

Problematic Internet Usage: A survey study of Dental Students in India

Abstract:

Background : The rise of technology has made online communication a vital part of life. However, unregulated internet use can harm relationships and negatively impact both psychological and physical well-being.

Objective: To establish degree of internet dependency among dental students.

Methods: A cross-sectional study was conducted among 250 dental students from different academic years of different dental colleges. Demographic details, the reason for using the Internet, and the amount of time spent using it were documented. A 20-item version of Young's Internet Addiction Test was used to measure internet dependency. Statistical analysis was done using SPSS 23.0 software.

Results: Internet dependency had prevalence of 21.5%. The highest mean score for Internet dependency (45.84 ± 9.27) was seen among 2nd year students. Internet dependency was statistically significantly ($p=0.02$) correlated with the number of hours spent on Internet each day as Daily usage. Dependence (11.85 ± 1.68), Excessive use (11.63 ± 1.45), State of mind (8.51 ± 2.00), Blocking the spontaneity of Existence (9.18 ± 1.62), as well as Non-restraint (7.48 ± 2.89) were the five primary divisions that our research found to determine degree of dependency.

Conclusion: Most students have varying degrees of internet dependency.

Key words: Problematic internet use, Internet dependence, dental students, digital technologies, public health

Introduction:

The rapid expansion of digital technologies over the past two decades has transformed communication, education, and healthcare delivery across the globe. India, with one of the world's largest and fastest-growing internet user populations, has witnessed a substantial rise in digital engagement among young adults, particularly university students.[1] Among these, dental students represent a unique subgroup, as their academic training demands extensive use of online platforms for accessing scientific literature, virtual simulations, digital lectures, teleconsultations, and professional networking. While the internet has become an indispensable academic tool, its excessive, uncontrolled, or maladaptive use has raised concerns regarding Problematic Internet Usage (PIU)—a behavioral pattern characterized by compulsive online activity, withdrawal-like symptoms when offline, and functional impairment in academic, social, or psychological domains.[2]

PIU, sometimes referred to as “internet addiction,” has been increasingly recognized as a public health issue among students in health-care disciplines. Research indicates that medical and dental students may be at higher risk due to

¹UPASANA SETHI AHUJA, ²DEEPANKAR MISRA, ³AKANSHA MISRA, ⁴AKANSHA BUDAKOTI, ⁵RUPALI PANDEY, ⁶PRIYANKA KHANNA

^{1,2,4,5,6}Department of Oral Medicine and Radiology, Institute of Dental Studies and Technologies, Kadrabad, Modinagar, Ghaziabad

³Department of Oral and Maxillofacial Pathology, Institute of Dental Studies and Technologies, Kadrabad, Modinagar, Ghaziabad

Address for Correspondence: Dr. Deepankar Misra
Professor,

Department of Oral Medicine and Radiology, Institute of Dental Studies and Technologies, Kadrabad, Modinagar, Ghaziabad (U.P.) India.

Email: deepankarmisra@rediffmail.com

Received : 21 Feb., 2026, **Published :** 30 June, 2026

Access this article online

Website:
www.ujds.in

DOI:
<https://doi.org/10.21276/ujds.2026.12.2.30>

How to cite this article: sethi ahuja, upasana, Misra, D., Misra, A., budakoti, akansha, Pandey, R., & Khanna, P. (2026). Problematic Internet Usage: A survey study of Dental Students in India. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 12(2).

intensive academic stress, competitive training environments, long study hours, and the widespread integration of digital learning tools. The transition to online learning during and post-COVID-19 has further intensified screen time and digital dependency, contributing to heightened vulnerability.[3] Globally, the prevalence of PIU among university students ranges widely—from 10% to over 40%—depending on the assessment tools, population characteristics, and socio-cultural factors. Studies from India similarly report alarming rates of excessive internet use among undergraduate health-science students, with associations identified between PIU and sleep disturbances, decreased academic performance, social isolation, anxiety, and depressive symptoms.[3,4]

