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ORIGINAL ARTICLE

Impact of Internet Addiction on Academic Performance of Undergraduate Dental Students of Bhubaneswar, India

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ABSTRACT

Objective: To assess the level of internet addiction and its impact on the academic performance of undergraduate dental students of Bhubaneswar. **Material and Methods:** A cross-sectional descriptive survey was steered among 814 undergraduate dental students (representing first year through internship) in Bhubaneswar, India. Internet addiction was assessed with the Internet Addiction Test (IAT) developed by Young, which consisted of 20 items rated on a 5-point Likert scale. Google Forms were used to collect the data. Statistical tests like Chi-square, Kruskal-Wallis, and Spearman correlation coefficient were used to analyze the qualitative and quantitative variables, respectively, with the significance level set at $p \leq 0.05$. **Results:** The prevalence of Internet Addiction was found to be 27.5%. Interns showed the highest mean Internet Addiction (57.91±10.71) score. The proportion of addicted students was higher in males, 74 (31.4%), than in females, 150 (26%). The mean scores for individual domains were overuse (16.31±3.64), non-restraints (7.77±2.66), inhibiting the flow of life (9.52±3.05), emotional state (11.25±2.86), and dependence (10.47±2.53). A correlation coefficient (Spearman's rho value of -.167) indicates a negative correlation between internet addiction and academic scores, which was statistically significant (p=0.001). **Conclusion:** This study revealed that internet use for varying purposes eventually leads to addiction and affects students' academic performance. The affected students need early intervention and control over internet usage.

Keywords: Dentists; Internet; Internet Addiction Disorder; Students.

Introduction

In our daily life, we are very much acquainted with the internet as it is a massive digital device network, connecting millions of computers, television, smartphones, and what not. Internet is also known as the "interconnection of computer networks." It is a modern technological development that has swept the world due to its widespread use.

Data reveals that there are 600 million users of the internet worldwide [1]. Asia has the highest percentage of internet users by continent or area, comprising 50.3 percent of the world's 7.77 billion people this year. The Internet and Mobile Association of India (IMAI) has reported more than 430 million internet users in India as of December 2016 [2]. By 2020, the internet will be available to 4.5 billion people worldwide, or more than half of the world's population [3]. India is ranked as the second largest online market after China, with 560 million internet users [4]. There will be 650 million internet users in the country by 2023 [5]. The majority of internet users access it through mobile phones.

The internet's growth as a modern and advanced medium has made it accessible to students and has created fertile ground for various forms of abuse [1]. Psychologists and educators have reported overuse and misuse of the internet, which has resulted in physical and psychological illnesses [2]. The excessive use of mobile devices, the internet, or video games, notwithstanding negative consequences to the technology user, is called internet addiction. The term "Internet addiction" was first given by Dr. Kimberly S. Young and defined it as an impulse control disorder that does not involve an intoxicant [6]. Other names for internet addiction are internet dependence, problematic internet use, compulsive internet use, internet abuse and pathological internet use. Internet addiction is a relatively new form of dependency under review by the scientific community. Essentially it refers to the increasing number of people who report more and more involvement with the Internet to raise the feeling of satisfaction and a systematic increase in the time spent for pumping this feeling.

Internet addiction, although not officially recognized as a clinical entity, is a condition that causes a significant reduction in the individual's social and professional or academic functioning. Observations indicate that the current young generation has much more affinity for internet usage for different purposes. They have the internet requirement in their academic work and social affairs, dramatically impacting their lives. Studies on internet addiction showed mild to compulsive internet usage on digital devices, leading to social isolation and depression, relationship difficulties and marital discord, academic failure among students, and work-related problems such as reduced productivity and job loss. The rising prevalence of internet addiction up to 14% among college-based populations, has become a matter of concern [6]. To date, no concrete internet addiction results have been registered. According to the surveys done in India, 1.3% of Indian population has an internet addiction [7]. College populations have shown an 11.8%, 8.8%, and 8% prevalence of internet addiction [8-10]. Hence, this study was undertaken to assess the prevalence of internet addiction among dental undergraduate students and to determine if there is any association between excessive internet use and academic performance among students.

Material and Methods

Study Design and Study Population

A cross-sectional descriptive survey was steered among 814 undergraduate dental students from their first year through an internship to assess internet addiction and evaluate its impact on academic performance of undergraduate dental students in Bhubaneswar, city of Odisha, India. This survey was conducted from June 2020 to September 2020.

Inclusion Criteria

Dental students who used the internet for at least six months before the study and those providing verbal informed consent.

