

# Quality of life in medical students with internet addiction

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## ABSTRACT

**Background and Objectives:** Widespread use of the internet is a serious concern among university students worldwide. Internet addiction affects the students' physically and psychologically and poses social and environmental challenges to their well-being. This study was used to assess the levels of internet addiction among medical students at a major university in Saudi Arabia and to measure the quality of life among these students. **Methodology:** A cross-sectional study was used to gain responses from 437 students using questionnaire surveys. These questionnaires were based on the World Health Organization's standard quality of life survey questionnaire (WHOQOL-BREF). **Results:** Analysis of the results displayed that the students were only moderately addicted to the internet. Moreover, with respect to the quality of life, these students scored high in physical, social, psychological, and environmental sub-domains of the quality of life questionnaire survey. **Conclusions:** These results provide evidence that, in contrast to findings in some other countries, medical students in Saudi Arabia enjoy a better quality of life with moderate internet addiction levels. Future studies can broaden the scope of the survey methodology used in this paper to cover medical students in other universities in Saudi Arabia. Moreover, correlations with exam scores can be established using case-control studies for a more thorough analysis. Therefore, this study provides a significant positive step in the direction of further research in this field.

**Keywords:** Internet addiction, medical students, quality of life, Saudi Arabia

## Introduction

Human society has experienced some of the most substantial historical changes in the last century. During this period, the society moved from the industrial era to the information age. In the present century, internet connectivity is very much a part of our daily lives. The range of online activities includes virtually everything from education to commerce. The number of internet users worldwide is more than 4 billion which means that 51% of the world's population uses the internet.<sup>[1]</sup> Of this cohort, students are relatively more likely to use the internet than other groups of people.<sup>[2]</sup> Approximately

93% of adolescents in the USA have been reported to use the internet and approximately 70% of the adolescent population in Europe surf the internet online for 2–4 h each day.<sup>[3,4]</sup>

While the internet has been a force for good, excessive consumption of online activity can result in negative side effects. These effects can include physical problems such as weakening of eyesight, backaches and headaches, and social issues such as internet addiction and social anxiety. In 1996, Dr. Kimberly Young (a psychologist and one of the leading experts on internet addiction disorders and online behavior) was one of the first scientists to define internet addiction in clinical terms.<sup>[5]</sup> Internet addiction or pathological use of the internet is the inability of an individual to control his or her use of the internet which eventually leads to marked distress and functional impairment in daily lives.<sup>[6]</sup> Internet overuse has been found to be associated with different psychological problems such

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as depression, ADHD, self-injury, sleep deprivation, failure to exercise, and loss of concentration.<sup>[2,7,8]</sup> Studies have discovered a positive association between internet addiction and academic performance. It has been discovered that excessive use of the internet affects academic performance negatively.<sup>[9]</sup>

There have been several studies to measure the prevalence of internet overuse among medical students and its effects on their academic performance and general health. In Nepal, a questionnaire-based study was conducted by Young *et al.* among 130 medical students to assess the degree of internet addiction. This study discovered that 40% of these medical students were mildly addicted while 41.5% and 3.07% of the students were moderately and severely addicted to the internet, respectively.<sup>[10]</sup> Similarly, in northern India, a cross-sectional study discovered that 44.8% of medical students were at risk of internet addiction.<sup>[9]</sup> Internet usage can vary according to the purpose for which it is being used. This, in turn, can affect the academic performance of students. For instance, a study involving Korean students showed that the effects of internet use on academic performance differ with respect to the purpose of use. Thus, students who use the internet for study purposes had high academic performances while those who used it for general purposes had a relatively poorer academic performance.<sup>[11]</sup> Overuse of internet can also adversely affect the quality of life among students. For instance, an internet addiction study conducted in Tehran university of Medical Sciences found that the mean quality of life of medical students was low in physical, psychological, and social-relationship sub-domains while there was no significant difference in the environmental domain.<sup>[12]</sup>

The number of internet users in Saudi Arabia has grown from 21.5 million in 2015 to 23.21 million in 2017.<sup>[13]</sup> Saudi's use the internet for different purposes including education, communication, and general information. Studies investigating the correlation between internet addiction and academic performance have also been conducted in Saudi Arabia in the past. One of such studies showed that 3 out of a cohort of 161 students at King Abdul-Aziz University, Jeddah, Saudi Arabia were addicted to the internet while another cross-sectional study in Jazan revealed 58.8% of the medical student to be mildly addicted to the internet.<sup>[14,15]</sup> This is important because academic performance is positively correlated to the quality of life among students.<sup>[16]</sup> The aim of this study is to estimate the prevalence of internet addiction among medical students at King Saud University and to measure the association between internet addiction and quality of life.