Dental students in India face additional demands that may predispose them to PIU. The curriculum requires mastering both theoretical knowledge and clinical competencies, often accompanied by significant psychological stress, tight schedules, and continuous assessments. Many dental students rely heavily on the internet for research, watching clinical demonstrations, preparing for exams, and engaging with social media—all of which may blur the boundaries between productive use and excessive use.^[5] Furthermore, the easy availability of smartphones, low-cost data plans, and the popularity of entertainment and social-media apps contribute to persistent online engagement. Despite these concerns, research specifically examining PIU among dental students in India remains limited, with most studies focusing on medical or general university populations.[6,7]

Understanding the extent, patterns, and correlates of PIU among dental students is essential for several reasons.[8] First, excessive internet use may adversely affect academic performance, clinical skill development, and readiness for patient care. Second, PIU has been linked to psychological distress, reduced sleep quality, musculoskeletal problems, and impaired social functioning—all of which can have serious implications for students' overall well-being. Third, identifying risk factors and usage behaviors can help institutions design targeted preventive strategies, digital wellness programs, and policy guidelines that promote healthy internet habits without compromising educational needs.[9]

Given this background, the present study aims to assess the prevalence of Problematic Internet Usage (PIU) among dental students in India using a validated screening instrument such as a structured survey-based approach. By examining patterns of internet behavior, associated psychosocial variables, and academic implications, this research seeks to fill an important gap in the current literature and provide insights that can guide

educational institutions, administrators, and mental-health professionals in promoting healthier and more balanced digital use among future dental practitioners.

Materials and Methods:

Study Design

The study used a validated questionnaire administered to 250 dental students across different colleges in Delhi NCR, utilizing non-probability sampling. Participants provided written informed consent, and the study adhered to the Declaration of Helsinki, obtaining approval from the Institutional Ethics Committee (IDST/2025/E/011). A sample size calculation was conducted using G*Power software, determining a minimum sample size of 250 participants. The calculation parameters included precision 5.00%, alpha error 5%, power 80%, confidence level 95%, and confidence interval 0.05.

Selection Criteria:

Participants of either gender willing to participate were included. Participants that refused to take part, or assist with the evaluation, incomplete questionnaires were excluded from the study.

Data Collection:

A convenience sampling of internet users was used for the study through creating an online survey portal. Data was collected using questionnaire method which was compiled in, Google Form[®]. The survey link was shared in social media platforms such as WhatsApp[®] and Facebook[®] through email to various dental students.

Demographics such as age, gender, study year, length, and reason for using the Internet were covered in the first section of the questionnaire. The degree of Internet addiction in the study population was evaluated using Young's 20-item Internet Addiction Test (IAT) questionnaire. IAT uses a range of test scenarios to assess compulsivity and symptoms. The questionnaire, which consists of 20 items, assesses traits and actions linked to excessive Internet use and was analyzed on the following 5 primary divisions likely; dependence, excessive use, state of mind, blocking the spontaneity of existence, non-restraint. These five subdivisions were condensed using Confirmatory Factor Analysis (CFA). Each statement on the randomized questions has significance along a continuum of the Likert scale, with 1 denoting complete agreement and 5 denoting complete disagreement. The range of the total score is 20–100. If a person's score was fifty or more, they were deemed Internet dependent.

Statistical Analysis

A statistical package for social sciences (SPSS) program, version 23.0 (SPSS Inc., Chicago, IL, USA), was used to analyze the data that was gathered. Parametric tests were performed to examine the relationship between PIU as a result of dependence to internet and the elements that contribute to this dependence.

Results

The average age of dental students participated was $21.5(\pm 2.75)$ years. Most of the students (31.6%) were first-year students, and the bulk of them were males (72%). [Table 1]

Table 1: Demographic details of study population

Variables	N	%
Age (In years)		
17-20	115	46
21-24	108	43.2
25-28	27	10.8
Gender		
Male	180	72
Female	70	28
Study year		
1 st Year	79	31.6
2 nd Year	49	19.6
3 rd Year	44	17.6
4 th Year	38	15.2
Interns	40	16

The overall mean Internet dependency score was found to be $44.38(\pm 9.47)$. The 2nd year students showed highest Internet dependency score i.e. $47.84(\pm 9.27)$, on comparing with other years and the Interns showed the lowest i.e. $41.22(\pm 10.05)$. No significant difference ($p=0.6$) was observed in the mean Internet dependency total score between different years of dental students. In the studied population, the prevalence of Internet dependency was 21.5%. The differences observed between various academic years were not statistically significant ($p=1.023$) [Table 2]