Exclusion Criteria

Students under medication for psychiatric illness and those absent during the study period.

Sampling Strategy

The earlier reported prevalence of Internet addiction (representing moderate and severe addiction) was 19.85% [11], following most studies that assessed internet addiction using Young's IAT. Based on a survey among university students in India that reported a prevalence of 18.88%, with a 3% allowable error and 95% confidence level, the sample size was estimated and rounded off to 660 subjects. Study participants were selected using a convenience sampling method. We could reach and send Google Forms to 900 students, among which 814 responded.

Methodology

The most commonly used reliable scale - the Internet Addiction Test (IAT), developed by Young, was used to assess internet addiction. The reliability of the questionnaire was analyzed by using a Test-Retest conducted over two-week duration, and the intra-rater reliability of the participants for the questions using kappa (k=0.90) values. Internal consistency of the questionnaire was estimated by applying Cronbach's-Alpha (α=0.86). This scale consists of 20 items rated on a 5-point Likert scale which ranged from totally disagree (1) to totally agree (5), yielding a total score a range of 20 to 100(1). Scores greater or equal to sixty indicate internet addiction. Previous studies have shown that internet addiction test has good internal consistency reliability and face and construct validity [1,12].

Survey questions were prepared using an internet platform (www.googleforms.com). The Google Form consisted of six parts; the first part assessed students' demographic information, including E-Mail ID, age, gender, year of study, and the duration of mobile phone usage with the internet daily. The second part of the five items assessed the overuse of mobile phones and the internet. The third part considered the non-restraint composed of three things. The fourth part included four items on inhibiting the flow of life. The fifth part, emotional state and the sixth part, dependence, were explained by four and three items, respectively.

These forms were either mailed to or shared via online platforms like WhatsApp to dental students. One week time was allotted for completing the questionnaire, following which a couple of reminders were sent for one more week to the non-responders. A total of 142 first years, 150 second years, 160 third years, 172 fourth years, and 190 interns responded to the questionnaire in the study. According to academic grading in India, we divided students into scoring categories of less than equal to 50%, 51% to 60%, 61% to 70%, and more than 70%.

Ethical Considerations

Institutional Ethical Committee reviewed the study protocol, and ethical clearance was granted (ECR/627/Inst/OR/2014/RR-20). The study was completely anonymous, with no disclosures of personal details. Informed consent was taken from all the participants before filling up Google forms.

Statistical Analysis

Data collected through google forms were moved to an MS Excel sheet, coded and ultimately transferred to SPSS (Statistical Package for Social Sciences) software, version 25 (SPSS Inc., Chicago, IL, USA). Descriptive statistics included the computation of percentages, means, and standard deviations. Kolmogorov Smirnov Normality test revealed non-parametric distribution. Statistical tests like Chi-square, Kruskal-Wallis, and Spearman correlation coefficient were used to analyze the qualitative and quantitative variables. For all tests, the confidence interval and p-value were set at 95% and ≤ 0.05, respectively.

Results

Table 1 illustrates the distribution of the study population according to demographic variables. Most students were females (71%) compared to males (29%). The study population's mean age was 22.24±2.02 years. Many subjects, 392 (48.2%), spent around 2 to 5 hours per day with the internet on their mobile phones, which was higher among interns 104 (54.7%) and final years 90 (52.9%). About 3.4% of students spent more than 10 hours on the internet. As per the dental profile, a total of 142 (17.4%) first years, 150 (18.4%) second years, 162 (19.9%) third years, 170 (20.9%) fourth years, and 190 (23.3%) interns responded in the study.

Table 1. Demographic characteristics of the study population.

Variables	Categories	1st Year N (%)	2nd Year N (%)	3rd Year N (%)	4th Year N (%)	Interns N (%)	Total N (%)
Gender	Male	46 (32.4)	28 (18.7)	38 (23.5)	64 (37.6)	60 (31.6)	236 (29.0)
	Female	96 (67.6)	122 (81.3)	124 (76.5)	106 (62.4)	130 (68.4)	578 (71.0)
Age (in years)	18-20	72 (50.7)	52 (34.7)	18 (11.1)	0 (0.0)	0 (0.0)	142 (17.4)
	21-23	68 (47.9)	96 (64.0)	134 (82.7)	134 (78.8)	59 (31.1)	491 (60.3)
	24-26	2 (1.4)	2 (1.3)	10 (6.2)	36 (21.2)	105 (55.3)	155 (19)
	27-30	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	26 (13.7)	28 (3.2)
Number of hours spent on internet per day	< 2 hours	0 (0.0)	2 (1.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.2)
	1-2 hours	40 (28.2)	46 (30.7)	48 (29.6)	40 (23.5)	40 (21.1)	214 (26.3)
	2-5 hours	54 (38)	68 (45.3)	76 (46.9)	90 (52.9)	104 (54.7)	392 (48.2)
	5-10 hours	42 (29.6)	28 (18.7)	30 (18.5)	38 (22.4)	40 (21.1)	178 (21.9)
	>10 hours	6 (4.2)	6 (4.0)	8 (4.9)	2 (1.2)	6 (3.2)	28 (3.4)
Total		142 (17.4)	150 (18.4)	162 (19.9)	170 (20.9)	190 (23.3)	814 (100.0)

