

Problematic Internet Usage and its Impact on Oral Health Related Quality of Life Among Undergraduate Dental Students, Khammam, Telangana

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Abstract: Background: Internet usage and its addiction has grown rapidly across the globe and it is associated with loss of control of the users. Problematic internet use is addictive behavior and may include excessive or poorly controlled preoccupations, urges, or behaviors regarding computer use and internet access that lead to impairment or distress.

(<https://www.education.vic.gov.au>). Now-a-days, problematic Internet usage (PIU) has led to various psychosocial problems with an impact on oral diseases due to neglect of healthy behavior. So, this study aims to determine the association between problematic internet usage and oral health – related quality of life (OHRQoL) among undergraduate dental students in Khammam. **Method:** A cross-sectional study was conducted on 200 undergraduate dental students in Khammam, Telangana. Which includes a pre-tested questionnaire on Problematic internet usage (PIU) and Oral health impact profile-14(OHIP) was given to the participants. **Results:** In present study, interns are facing more problematic internet usage (PIU) with 75.4% which is associated with poor oral health related quality of life (OHRQoL) with statistically significant value. majority of the males were facing more problematic internet usage with 71.4% when compared to females with 62.4%. **Conclusion:** This study concludes that there is a direct association between problematic internet use (PIU) and oral health related quality of life (OHRQoL). So, the appropriate preventive and interventional strategies need to be developed to encourage rational use of the Internet to protect the user's health.

Keywords: PIU, OHRQoL, OHIP.

1. Introduction

In modern society, Internet use has become an indispensable element of everyday on the while excessive use of the Internet has caused serious social problems such as “Internet addiction”. India has the 2nd highest proportion of Internet users in the world, and its use has increased dramatically due to the recent surge of smartphones, PC tablets, and other mobile devices. Conversely, excessive Internet use has sparked serious social problems such as Internet addiction specially among

adolescents.

Adolescents lack self-control abilities because of psychological immaturity, are more susceptible to addiction than adults because of their brimming curiosity and have more difficulty in recognizing the adverse effects of Internet addiction.

Problematic internet usage (PIU) is an addictive behavior including excessive or poorly controlled preoccupations, urges or behaviors with regard to computer and internet usage. In the present times PIU not only has various psychosocial problems but also has an impact on oral diseases, leading to poor oral health related quality of life.

According to a study, ‘Bharat 2.0’, conducted between September 2021 to December 2021 by consumer insights Nielsen. In the age groups 16-19, 20-29 and 30-39, the daily internet usage stood at 91% in India. (About 90% Of Active Users Access Internet Daily in India: Study).

Adolescent oral health problems may be regarded as less serious in the short term in comparison to adults, but the long-term effects of poor oral health problems can be as severe for adults. Therefore, more attention is needed, and it is necessary to identify new risk factors other than those that have been found previously to have a detrimental effect on the oral health and intervene accordingly. However, most of the research related to PIU has mostly focused on mental health related issues. Recently, research has been carried out on the relationship between neuropsychiatric symptoms, psychosocial symptoms, and physical health, but the relationship between PIU and oral health has not yet been studied. The relationship between PIU and problems with sleep and oral diseases have been proved through various studies.

Therefore, it is of great importance to study the relationship between PIU, sleep problems, and oral health based on the abovementioned studies. This study suggests that PIU is a new risk factor that causes problems such as sleep deprivation and

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eventually deleterious effects on oral health, and that it is necessary for related scientific research to be actively carried out [1].

So, the purpose of the present study is to determine the association between problematic internet usage and oral health – related quality of life (OHRQoL) among undergraduate dental students in Khammam.

A. Aim

To Determine the association between problematic internet usage and Oral Health – Related Quality of Life (OHRQoL) among undergraduate dental students in Khammam.

B. Objectives

1. To determine the association between problematic internet usage and Oral Health-Related Quality of Life among undergraduate dental students based on gender
2. To determine the association between problematic internet usage and Oral Health-Related Quality of Life among undergraduate dental students based on year of study.

2. Methodology

Study design: A cross sectional study.

Study area: Tertiary care teaching hospital in Khammam.

Sampling Method: Convenience sampling.

Study population: III-year BDS, IV-year BDS and Interns.

Study instrument: A pre-tested questionnaires. 1. PIU, 2. OHIP.

