sample Size

We included all the students of KSU's health colleges who lived in the dormitory, for a total of 250 students.

### Data Collection Tool

We developed a self-administered English language questionnaire, which contained an introduction, instructions, demographic information, and 21 closed questions (general questions about using the Internet, effects of Internet using on academic performance, social life, and health). Questions included the presence or absence (yes or no questions), bipolar (Likert scale), and a number of multiple-choice responses. We developed this questionnaire from related research studies. The questionnaire was reviewed by two professors for face validation, after which a pilot study was conducted on 15 students. The pilot study confirmed that the questions were clear, and the number of questions and time required to answer the questions were reasonable (3 min in average). No changes were made based on the pilot study.

### Procedure

This study was conducted from May 2015 to August 2016, and the actual time devoted to data collection was 4 weeks (over the month of December 2015). We gained consent from the administration of student housing to distribute the questionnaire. A self-administered questionnaire was used to collect data from the male students only because we faced difficulties in delivering questionnaires to the female students. We distributed the questionnaire by going to the rooms where the students resided and giving them the questionnaire. After handing them the questionnaire and the consent to participate in this study is taken, we waited till the students finished answering the questions and then took the survey back. Every day of those weeks, we went several times a day to check the availability of students in their rooms and give them the questionnaire.

We used the Statistical Package for the Social Sciences version 20 for Windows for statistical analyses. A Chi-square test was used to find out the statistical significance of the differences in the proportions.  $P < 0.05$  was considered to be statistically significant.

## RESULTS

Of the 250 students eligible for the survey, 198 (79.2%) responded.

According to Table 1, most of the students (87.9%) use the Internet on a daily basis; 54% of this group were able to increase their CGPA (based on the responses of the participants). Only 12.1% of students did not use the Internet daily, and of this group, 79.1% did not have their CGPA affected. 145 students (73.2%) used the Internet <4 h/day, 59.3% of students who were able to increase their CGPA. 45 students (22.7%) used the Internet between 4 and <8 h/day, 21 students (34.4%) of them did not experience any CGPA changes. Of the only 4% of students who used the Internet more than 8 h/day, 62.5% reported a CGPA decrease.

Figure 1 shows that the Internet was a primary source for more than half of the medical students (53.03%) to get their educational information, while 46.97% relied on the Internet as a secondary source.

Table 2 summarized that most of the students (69.2%) did not have their class attendance affected, 75.1% of this

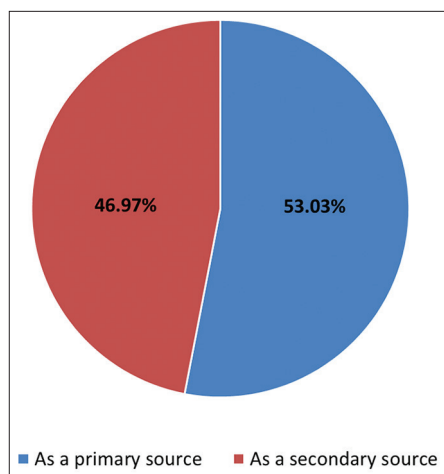


Figure 1: Participants use the Internet as a source to get their information

unaffected group were using the Internet for <4 h/day. The remaining students were evenly split between those who increased and those who decreased their attendance. 86.6% of the students who were able to increase their presence were used the Internet <4 h/day, and 51.6% of students whose attendance decreased were using the Internet <4 h a day. Exactly 63 students had CGPAs between 4.49 and 3.75, 80.9% of them were using the Internet <4 h/day. Of the only three students with CGPAs <2.49, two of them (66.6%) used the Internet more than 8 h/day.

Table 3 summarized that most of the students (34.5%) who were using the Internet <4 h, their main purpose to use the Internet was for visiting sites related to study, general knowledge, and entertainment. As for users exceeding 8 h, 37.5% of them were using the Internet for general knowledge and entertainment only.

Table 4 summarizes that 156 students reported that their social relations had not decreased because of their using the Internet. 74.3% of these 156 students were using the Internet <4 h/day. Only 42 students reported a decline in their social relations. In total, 144 students (72.7%) reported not having any mood changes; most of them (73.6%) were using the Internet <4 h/day. 54 students suffered from mood change due to the use of the Internet.