Students' internet addiction scores greater than or equal to sixty (60) indicate internet addiction. Table 2 demonstrates the overall prevalence of internet addiction based on the overall mean (55.32±10.90) and percentage of 27.5% of internet addiction scores. Accordingly, the interns [57.91±10.71 and 62 (32.6%)] showed the highest internet addiction score, followed by the first years [55.72±11.63 and 52 (36.6%)]. Post-hoc analysis showed statistical significance between second-year and interns (p=0.020) and among fourth-year and interns (p=0.031) (Table 2).

Table 1. Mean internet addiction score and prevalence of internet addiction according to year of study.

Year of Study	Internet Addiction Score (Mean ± SD)	Addicted N (%)	Not-addicted N (%)
1st year	55.72 ± 11.63	52 (36.6)	90 (63.4)
2nd year	52.87 ± 10.52	28 (18.7)	122 (81.3)
3rd year	55.04 ± 10.37	36 (22.2)	126 (77.8)
4th year	54.54 ± 10.79	46 (27.1)	124 (72.9)
Interns	57.91± 10.71	62 (32.6)	128 (67.4)
Total	55.32 ± 10.90	224 (27.5)	590 (72.5)
p-value	0.001*	0.002	

Test applied - Kruskal-Wallis test* and Chi-square test. Statistical significance was observed between 2nd years and interns (p=0.020) and also between 4th years and interns (p=0.031).

Table 3 demonstrates the proportion of addicted students was higher in males (31.4%) than in females (26%), which was statistically not significant (p=0.117). The number of addicted students was more in the 24 to 26 years age group (34.8%) than in other age groups. The least addicted students were 18 to 20 years (22.5%). The percentage of addicted undergraduate dental students was 57.1%, the highest in the group spending more than 10 hours per day on the internet on mobile phones. Students (43.8%) in the group spending more than 5 hours per day on the internet on mobile phones were significantly addicted (p=0.001). An inversely proportional relationship between the students with internet addiction and their performance in the last exams was statistically significant (p=0.005).

Table 3. Internet addiction score distribution according to gender, age, time spent on internet daily and previous years' academic performance.

Variables	Addicted N (%)	Not-addicted N (%)	Total N (%)	p-value
Gender				
Male	74 (31.4)	162 (68.6)	236 (100.0)	0.117
Female	150 (26.0)	428 (74.0)	578 (100.0)	
Age (in years)				
18-20	32 (22.5)	110 (77.5)	142 (100.0)	0.096
21-23	130 (26.5)	361 (73.5)	491 (100.0)	
24-26	54 (34.8)	101 (65.2)	155 (100.0)	
27-30	08 (30.8)	18 (69.2)	26 (100.0)	
Time spent on internet per day				
Less than 2 hours	0 (0.0)	2 (100.0)	2 (100.0)	0.001*
1-2 hours	36 (16.8)	178 (83.2)	214 (100.0)	
2-5 hours	94 (24.0)	298 (76.0)	392 (100.0)	
>5 hours	78 (43.8)	100 (56.2)	178 (100.0)	
More than 10 hours	16 (57.1)	12 (42.9)	28 (100.0)	
Marks (in percentages)				
≤50	22 (44.0)	28 (56.0)	50 (100.0)	0.005*
51-60	84 (31.3)	184 (68.7)	268 (100.0)	
61-70	104 (23.3)	342 (76.7)	446 (100.0)	
>70	14 (28.0)	36 (72.0)	50 (100.0)	
Total	224 (27.5)	590 (72.5)	814 (100.0)	

*Chi-square test.