Table 2: Mean Internet dependency score and year wise distribution of study population

Study year	Internet dependency score	Dependent	Non Dependent
	Mean $\pm$ S.D.	N%	N%
1 st year	43.33 $\pm$ 10.7	8 (10.2)	70 (89.7)
2 nd year	47.84 $\pm$ 9.27	18 (32.1)	38 (67.8)
3 rd year	44.13 $\pm$ 8.6	11 (23.4)	36 (76.5)
4 th year	42.02 $\pm$ 11.6	7 (21.8)	25 (78.1)
Interns	41.22 $\pm$ 10.5	6 (16.2)	31 (83.7)
Total	44.38 $\pm$ 9.47	50 (20)	200 (80)
p-value	0.6 ^a	1.023 ^b	

^aOne way ANOVA; ^bChi square test; Level of significance $p<0.05$

Dental students' most common reasons for internet use were connecting with others, followed by research, email interactions, recreation, and learning. To determine the parameters that had the strongest correlation to Internet

dependency among dental students, a multivariate variate analysis was conducted [Table 3]. Dependent and non-dependent students had a significant difference in daily internet usage hours ($p=0.02$). However, internet dependency wasn't significantly correlated with age, gender, or study year.

Table 3: Association of internet dependency with age, gender, study year and daily usage

Variables	Categories	Dependency	Non Dependency	p-value
		N(%)	N(%)	
Age (in years)	17-20	28 (24.3)	87 (75.6)	0.721
	21-24	18(16.6)	90 (83.3)	
	25-28	4 (14.8)	23 (85.1)	
Gender	Male	37 (20.5)	143 (79.4)	0.954
	Female	13 (18.5)	57 (81.4)	
Study year	1 st Year	9 (11.3)	70 (88.6)	1.023
	2 nd Year	19 (38.7)	30 (61.2)	
	3 rd Year	10 (22.7)	34 (77.2)	
	4 th Year	7 (18.4)	31 (81.5)	
	Interns	5 (12.5)	35 (87.5)	
Daily usage (in hours)	≤ 4	40 (25.1)	119 (74.8)	0.02*
	>4	10 (10.9)	81 (89.01)	

Chi square test; *statistically significant

As per the Confirmatory Factor Analysis (CFA) shown in earlier research, every variable in the questionnaire has contributed significantly, leading to a structure with five primary divisions. Accordingly, the central domain identified in our study population was Dependence (11.85 ± 1.68), Excessive use (11.63 ± 1.45), State of mind (8.51 ± 2.00), Blocking the spontaneity of Existence (9.18 ± 1.62), as well as Non-restraint (7.48 ± 2.89) [Table 4].

Table 4: Mean internet dependency scores according to Young's IAT

Primary divisions	Range	Mean $\pm$ S.D.
Excessive use	4-17	11.63 $\pm$ 1.45
Blocking the spontaneity of Existence	4-16	9.18 $\pm$ 1.62
State of mind	5-18	8.51 $\pm$ 2.00
Dependence	6-20	11.85 $\pm$ 1.68
Non-restraint	4-14	7.48 $\pm$ 2.89

The overall scores of PIU and the number of hours spent on the Internet each day as daily usage showed a marginally positive but statistically significant association ($r=0.212$, $p=0.001$), suggesting that students who spent more time online had higher levels of internet dependency. [Table 5]

Table 5: Correlation between total scores of internet dependency with other variables

Variables	r- value	p- value
Age	0.01	0.73
Gender	0.11	0.18
Study year	0.005	0.91
Daily usage	0.212	0.001*

*Statistically significant

Discussion:

The prevalence of internet reliance has increased dramatically in recent years.[10,11] Students are drawn to the Internet because it is an endless supply of information and offers them

the chance to see and learn anything.[12] Since we now live in a digital age, many tasks are in fact simpler and more accessible to complete online.[13,14] Overuse of the internet, however, might elicit a different kind of view and goal.[15] This behavior can distort reality perception, impair self-control, and disrupt time management and reasoning skills.[16,17] Youths become deeply entrenched in PIU as it provides a sense of control over their online identity, compensates for feelings of powerlessness in real life, and offers flexibility and confidentiality in self-expression.[18,19,20]