Table 5 summarizes how studying hours are affected using the Internet as a chance to escape learning stress. We found that of the 155 students who use the Internet to decrease their stress, 79 students (50.9%) decreased their studying hours due to their using the Internet as a means of stress relief. Further, 60 students (38.7%) said their studying hours have not been affected.

## DISCUSSION

Most of the students in the survey were using the Internet, and majority of them (73.2%) were using the Internet <4 h/day, despite the fact that the Internet is free

Table 1: Effect of Internet use per week and day on perceived CGPA

Variables	Impact on CGPA			Total	P
	Increased n (%)	Decreased n (%)	Did not change n (%)		
Internet use per week					<0.0001
Daily	94 (97.9)	38 (92.7)	42 (68.9)	174 (87.9)	
Less than daily	2 (2.1)	3 (7.3)	19 (31.1)	24 (12.1)	
Hours of Internet use per day					<0.0001
<4 h	86 (89.6)	22 (53.7)	37 (60.7)	145 (73.2)	
4–<8 h	10 (10.4)	14 (34.1)	21 (34.4)	45 (22.7)	
8 h and more	0 (0)	5 (12.2)	3 (4.9)	8 (4)	

CGPA: Cumulative grade point average

of charge and available 24 h a day. We compared these finding with those from another survey done by Albouq *et al.* at Taibah University, which reported that 100% of medical students were using the Internet and that most of them (53.4%) spent 2–4 h/day online.<sup>[14]</sup> Internet use among medical students in both studies was similar, likely because they are well educated and aware of the adverse effects of prolonged Internet use.

We found that 53% of students use the Internet as the primary source for their educational information, while 47% of students use the Internet as a secondary source. This percentage will likely increase over time because students increasingly seek scholarship materials and recent medical information through the web. This finding is consistent with those of a survey by Tsai and Lin, which found that approximately 90% of students rely on the Internet as their primary source for educational information.<sup>[7]</sup> We also noticed that most of the students who were able to increase their CGPA (89.6%) and class attendance (86.6%)

used the Internet for <4 h/day, while only 10.4% of those who used the Internet for more than 4 h/day increased their CGPA. Amount of time of Internet use has a significant correlation with CGPA improvement and class attendance ( $P < 0.0001$ ). A similar report in the study conducted by Khan *et al.* revealed that students who spent excessive time on the Internet had significantly higher academic impairment than those that did not.<sup>[15]</sup> This result suggests that spending excessive time using the Internet negatively impacts students' academic performance. For the plurality of students (34.5%) who were using the Internet <4 h, their main purpose for using the Internet was to visit sites related to studied major, general knowledge, or entertainment ( $P = 0.041$ ) this might have helped them to improve their CGPA. Moreover, based on the obtained results, it seems that excessive Internet use (exceeding 8 h) is coupled with reduced interest to utilize it for studying purposes as the majority of them (37.5%) used it only for general knowledge and entertainment.

In total, 156 students among the sample (78.7%) had no changes regarding their social relations, and there was no statistically significant relationship between the time of Internet use and quality of social life ( $P = 0.524$ ). This result was contrary to what we expected and to the findings of the study by Asdaque *et al.*, which reported that excessive use of Internet reduces the rate of building social relations.<sup>[5]</sup> However, our study applied to the students who came from outside Riyadh mainly; it is reasonable to expect that their social relations are much more powerfully affected by this larger contextual factor.

Most of the students (72.7%) reported not suffering from mood changes due to Internet use. This result differs from one by Clark and Everhart, which revealed that students who used the Internet for more time are significantly less likely to have mood changes because their use depends on their coping skills rather than on how much time they spend online.<sup>[16]</sup> It was

**Table 2: Relationship between Internet use per day and class attendance and CGPA**

Variable	Hours of use per day			Total n (%)	P
	< 4h n(%)	4 –<8h n(%)	≥8h n(%)		
Class attendance					
Increased	0 (0)	4 (8.9)	26 (17.9)	30 (15.2)	<0.0001
Decreased	8 (100)	7 (15.6)	16 (11)	31 (15.7)	
Not affected	0 (0)	34 (75.6)	103 (71)	137 (69.2)	
CGPA					
5–4.5	0 (0)	6 (13.3)	15 (10.3)	21 (10.6)	<0.0001
4.49–3.75	1 (12.5)	11 (24.4)	51 (35.2)	63 (31.8)	
3.74–3.25	3 (37.5)	15 (33.3)	48 (33.1)	66 (33.3)	
3.24–2.5	2 (25)	13 (28.9)	30 (20.7)	45 (22.7)	
<2.49	2 (25)	0 (0)	1 (7)	3 (1.5)	