The mean domain scores for individual parts were overuse (16.31±3.64), non-restraints (7.77±2.66), inhibiting the flow of life (9.52±3.05), emotional state (11.25±2.86) and dependence (10.47±2.53) (Table 4).

Table 4. Domain score (mean and SD).

Domain Scores	Mean ± SD
Overuse	16.31 ± 3.64
Non-restraints	7.77 ± 2.66
Inhibiting flow of life	9.52 ± 3.05
Emotional state	11.25 ± 2.86
Dependence	10.47 ± 2.53

In Table 5, overuse was primarily confirmed by checking their digital devices even during the work in both genders (3.09±1.06 in males and 3.14±1.09 in females), but the findings were not statistically significant (p=0.534). The scores were higher (3.25±1.13) among first years in comparison with other groups, but the distribution was not statistically significant (p=0.058). Females (3.03±0.78) and first-year students (3.10±0.86) comparatively spent more time on their mobiles which was the next leading factor for overuse and was not significant (p>0.05).

Table 5. Mean scores for domains of Internet Addiction Questionnaire according to gender and year of study.

Domains	Questions	Gender (Mean±SD)		p-value	Year of study (Mean±SD)					p-value
		Males	Females		1st year	2nd year	3rd year	4th year	Interns	
Overuse	On daily basis, about how much time do you spend on your mobile phone applications using internet?	2.98±0.8	3.03±0.78	0.343	3.10±0.86	2.93±0.84	2.99±0.82	3.01±0.71	3.06±0.73	0.347
	While eating my meal, I am occupied with mobile phone, tablet or computer.	2.51±1.15	2.30±1.07	0.024	2.48±1.22	2.12±1.04	2.32±1.01	2.39±0.98	2.48±1.19	0.033
	I continuously look at the digital devices (mobile phone or tablet) in a trip, picnic or social environments.	2.62±1.02	2.53±1.02	0.284	2.59±0.96	2.39±0.96	2.58±0.95	2.56±1.04	2.63±1.14	0.333
	I overuse the digital devices out of their purposes.	2.93±1.13	2.76±1.02	0.053	2.90±1.20	2.80±1.02	2.68±1.06	2.71±0.89	2.95±1.10	0.086
	I find myself checking my digital devices upon dealing with a work.	3.09±1.06	3.14±1.09	0.534	3.25±1.13	3.11±1.10	3.12±1.08	2.94±1.03	3.22±1.04	0.058
	I deal with the digital devices like tablet even if I do demanding things	2.45±1.03	2.43±0.97	0.910	2.41±1.06	2.56±1.06	2.31±0.92	2.34±0.87	2.56±1.01	0.066
Non-Restraint	I cannot control myself on the amount of time of using the digital devices.	2.71±1.13	2.64±1.13	0.395	2.82±1.15	2.57±1.08	2.57±1.17	2.46±0.95	2.87±1.21	0.006
	I have unsuccessful attempt to reduce the time I spend with digital devices.	2.59±0.97	2.66±1.01	0.401	2.65±1.05	2.52±0.97	2.56±0.91	2.61±0.99	2.83±1.02	0.038
	I cannot reduce the time I spend with the digital devices.	2.47±1.10	2.46±1.04	0.755	2.61±1.09	2.29±0.89	2.47±1.01	2.38±0.97	2.57±1.12	0.122
Inhibiting the flow of life	The digital devices prevent me from doing my responsibilities related to home and workplace.	2.50±1.11	2.42±1	0.526	2.39±1.11	2.25±0.92	2.54±1.12	2.48±0.98	2.52±1.01	0.127
	I have missed many opportunities because of spending a lot of time with the digital devices.	2.31±0.99	2.20±0.95	0.225	2.30±0.97	1.97±0.75	2.27±1.01	2.38±1.05	2.23±0.97	0.0126
	I am unaware of what happens around me when I deal with the digital devices.	2.38±1.03	2.29±0.98	0.327	2.18±0.94	2.27±0.96	2.31±0.98	2.35±1.04	2.44±1.05	0.282
	I feel that I become less creative because of using the digital devices.	2.53±1.13	2.52±1.06	0.991	2.55±1.10	2.27±1.04	2.56±1.03	2.52±1.05	2.67±1.15	0.021
Emotional State	Assigning a job to me when I spend time with digital devices makes me annoyed.	2.58±0.97	2.57±0.91	0.965	2.70±0.97	2.39±0.85	2.49±0.89	2.53±0.94	2.75±0.96	0.003
	The environment where I cannot use the digital devices bore me.	2.89±1.16	2.81±1.05	0.309	2.96±1.12	2.49±1.02	2.74±0.99	2.91±1.11	3.03±1.09	0.001
	I feel very happy in spending time with the digital devices.	3.20±0.96	3.29±0.82	0.399	3.13±1.01	3.20±0.85	3.31±0.84	3.28±0.87	3.37±0.75	0.250
	I feel very unhappy and angry when I do not use my digital devices for a long time	2.58±1.01	2.57±1.01	0.826	2.51±1.05	2.31±0.94	2.65±0.98	2.62±1.03	2.73±1	0.002
Dependence	I get anxious when my digital devices are broken or get lost.	3.79±1.03	3.82±0.96	0.921	3.66±1.11	3.83±0.91	4±0.89	3.78±0.95	3.78±1.02	0.068
	Even if I leave my house for a short time, I want to take the digital devices like phone / tablet with me.	3.27±1.24	3.47±1.16	0.034	3.37±1.36	3.47±1.19	3.32±1.13	3.18±1.17	3.69±1.06	0.001
	I keep digital devices like smart phone or tablet around when I go to sleep.	3.13±1.25	3.30±1.18	0.077	3.17±1.27	3.13±1.26	3.25±1.09	3.12±1.16	3.52±1.19	0.006