Thus, it is evident from the existing literature that internet addiction affects the overall health of youngsters, that is, physical, social, and mental well-being. Physically it leads to a sedentary lifestyle which is a major cause of lifestyle diseases due to obesity as a risk factor. Similarly, engaging in individual activities and distance from the social cohesion leads to deterioration of social capital thus leading to poor mental and psychological health. All these factors lead to disruptive behavior amongst youngsters, often leading to incidents of self-harm and criminal activities.

This study can aid policy-making to include this social issue in its mandate to improve primary healthcare. This is because the quality of life of these students will affect their future performance as doctors which, in turn, might have adverse consequences for their patients. Moreover, medical science is perceived to be a stressful and demanding field of study, internet addiction could be one of the ways that the students try to cope with the psychological pressures. The results of this study can help us better understand if this is true. Consequently, policies can be developed that help alleviate the stressful condition of medical students in a way that does not affect their performance. Therefore, this study has practical applications for epidemiological concerns.

## Methods

A Cross-sectional survey was conducted among medical students at King Saud university, Riyadh city between February and March 2019 after getting IRB approval from research ethics board (E-18-3115). We chose this particular study design because it provides access to prevalence of internet addiction and it can evaluate more than one consequence in our limited resources. Sampling population were medical students male and female in all academic years study at King Saud university. After gathering necessary statistics related to student population, the sample size was calculated using the following equation:

$$N = Z^2 \alpha p(1-p) / d^2 \quad (1)$$

The sample size result is 391 and expecting no response and incomplete information as 10% so we estimated that 430 study subjects are needed for this study. Study variables including demographic variables (age, gender) and physical, psychological, social and environmental domain. In regard to outcome variables: we aimed to determine the prevalence of internet addiction among medical students and assess different levels of internet addiction among medical students and its correlation with quality of life. Taking in consideration the possible confounders such as marital status living situation, medical illness and socioeconomic status.

## Data collection tools

A cross-sectional questionnaire survey was conducted after simple random sampling to gather necessary data. To achieve the purpose of the present study 3 main tools were used: first section consist of sociodemographic characteristics of participants. Second section to assess prevalence and degree of internet addiction among medical students we used Internet addiction test of young (IAT) after taken consent from the author. We translate questionnaire to Arabic language used forward translation and back word translation of WHO. After author approval. The IAT is 20-item 5-point likert scale. It is a self-rated questionnaire that contains 20 items. Each item was scored in scale from (0 = doesn't apply) to (5 = always). Total internet addiction score is calculated with possible scores for the sum of 20 items ranging between 20 and 100. The severity of addiction classified as: 20-49 normal and 50-79 moderate and 80-100 severe. So less

than 50 indicating normal subjects and more than or equal 50 indicating addicted subjects. Consent obtained from the author IAT questionnaire, valid and reliable.<sup>[17]</sup> Third section to assess quality of life among medical students in this study we used the world health organization quality of life questionnaire –short version(WHOQL-BREF) Arabic form.<sup>[18]</sup> It is 26 items on a five-point likert scale, the four domains of WHOQL-BREF are physical health the 26 items divided as following: Two global items about the quality of life and health, seven items about physical health, six items about psychological health, three items about social relationship, eight items about environment. The average quality of life will calculated as mean of four domains, the higher the score, the better quality of life, psychological health, social relationship and environmental quality of life.

### Statistical analysis

Data was analyzed using SPSS 21.0 version statistical software. Students t test used to compare quantitative data. Chi-square test used to assess the association between the categorical data. To measure the correlation between IA and QOL domains we used pearson test. A p-value of ≤ 0.05 and 95% confidence intervals were used to report the statistical significance and precision of the results.

### Results

In this study, responses were received from 437 students in total. The mean age (±SE) of the students was 24.65 ± 0.87. Of these students 128 (32.56%) identified as males and 271 identified as females while 38 students did not identify themselves as either male or female. In terms of marital status, 97 students were married, 326 were unmarried, 10 were divorcees and 3 were widowed while 1 student did not provide an answer. As regards income status, 10 students identified their households as poor, 357 students considered their households to be middle-class while 65 students identified themselves as belonging to affluent households, 5 students did not provide any answers to this question. In terms of living status, a vast majority of the students (352) lived with their parents, 39 lived alone while 42 lived with a roommate, 4 students did not provide an answer to this question. Most of the students were in a healthy condition as only 17 students described having hypertension while those suffering from asthma, diabetes, and other diseases were 66, 42, and 12 in number, respectively.

Table 1 provides a list of demographic factors associated with internet addiction among medical students.

The results of the questionnaire related to internet addiction revealed an average score of 54.13 ± 0.62 across all students. In total, 285 (65.21%) students had internet addiction test (IAT) scores of 50 or above whereas 152 (34.78%) students had an IAT score less than 50. The mean quality of life in subdomains of the physical domain, psychological domain, and social relations domain did not have any significant differences between the two groups [Table 2].

