

Studying mobile phone dependence (Nomophobia) and its impact on dental students: An institutional study

Shikha Saxena¹, Priyanka Singh², Pradakshana Vijay³, Krishna Sireesha Sundaragiri⁴, Akshay Bhargava⁵, Bharat Sankhla⁶

ABSTRACT

Background: Mobile phones have evolved into indispensable devices used by individuals across all age groups. With their increasing usage, there has been a parallel rise in mobile phone-related addictions. Nomophobia, short for no mobile phone phobia, is defined as the fear or anxiety associated with being without a mobile phone.

Objectives: 1. To assess the prevalence of nomophobia among undergraduate students of a dental institution. 2. To examine patterns of mobile phone usage and explore the health-related consequences of nomophobia.

Methods: This cross-sectional study was conducted among dental students aged 18-23 years. A total of 171 participants were included in the study. The Test of Mobile Phone Dependence–Brief was used as the assessment tool. Participants scoring above 30 were classified as nomophobic, indicating mobile phone dependence.

Results: Among the 171 participants, students belonged to all the professional years, with the majority belonging to the 18- 23 year age group. The prevalence of nomophobia was high, observed in 71.3% (122 out of 171) of the participants.

Conclusion: The study reveals a high prevalence of mobile phone addiction, affecting nearly two-thirds of the participants. These findings underscore the urgent need for health awareness programs targeting adults to educate them about the adverse effects of excessive mobile phone use. Additionally, strategies promoting effective and time-restricted mobile phone usage should be reinforced.

Key words: Addiction, Nomophobia, Smart Phone, Dental students.

INTRODUCTION

During the last decade, the usage of mobile phone has increased significantly. Early research conducted on mobile phone use has emphasized its positive outcomes. In particular, it has often been argued that cellular phones allow people to enter into communication without being constrained by physical proximity or spatial immobility.¹ A growing number of studies also highlighted the efficacy of cellular phones for delivering change interventions in health behavior via text messages (e.g., diabetes self-management, smoking cessation).²

The popularity of smartphones among college students can be attributed to the wide range of features and functions they offer. Smartphones allow users to perform numerous daily tasks on a single device, including calling and texting, sending and checking emails, scheduling appointments, browsing the Internet, shopping, engaging in social networking, searching for information, gaming, and accessing entertainment. Because smartphones are ubiquitous and multifunctional, Kang and Jung (2014) argue that their role extends beyond communication, information, and entertainment. Specifically, they suggest that smartphones enable individuals to fulfill broader needs related to learning, personal capability, safety,

Department and Institution Affiliation: ^{1,4,5,6}Professor, Department of Oral Pathology and Microbiology, RUHS College of Dental Sciences, Jaipur; ²Additional Professor, Department of Oral Pathology and Microbiology, Faculty of Dental Sciences, King George's Medical University, Lucknow; ³Assistant Professor, Department of Oral Pathology and Microbiology, Indira Gandhi Govt. Dental College, Jammu, India.

Corresponding Author: Dr. Shikha Saxena, Professor, Department of Oral Pathology and Microbiology, RUHS College of Dental Sciences, Jaipur, India.

How to cite the article: Saxena S, Singh P, Vijay P, Sundaragiri KS, Bhargava A, Sankhla B. Studying mobile phone dependence (Nomophobia) and its impact on dental students: An institutional study. *Oral Maxillofac Pathol J* 2026; 17(2); 207-212.

Source of Support: Nil

Conflict of Interest: None

and human relationships.³

Despite its unambiguous advantages, the use of cellular phones has been extensively associated with harmful or potentially disturbing behaviors. Nevertheless, one of the most important concerns associated with mobile phone use is that it may become uncontrolled or excessive, which has an impact upon daily living. Amongst the most common negative

outcomes resulting from overuse of the mobile phone, one could cite financial problems or sleep disturbances. Nowadays, excessive use of the mobile phone is often considered a behavioral addiction, along with other nonchemical addictions such as pathological gambling, compulsive shopping or video-game addictions.² Mobile Internet usage is growing at the rate of nearly 85% per annum. Mobile phone dependence can be considered as a new diagnostic entity as it has properties of excessive use, withdrawal, tolerance and negative repercussions.⁴

The term, nomophobia, is an abbreviation for no-mobile-phone phobia and it was first coined during a study conducted in 2008 by the UK Post Office to investigate anxieties mobile phone users suffer (SecurEnvoy, 2012). Nomophobia is a term which is related to mobile phones usage. It literally means no-mobile phobia that is the fear of being out of mobile phone contact. The person becomes anxious when there is no network or no balance or when run out of battery.⁵

The use of mobile phones among young children and adolescents is also increasing dramatically. It is an intended need which is necessary to increase the awareness of the negative effects of excessive phone use on their sleep wake patterns, with serious health risks, as well as attention and cognitive problems. Hence, it requires the assessment of knowledge and attitude regarding the hazards of mobile phones as they use this very frequently.