Mean scores were higher among males (2.71±1.13) for being unable to control, whereas unsuccessful attempts were more in females (2.66±1.01), and this difference seen was not statistically significant (p>0.05). Interns responded with higher scores for both unable (2.87±1.21) and unsuccessful attempts (2.83±1.02) on the restriction of mobile use, which were statistically significant (p<0.05). Regarding the domain of internet use affecting life, the main item of contribution was feeling less creative, followed by prevention from responsibilities at home and workplace for both gender and year of study, which was more among males (2.53±1.13 and 2.50±1.11) and interns (2.67±1.15 and 2.52±1.01), respectively. However, the difference in distribution was statistically not significant with gender (p>0.05), but significant with year of study and being less creative only (p<0.05).

The essential response to the student's emotional state was feeling happy spending time with digital devices. Females 3.29±0.82 and interns 3.37±0.75 reported higher scores which were not statistically significant (p>0.05). They also felt bored at places where they could not use digital devices. The scores were higher in males (2.89±1.16) than in females (2.81±1.05), which was not significant (p>0.05). Statistically significant (p<0.05) findings for interns who demonstrated higher scores (3.03±1.09) than other group students were found.

The items showing the level of dependence include getting anxious on digital devices getting broken or lost. Females (3.82±0.96) and third-year students (4±0.89) showed higher scores than their counterparts which were found to be statistically insignificant (p>0.05). Carrying a mobile device on leaving the house even for a short time also shows the excessive dependence of students on mobile devices. Females (3.47±1.16) and interns (3.69±1.06) had higher scores which were statistically significant at (p<0.05).

A correlation coefficient (Spearman's rho value of -.167) indicates a negative correlation between internet addiction and academic scores (Table 6). This denotes a relationship that travels in different directions. As one value goes up, the other value goes down. Also, as one value goes down, then the other value goes up. But the strength or magnitude of this relation is said to be poor or weak as the value is less than 0.3 and this difference was found to be statistically significant with p=0.001.

Table 6. Correlation analysis between total scores related to internet addiction and academic scores.

		Marks Obtained in Last Exam	Total Score of Individual Persons
Marks obtained in last exam	Correlation coefficient	1.000	-0.167**
	Sig (2-tailed)		0.000
	N	814	814
Total score of individual persons	Correlation coefficient	-0.167**	1.000
	Sig (2-tailed)	0.000	
	N	814	814

Test applied; Spearman's rho; **Correlation is significant at the 0.05 level (2-tailed).

Discussion

In the present study, we have tried to assess the impact of IA on students' academic performance. The Internet Addiction Test is the only validated instrument that identifies the high, low, and average internet users. It is found from this study that 27.5% of the students were severe users of the internet. Several other studies have reported a higher percentage of Internet-addicted youths [13-15]. The continuous exposure to the internet and susceptibility to addictive behaviours may represent a possible danger [16]. Severe internet users used a maximum of 3 to 4 hours per day. They could not perform their responsibilities adequately, such as concentrating on academics and developing social isolation owing to excessive internet use. Users spending significant time online experience academic, relational, economic, and occupational problems and physical disorders [17].