CGPA: Cumulative grade point average

**Table 3: Relationship between the duration of Internet use and the purpose of usage**

What sort of websites/pages you usually visit (you can choose more than one):	How many hours do you spend using the Internet a day			Total n (%)	P
	<4 h n (%)	4–<8 h n (%)	8 h and more n (%)		
Sites related to studied major	12 (8.3)	5 (11.1)	1 (12)	18 (9.1)	0.041
General knowledge	16 (11)	4 (8.9)	1 (12.5)	21 (10.6)	
Entertainment	9 (6.2)	4 (8.9)	0 (0)	13 (6.6)	
News	1 (0.7)	0 (0)	0 (0)	1 (0.5)	
Sites related to studied major, general knowledge	16 (11)	2 (4.4)	0 (0)	18 (9.1)	
Sites related to studied major, entertainment	21 (14.5)	9 (20)	1 (12.5)	31 (15.7)	
General knowledge, entertainment	15 (10.3)	6 (13.3)	3 (37.5)	24 (12.1)	
Sites related to studied major, general knowledge, entertainment	50 (34.5)	13 (28.9)	1 (12)	64 (32.3)	
Sites related to studied major, general knowledge, news	0 (0)	1 (2.2)	0 (0)	1 (0.5)	
Sites related to studied major, entertainment, news	0 (0)	0 (0)	1 (12.5)	1 (0.5)	
General knowledge, entertainment, news	1 (0.7)	0 (0)	0 (0)	1 (0.5)	
Sites related to studied major, general knowledge, entertainment, news	4 (2.8)	1 (2.2)	0 (0)	5 (2.5)	

**Table 4: Effect of using the Internet on psychosocial life**

Variables	How many hours a day			Total n (%)	P
	< 4h n (%)	4-8h n (%)	≥8h n (%)		
Do you have shortcomings in your social connections					
Yes	1 (2.3)	12 (28.5)	29 (69)	42 (100)	
No	7 (4.4)	33 (21.1)	116 (74.3)	156 (100)	0.524
Use of the Internet causes mood changes					
Yes	2 (3.7)	13 (24.1)	39 (72.2)	54 (100)	0.956
No	6 (4.2)	32 (22.2)	106 (73.6)	144 (100)	

**Table 5: Effect of using the Internet to escape stress of learning on studying hours**

Escape learning stress	Studying hours			Total n (%)	P
	Not affected n (%)	Decreased n (%)	Increased n (%)		
Yes	60 (38.7)	79 (50.9)	16 (10.3)	155 (100)	0.023
No	23 (53.4)	12 (27.9)	8 (18.6)	43 (100)	

further discovered that 155 students (78.3%) use the Internet to escape from the pressures of studying and that using it negatively affects studying for 50.9% of them, a statistically significant relationship ( $P = 0.023$ ). Hence, in the end, the students who were using the Internet as a means of relieving stress were actually causing themselves stress by limiting their time for studying. These results reinforce Nastizaei's finding that people who use the Internet for long durations of time have considerable anxiety.<sup>[17]</sup> The biggest limitation on gaining comprehensive results was the unavailability of students in their rooms. We also depended on participants' subjective evaluations of their moods and changes in social life, which may have varied depending on their individual understandings and expectations of moods and social life.

## CONCLUSION

This survey found that Internet helps medical students to improve their CGPA if they use it for an average time and for educational purposes. The results did not indicate a statistically significant relationship between the students' social life and their Internet use ( $P = 0.524$ ). Many of the students in this study used the Internet to escape from the pressures of studying.

## Recommendations

Students should be encouraged to use the Internet to promote and increase their knowledge, but they should be guided through the manners and procedures for its proper use, especially now that the Internet became a necessary tool for learning. To deepen our understanding of this phenomena, we suggest further studies on non-medical and female medical students who live in student dormitories and to conduct studies that involve multiple institutions.

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