**Table 1: Demographic factors associated with internet addiction**

Variables	Internet addiction		P
	Not addicted N=134	Yes/possible N=258	
Mean Age in years	24.65±0.87		
Age Distribution			
<21	28	41	0.775
21-25	85	178	
>25	21	39	
Gender			
Male	32	96	0.005
Female	105	166	0.033
Marital Status			
Unmarried	115	211	0.796
Married	36	61	0.609
Divorcee	1	9	0.094
Widowed	1	2	0.954
Financial Status			
Poor	4	6	0.734
Middle Class	129	228	0.268
Rich	18	47	0.185
Living Situation			
Individual	7	32	0.02
With Family	136	216	0.001
With Roommate	10	32	0.112
Medical History			
Hypertension	5	12	0.626
Diabetes	12	30	0.363
Asthma	16	50	0.048
Other	2	9	0.238

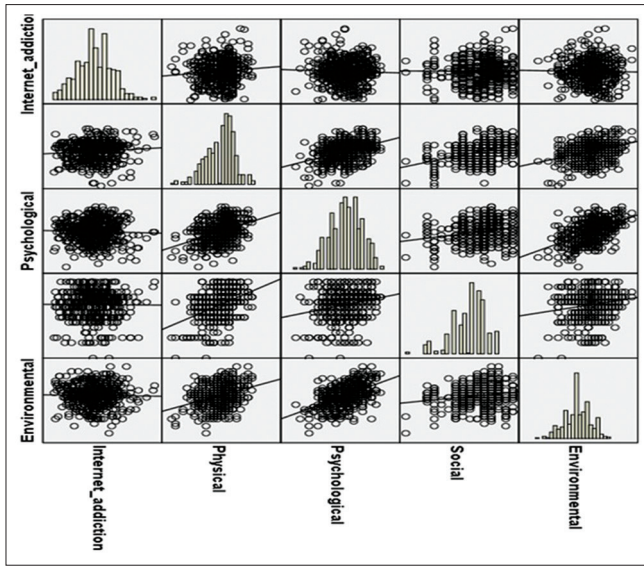
**Table 2: Quality of life comparison between internet addicts and not addicts**

Domain	Normal (n=152)	Internet addict (n=285)	P
Physical	59.53	58.65	0.39
Psychological	63.67	63.79	0.92
Social	69.56	70.76	0.52
Environmental	69.35	70.21	0.46
Average score	65.53	65.85	0.71

The results of the scores in the subdomains are in conformity with the results of questions 1 and 2 in the survey that asked the students to rate their quality of life and probed their satisfaction in with their health conditions. The scores for both of these questions were greater than 72 which indicated that the students considered their health to be in good condition and were generally content with the quality of their lives.

Table 2 presents a comparison between normal and internet addicts in terms of quality of life sub-domains and their average.

Figure 1 describes the correlations between IAT and quality of life sub-domains in a graphical format. All correlations among the physical, psychological, social, and environmental sub-domains were not significant in 99% Confidence Interval.



**Figure 1:** Relationship between IAT and quality of life subdomains

## Discussion

The results of this study indicate that the surveyed students had only moderate levels of internet addiction. Moreover, on average, the quality of life among the students was above average. These results stand in contrast to the study discussed in the Introduction section which discovered the low quality of life on the internet-addicted medical students.

This could be because medical students in Saudi Arabia do not suffer from the same challenges as students in other countries due to differences in lifestyles and social structures. For instance, social media and cellphone use have greater penetration in East Asian and Western Europe. The role of religious support and traditional values cannot be neglected in this regard. The social structures in these countries are facing several challenges due to weakening bonds between different generations in many western countries.<sup>[16,17]</sup> This has promoted hedonic consumption and unbridled capitalism resulting in several social, environmental, and economic challenges.

Self-reporting bias is one of the limitations of this study since we used a standard questionnaire developed by the WHO. Similarly, the lack of responses to some questions resulted in missing information in some cases.

## Conclusions

The main goal of this study was to assess the levels of internet addiction and perceived quality of life among medical students in an oil-rich economy.

The results of this study indicate that the surveyed students had only moderate levels of internet addiction. Moreover, on average, the quality of life among the students was above average.

However, future studies can attempt to customize the questionnaire based on the unique social characteristics in Saudi Arabia and can use the results of this survey and conduct more thorough investigations. These can include case-control studies involving students with and without internet addiction to examine the differences in their academic performance (e.g., exam scores). Similarly, students in other universities can be included to understand the differences caused by institutional settings, if any. Thus, this research paper can act as a stepping stone for further studies in the future.

It is important to discuss here that this social issue needs to be addressed abundantly through health system involving all its tiers, that is, institutions of primary, secondary, and tertiary health care. It is important to educate and advocate all sections of society about the adverse effects of internet overuse which can be achieved by including this under primary healthcare programs for adolescents as in every country, only primary healthcare institutions can penetrate the grassroots level and has the capability to reach out for masses.

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## Conflicts of interest

There are no conflicts of interest.

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