Inclusion criteria: Students who are willing to participate are included in the study.

Exclusion criteria: Students who are not willing to participate were excluded.

Ethical clearance: Ethical clearance was obtained before the commencement of the study from the ethical committee of tertiary care teaching hospital, Khammam.

Informed consent: Consent was taken from the individual participants prior to the commencement of the study.

Data collection: A pretested tested 18 item PIU questionnaire and 14 item OHIP questionnaire were distributed to III BDS, IV BDS and Interns during working hours of the college and the data was collected.

Statistical analysis: The data which was collected was analyzed using SPSS software version 23, P value was set at a significant level of < 0.05.

3. Results

Table 1
Profile of the study subjects

Variables		N	%
Gender	Males	42	21.0
	Females	158	79.0
Year	3 rd	77	38.5
	4 th	66	33.0
	Interns	57	28.5
Total		200	100

Table 1 shows the distribution of study participants. Out of 200 students who filled the questionnaire, 158(79%) participants were females and 42(21%) participants were males. The 3rd year BDS students were 38.5%(77), final year BDS students were 33%(66) and Interns were 28.5%(57).

Table 2 shows the mean comparison of PIU and its components based on variables, in which there is no significant different is seen between male and females. when it compared based on year of participants there is a significant different is seen.

Table 2
Mean comparison of PIU and its components based on variables

Variables		Obsession		Neglect		Control disorder		Overall PIU	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	Males	14.4524	3.75984	15.5000	3.73677	16.9048	3.74693	46.8571	9.64383
	Females	13.1456	3.95649	15.1013	3.45156	16.4076	3.26786	44.7006	8.35008
	P value	0.062		0.514		0.397		0.152	
Year	3 rd	12.9091	3.75984	15.4805	3.52663	17.3377	3.53036	45.7273	8.38017
	4 th	12.6212	4.50560	14.2576	3.57904	15.8769	3.29065	42.8462	9.79673
	Interns	15.0351	3.34859	15.8596	3.22068	16.1228	3.05351	47.0175	7.06473
	P value	0.001*		0.023*		0.027*		0.012*	
Total		13.4200	4.03049	15.1850	3.50746	16.5126	3.37079	45.1558	8.65855

Mann Whitney u test-gender

Kruskal-Wallis test-Year of study

Table 3
Categorization of subjects based on PIU scores and its comparison based on variables

Variables		Average Internet Usage		Problematic Internet Usage	
		N	%	N	%
Gender	Males	12	28.6	30	71.4
	Females	59	37.6	98	62.4
	Chi square value	1.172			
	P value	0.184			
Year	3 rd	27	35.1	50	64.9
	4 th	30	46.2	35	53.8
	Interns	14	24.6	43	75.4
	Chi square value	6.190			
	P value	0.045			
Total		71	35.7	128	64.3

Chi Square test

Table 5
Mean comparison of OHRQoL among study subjects based on gender

OHRQoL	Male		Female		p value
	Mean	SD	Mean	SD	
Functional limitation	2.3095	1.55372	2.3481	1.62358	0.890
Physical limitation	2.3571	1.89764	2.5316	1.87736	0.594
Psychological limitation	4.0476	1.78000	3.7089	1.90642	0.301
Physical disability	3.0714	1.79963	2.8354	1.87461	0.466
Psychological disability	3.0714	1.79963	3.0000	1.69300	0.811
Social disability	2.9524	1.73841	3.1646	1.78765	0.493
Handicap	2.8095	2.12118	2.7722	1.89837	0.912
Overall OHRQoL	20.6190	8.39556	20.3608	8.94941	0.866

Independent t test; p≤0.05 considered statistically significant

Table 6
Mean comparison of OHRQoL among study subjects based on year of study

OHRQoL	3 rd year		4 th year		Interns		p value
	Mean	SD	Mean	SD	Mean	SD	
Functional limitation	2.4416	1.56014	2.1212	1.43060	2.4561	1.84265	0.402
Physical limitation	2.4286	1.90863	2.0152	1.82708	3.1404	1.73657	0.003*
Psychological limitation	3.7273	1.83272	3.8182	1.97608	3.8070	1.86546	0.952
Physical disability	2.8571	1.95821	2.8636	1.99142	2.9474	1.56320	0.956
Psychological disability	3.0000	1.67803	2.7727	1.96739	3.3158	1.39076	0.214
Social disability	3.3896	1.84359	2.8182	1.69986	3.1053	1.73909	0.158
Handicap	2.7662	1.96614	2.4091	2.01515	3.2281	1.75273	0.065
overall OHRQoL	20.610	8.68173	18.818	9.95669	22.0000	7.29481	0.132