In the modern world, dental college students are increasingly susceptible to PIU, and the frequency of this problem among teenagers varies by region.[21,22] It affects between 1.98% and 35.8% of teenagers in Western and Eastern nations.[23,24] It was discovered that 20.4% of our undergraduate dental students suffered from Internet addiction.[22] Their research on dental students found slightly higher percentages of 23% and 29.2%, respectively.[24]

Additionally, some studies have revealed that university students are more likely to suffer from Internet dependency (34%), while other studies have concluded that the frequency is lower (12%).[21,22] Diverse studies may employ different diagnostic criteria, study designs, and sample sizes, which could account for these discrepancies.

In our study population, the average score for Internet addiction was 44.38($\pm$ 9.47). The mean Internet Addiction total score for dental students in different years did not differ significantly ($p=0.6$). It was discovered that second-year students had the highest mean score. According to Peltzer K et al. (2014), first-year students may be more prone to internet dependency due to increased free time and engagement in riskier behaviors.[25]

People primarily use the internet for socializing and leisure, behaviors strongly linked to internet dependency. During adolescence, online networking and peer communication are particularly prevalent. Heidarimoghadam et al. (2020) found that college students primarily use online resources for social media networking.[26] Feher et al. (2023) also found that entertainment and social interaction are primary motivations for online use, significantly contributing to PIU.[21] Kamal et al. (2022) found that extensive internet users, particularly those prone to dependency, frequently use online gaming and communication platforms, often due to their perceived low academic impact.[22]

Our study found that the number of hours that learners spent on the Internet each day (Daily usage) differed statistically significantly between those that had become dependent compared to those who weren't. Research shows that internet dependence is linked to excessive internet use, which can negatively impact work or academic performance.[27] Our analysis found no significant gender differences in internet dependence levels, though males used the internet more than females. However, research suggests that maladaptive internet use may be more prevalent among females. While females may exhibit more self-control over internet use, males tend to be more prone to internet dependence.[28] In line with our research, Bahramnia F et al.(2020) conducted a study and found that their study population did not exhibit any gender differences.[24]

Previous studies suggest that younger people are more susceptible to internet dependence, with age being significantly correlated with the degree of dependence.^[29,30] Our study found that young people were more likely to be internet-dependent (24.3%), but the relationship between age and internet dependency wasn't statistically significant, possibly due to the narrow age range (17-28 years) of participants.

Our study found that dependence and excessive use were the most prominent aspects of internet use among dentistry undergraduates. Dependence was measured by behaviors like anxiety when a digital device is lost and keeping devices near bedtime. Excessive use was marked by habits like using devices while eating or socializing. Internet dependency can lead to increased device use to compensate for lack of in-person interaction and is linked to mental health issues like stress, anxiety, and depression.^[25,26]

This study holds considerable significance for dental education and student mental health in India. Problematic Internet Usage (PIU) is increasingly recognized as a modern behavioral concern, particularly among young adults pursuing demanding professional courses. By specifically focusing on dental students—a group for whom internet use is essential for learning, clinical skill development, and research—the study provides valuable insights into the complex balance between productive and excessive digital engagement.

The findings can help identify the prevalence and risk factors associated with PIU in this population, enabling institutions to better understand how digital overuse may influence academic performance, psychological well-being, and daily functioning. This evidence can guide administrators,

educators, and policymakers in planning effective interventions, such as digital wellness programs, mental-health support systems, and awareness campaigns aimed at promoting healthier online habits. Moreover, understanding PIU patterns can contribute to curriculum modifications that encourage responsible digital use without compromising technological advancements in dental education.

Additionally, the study adds to the limited Indian literature on PIU in dental students, filling an important gap and paving the way for cross-disciplinary comparisons and nationwide strategies. The data generated can serve as a reference point for future longitudinal or interventional research on digital behavior in health-science students.