The factual data on the epidemiology of IA are voluminous across the globe. However, there is inconclusive evidence regarding the exact magnitude of the problem because the prevalence varies according to country and study context [13-17]. A meta-analysis has observed about 20% to 40% of college students in India are at risk for IA [18]. Our study found that internet addiction prevalence is 27.5% among undergraduate dental students. Saleem et al. [19] surveyed undergraduate students of South-Punjab, Pakistan, and found the prevalence of internet addiction to be 28%. A similar prevalence was seen in Bhatt and Gaur's study, which found 23% [2]. A study conducted in six Asian countries reported the prevalence of IA varies from 5% to 21% [20]. Even within the same country, there is a marked difference in the prevalence of IA due to diverse screening scales with inconsistent cut-off scores. The provision of free Wi-Fi services within the campus may also have contributed to the higher prevalence among college students.

The age distribution of our study population was from 18 years to 30 years. The age group 24 to 26 years had more prevalence of internet addiction (34.8%). Internet addiction increased with age, though not statistically significant, consistent with the results of studies conducted on teenagers between 17 and 27 years, who found the prevalence of internet addiction to be 14% [17]. However, most previous researchers have concluded a significant relationship between addiction severity and age, with younger people at higher risk of IA [2,18,19]. IA has been proven to reduce the young generation's productivity and cause cognitive dysfunction, poor academic performance and physical, mental and behavioural disturbances [21].

Worldwide studies have reported varying results regarding the association of gender with IA. In many studies, IA is associated with male gender [22,23]. Our study results also showed male dental undergraduate students to be more addicted. Contrasting findings of females being addicted more than males were reported by Scherer [24], Rucker et al. [25] and Gautam et al. [26]. This may be due to the change in social trend with females using more internet, their social nature and the need to constantly contact friends to seek social support online more than their male counterparts. Also, it may be due to lack of family supervision and providing equal freedom to both males and females compared to earlier times. In some cultures, girls are not allowed to go out as compared to boys, thus turning them to the internet as the alternate source for entertainment activities when compared to outdoor activities [27].

The distribution of IA was highest (36.6%) in the first year. From the second year onwards, we found a consistent increase in IA from 18.7% to 32.6%, corresponding with grade of students. Ceyhan [28] also found that IA was more among first and second-grade students. Similarly, Kumar et al. [1] and Al-Gamal et al. [29] have revealed that the first years were more vulnerable to internet addiction as they had the highest mean internet addiction scores. Other studies have demonstrated that the students in higher grades had lower IA scores, with the possible explanation that they are to appear in the university examination at the end of the fourth year [30,31]. On the contrary, it is also reported that internet use is higher among final years and or interns, which is explained by the amount of work that requires a literature search for projects, seminars and presentations during the clinical years of study. The vast knowledge served by internet like online libraries, computer-aided educational software, lessons on YouTube, search engines, and online university classes could be the causes of rises in internet addiction scores. Interns and females were found to be more dependent on digital devices. They responded with a higher score for getting anxious over losing the mobile, possessing the gadget every time they leave their house and keeping them near during sleep.

The increase in internet usage time showed a significant increase in internet addiction scores among our study subjects. Internet addicted users spent long hours on the internet, which was consistent with the results of previous studies. This trend of using the internet for increased duration could be attributed to the easy

accessibility of the internet through digital devices, and internet services are economical and available for longer durations to each sector of people. It indicates that individuals with high usage of internet are prone to become more sensitive in interpersonal relationships and more anxious when not using it.

The evaluation of academic performance and internet addiction score revealed a negative correlation. Similar findings have been reported by Young [12], Turel and Toraman [31], Ko et al. [32], Frangos et al. [33], Esen and Siyez [34], who have found internet addiction to affect academic performance, poor family relationship, impaired social functioning, emotional problems and psychiatric problems too. Haque et al. [20] studied medical university students and revealed internet usage affected their academic and job performance.

We could not assess the cause-effect relationship between the causative factors and internet addiction among students. Longitudinal, multicentered studies should be conducted to identify internet usage trends among dental students and their likely implications on their learning performance. Focusing on related and causing factors can help us design more effective interventions and treatments for this susceptible group. The dataset is based on student self-report of internet use, which can be subject to reporter bias or error.

Conclusion

The surplus use of the internet for learning, entertainment, and communication eventually leads to addiction and affects students' academic performance. The theory of internet addiction has not been accepted by society and is still in its preliminary phase. This study revealed that internet addiction has a negative effect on the academic performance of undergraduate dental students and was also related to the amount of time spent daily on the internet on mobile phones. The affected students need early intervention and control over internet usage.

Authors' Contributions

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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