ANOVA test; p≤0.05 considered statistically significant

Table 7
Mean comparison of OHIP and its components based on PIU category

OHIP	Average Internet Usage		Problematic Internet Usage		P value
	Mean	SD	Mean	SD	
Functional limitation	1.6761	1.37087	2.7188	1.61166	0.000*
Physical limitation	1.9155	1.79481	2.8359	1.84339	0.001*
Psychological limitation	3.2958	1.93017	4.0469	1.81359	0.007*
Physical disability	2.4507	1.84227	3.1328	1.83308	0.013*
Psychological disability	2.2254	1.56932	3.4766	1.61179	0.000*
Social disability	2.3380	1.68136	3.5547	1.68742	0.000*
Handicap	1.9155	1.66258	3.2734	1.92258	0.000*
overall OHRQoL	15.8169	8.22420	23.0391	8.06509	0.000*

Independent t test; p≤0.05 considered statistically significant

Table 3 shows the categorization of subjects based on PIU and its comparison based on variables in which females are more average internet users 37.6%(59) then males 28.6%(12) and males are more problematic internet users 71.4%(30) than females 62.4%(98). There is a significant different seen in problematic internet usage based on year of study which shows interns (75.4%) > 3rd years (64.9%)> 4th year (53.8) students respectively.

Table 4
Mean OHRQoL among study subjects

OHRQoL	Mean	SD
Functional limitation	2.3400	1.60539
Physical limitation	2.4950	1.87819
Psychological limitation	3.7800	1.88130
Physical disability	2.8850	1.85715
Psychological disability	3.0150	1.71156
Social disability	3.1200	1.77521
Handicap	2.7800	1.94177
overall OHRQoL	20.4150	8.81597

Note: higher the means, poor the quality of life

Table 6 show the mean comparison of OHRQoL among the subjects based on year of study in which only physical limitation domain shows significant different.

Table 7 shows the mean comparison of OHIP and its

components based on PIU In which all the 7 domains of OHIP and overall OHRQoL shows significant different in average internet users and problematic internet users.

Table 8
Correlation between OHIP and PIU

N=200		OHIP
Obsession	r value	0.374
	P value	0.000*
Neglect	r value	0.484
	P value	0.000*
Control disorder	r value	0.259
	P value	0.000*
PIU	r value	0.469
	P value	0.000*

Karl Pearson correlation

4. Discussion

The present data indicates that more than one third of the interns and third year dental students have problematic Internet use. Also, the evaluated association between problematic Internet use and oral health-related quality of life indicates that PIU had a direct relation with OHRQoL (P < 0.05). The students with problematic Internet use experienced a poorer oral health-related quality of life than average Internet users [3].

Internet addiction is recognized as a worldwide health

problem. Hence, several studies have shown that problematic Internet use could lead to mental health complications such as stress and depression, which can eventually result in poor oral hygiene. Also, a negative association was revealed between problematic Internet use and frequent tooth-brushing and a direct association between problematic Internet use and poor oral health and oral symptoms. AI-perception of oral health, average and frequent Internet users had less negative oral health practices (sugar and tobacco consumption) and more positive oral health practices (oral hygiene) than participants with problematic Internet use [3].

The present study showed that the prevalence of problematic Internet use in interns was higher than in third and final year dental students. The reason could be that final year course is probably more stressful with time bound work completion than the third year and internship course, and students have less free time to surf the Internet. which is similar to the study conducted by Halimeh Ghareghol *et al.* [3].

Moreover, according to the present study results, the mean OHIP score was significantly higher among males, i.e., the oral health-related quality of life among male students was poorer than female students which is similar to the study conducted by

Halimeh Ghareghol *et al.* [3].

5. Conclusion

This study concludes that there is an association between problematic internet usage (PIU) and oral health related quality of life (OHRQoL). The students with problematic Internet usage experienced a poor oral health-related quality of life than average Internet users. So, there is a need for appropriate preventive and interventional strategies need to be developed to encourage rationale use of the Internet to protect the user's oral health.

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