Limitations of the Study:

Despite its strengths, the present study has several limitations that should be considered when interpreting the findings. Because the study uses a cross-sectional survey, it captures information at a single point in time and does not establish causality. Relationships between PIU, academic performance, or psychological factors cannot be interpreted as cause–effect. Responses rely on participants' self-reported behaviors, which may be affected by recall bias, social desirability bias, or underreporting of problematic internet habits. The findings may not be generalizable to all dental students in India, especially if the sample is drawn from a limited number of colleges, specific regions, or specific types of institutions (e.g., only private or only government colleges). Risk of non-response bias may be considered as students less inclined toward surveys or those with severe PIU may avoid participation, potentially affecting prevalence estimates.

Future Prospects:

The findings of this study have the potential to open several important avenues for future research, policy development, and academic interventions. As Problematic Internet Usage (PIU) continues to rise among young adults in India, especially within the health-science community, targeted research in dental education can contribute meaningfully to both academic planning and student well-being.

Conclusion:

Our study highlights the growing internet dependency among students, threatening their social and mental well-being. To mitigate this, encouraging social activities, parental guidance on screen time management, and establishing daily routines can be beneficial.

Data availability statement: All datasets generated and/or analyzed during the current study are available from the corresponding author.

References:

1. Milkovich LM, Randell KA, Sherman AK, Moreno MA. Associations Among Problematic Internet Usage in Adolescents, Parental Internet Factors, and Parent-Adolescent Communication. *J Dev Behav Pediatr*. 2025;46(1):e40-e44.
2. Dell'Oso B, Di Bernardo I, Vismara M, Piccoli E, Giorgetti F, Molteni L et al. Managing Problematic Usage of the Internet and Related Disorders in an Era of Diagnostic Transition: An Updated Review. *Clin Pract Epidemiol Ment Health*. 2021;17:61-74.
3. Lochner C, van den Berg G, Chamberlain SR, Marincowitz C, Coetsee B. Family functioning and problematic usage of the internet in youth: A cross-sectional investigation. *J Psychiatr Res*. 2024;173:239-244.
4. Ioannidis K, Taylor C, Holt L, Brown K, Lochner C, Fineberg NA et al. Problematic usage of the internet and eating disorder and related psychopathology: A multifaceted, systematic review and meta-analysis. *Neurosci Biobehav Rev*. 2021;125:569-581.
5. Fineberg NA, Demetrovics Z, Potenza MN, Mestre-Bach G, Ekhtiari H, Roman-Urrestarazu A et al. Global action on problematic usage of the internet: announcing a Lancet Psychiatry Commission. *Lancet Psychiatry*. 2025;12(1):11-13.
6. Bozzola E, Spina G, Agostiniani R, Barni S, Russo R, Scarpato E et al. The Use of Social Media in Children and Adolescents: Scoping Review on the Potential Risks. *Int J Environ Res Public Health*. 2022;19(16):9960.
7. Wu W, Huang L, Yang F. Social anxiety and problematic social media use: A systematic review and meta-analysis. *Addict Behav*. 2024;153:107995.
8. Fendel JC, Vogt A, Brandtner A, Schmidt S. Mindfulness programs for problematic usage of the internet: A systematic review and meta-analysis. *J Behav Addict*. 2024;13(2):327-353.
9. Tsankova E, Vanman EJ, March E. Editorial: Internet deviance. *Front Psychol*. 2024;15:1495767
10. Vadher SB, Panchal BN, Vala AU, Ratnani IJ, Vasava KJ, Desai RS et al. Predictors of problematic Internet use in school going adolescents of Bhavnagar, India. *Int J Soc Psychiatry*. 2019;65(2):151-157.
11. Kokka I, Mourikis I, Nicolaides NC, Darviri C, Chrousos GP, Kanaka-Gantenbein C et al. Exploring the Effects of Problematic Internet Use on Adolescent Sleep: A

- Systematic Review. *Int J Environ Res Public Health*. 2021;18(2):760.
12. Ghareghol H, Pakkhesal M, Naghavihosseini A, Ahmadiania AR, Behnampour N. Association of problematic Internet use and oral health-related quality of life among medical and dental students. *BMC Med Educ*. 2022;22(1):11.
13. Szapary A, Feher G, Radvanyi I, Fejes E, Nagy GD, Jancsak C et al. Problematic usage of the internet among Hungarian elementary school children: a cross-sectional study. *BMC Public Health*. 2024;24(1):1073.
14. Sharma BN, Nagarajan P, Bharadwaj B, Kattimani S. Problematic Use of the Internet and Its Correlates with Psychological Well-Being among Undergraduate Dental Students. *Indian J Community Med*. 2021;46(1):167-169.
15. Mao P, Cai Z, Chen B, Sun X. The association between problematic internet use and burnout: A three-level meta-analysis. *J Affect Disord*. 2024;352:321-332.
16. Riad A, Pöld A, Olak J, Howaldt HP, Klugar M, Krsek M et al. Estonian Dental Students' Oral Health-Related Knowledge, Attitudes and Behaviours (KAB): National Survey-Based Study. *Int J Environ Res Public Health*. 2022;19(3):1908.
17. Weinstein A, Siste K. Editorial: Excessive and problematic smartphone usage. *Front Psychiatry*. 2022;13:972613.
18. Riad A, Buchbender M, Howaldt HP, Klugar M, Krsek M, Attia S. Oral Health Knowledge, Attitudes, and Behaviors (KAB) of German Dental Students: Descriptive Cross-Sectional Study. *Front Med (Lausanne)*. 2022;9:852660.
19. Yen JL, Chamanadjian C. Cyber bullying and Online Aggression. *Pediatr Clin North Am*. 2025;72(2):333-349.
20. Benedetto L, Rollo S, Cafeo A, Di Rosa G, Pino R, Gagliano A et al. Emotional and Behavioural Factors Predisposing to Internet Addiction: The Smartphone Distraction among Italian High School Students. *Int J Environ Res Public Health*. 2024;21(4):386.
21. Feher A, Fejes E, Kapus K, Jancsak C, Nagy GD, Horvath L et al. The association of problematic usage of the internet with burnout, depression, insomnia, and quality of life among Hungarian high school students. *Front Public Health*. 2023;11:1167308.
22. Kamal S, Kamal S, Mubeen SM, Shah AM, Samar SS, Zehra R et al. Smartphone addiction and its associated behaviors among medical and dental students in Pakistan: A cross-sectional survey. *J Educ Health Promot*. 2022;11:220.
23. Lopes LS, Valentini JP, Monteiro TH, Costacurta MCF, Soares LON, Telfar-Barnard L et al. Problematic Social Media Use and Its Relationship with Depression or Anxiety: A Systematic Review. *Cyberpsychol Behav Soc Netw*. 2022;25(11):691-702.
24. Bahramnia F, Kookhi NA, Zandieh Z. Evaluation of the effect of tooth size on smile attractiveness from the perspective of art students, dental students, and laypeople in Sanandaj, Iran, 2017. *Int J Esthet Dent*. 2020;15(2):174-183.
25. Peltzer K, Pengpid S, Apidechkul T. Heavy Internet use and its associations with health risk and health-promoting behaviours among Thai university students. *Int J Adolesc Med Health*. 2014;26(2):187-94.
26. Heidaramoghadam R, Mortezaipoor A, Ghasemi F, Ghaffari ME, Babamiri M, Razie M et al. Musculoskeletal Consequences in Cyber-Addicted Students - Is It Really A Matter of Health? A ROC Curve Analysis for Prioritizing Risk Factors. *J Res Health Sci*. 2020;20(2):e00475.
27. Liu L, Yao YW, Fang XY, Xu LX, Hu MJ, Zhang JT et al. Compulsivity-related behavioral features of problematic usage of the internet: A scoping review of paradigms, progress, and perspectives. *J Behav Addict*. 2024;13(2):429-449.
28. Chemnad K, Aziz M, Belhaouari SB, Ali R. The interplay between social media use and problematic internet usage: Four behavioral patterns. *Heliyon*. 2023;9(5):e15745.
29. Joseph J, Varghese A, Vijay VR, Dhandapani M, Grover S, Sharma SK et al. Problematic Internet Use Among School-Going Adolescents in India: A Systematic Review and Meta-Analysis. *Indian J Community Med*. 2022;47(3):321-327.
30. Shanthi L, Ashwath J, Raju MK, Ramalingam S. Problematic Internet Use Among Adolescent School Attendees: A School-based Study from Tamil Nadu, India. *Indian Pediatr*. 2024;61(10):973-977. Epub 2024 Sep 10.