With the advent and prolific use of smartphones by people the addiction levels have also concomitantly increased. A mental impairment resulting from modern technology has

come to the attention of sociologists, psychologists, and scholars of education on mobile addiction. Mobile phone addiction and withdrawal from mobile network may increase anger, tension, depression, irritability, and restlessness which may alter the physiological behavior and reduce work efficacy.⁶

Our study was intended to find the prevalence of nomophobia among the students in our college, since the younger generation is the largest consumer of the mobile phones, and they use mobile phones more frequently. The present study was undertaken to estimate the prevalence of nomophobia among dental students, to evaluate the sociobehavioral determinants of nomophobia, and to explore the behavioral subdimensions of nomophobia along with attitude of dental students toward smartphone usage.

MATERIAL AND METHODS

A cross-sectional study was conducted for a period of 3 months, from October 2025 to December, 2025. Study participants were all undergraduate dental students using smart phone from all academic years. Ethical approval was obtained from the Institutional Ethical committee. Informed consent was obtained from all the study participants.

The inclusion criteria included individuals using mobile phones for at least one year and willing to give consent. Exclusion criteria included those not using mobile phones or not possessing mobile phone or using mobile phones for less than 1 year and those who were unwilling to participate.

Study Questionnaire Tool for assessing mobile phone dependence/nomophobia test of mobile phone dependence

Table 1: Item questions to diagnose nomophobia (Likert-scale responses) (n=171)

S. No	Questions	Likert Scale				
		1	2	3	4	5
1	If my mobile phone were broken for an extended period of time and took a long time to fix, I would feel very bad.	9.4%	12.3%	33.3%	25.1%	19.9%
2	If I don't have my mobile phone, I feel bad.	14%	18.7%	27.5%	22.2%	17.5%
3	I spend more time than I would like to talking on the mobile phone, sending SMS, or using whatsapp.	10.5%	19.9%	33.9%	18.7%	17%
4	I don't think I could stand spending a week without a mobile phone.	14.6%	19.3%	26.3%	19.9%	19.9%
5	I have gone to bed later or slept less because I was using my mobile phone.	15.8%	21.6%	29.8%	12.3%	20.5%
6	I use my mobile phone in situations where, even though not dangerous, it is not appropriate to do so (eating, while other people are talking to me, etc.).	17.5%	21.6%	32.2%	12.3%	16.4%
7	I need to use my mobile phone more and more often.	15.2%	25.7%	28.7%	15.8%	14.6%
8	When I have my mobile phone with me, I can't stop using it.	11.7%	22.8%	32.7%	18.7%	14%
9	Since I got my mobile phone, I have increased the number of messages I send.	14%	15.2%	35.1%	18.7%	17%
10	As soon as I get up in the morning, the first thing I do is see who has called me on my mobile phone or if someone has sent me a message.	11.1%	21.1%	28.7%	22.8%	16.4%
11	When I feel lonely, I use the mobile phone (calls, SMS, Whatsapp).	7.6%	17%	32.7%	26.9%	15.8%
12	I would grab my mobile phone and send a message or make a call right now.	16.4%	29.2%	32.7%	9.4%	12.3%



Table 2: Pattern of mobile usage among the study participants – PART B (n=171)

S. No.	Question	Category	Percentage
1	Use of your smart phone interferes with your sleeping.	Yes	51.5%
		No	48.5%
2	Smartphone usage interfered with or affected your personal relationships.	Yes	30.4%
		No	69.6%
3	Feel remorse about the way you use your smart phone.	Yes	33.3%
		No	66.7%
4	Use of smart phone boosts or lowers your self esteem.	Yes	40.4%
		No	59.6%
5	Use of a smartphone causes financial problems (e.g gambling, shopping, or purchasing of hardware and software products).	Yes	34.5%
		No	65.5%
6	Smartphone use negatively affects your work performance.	Yes	41.5%
		No	58.5%
7	Do positive or negative reinforcements from your smartphone cause you to continue to use it when you know you should stop?	Yes	39.8%
		No	60.2%
8	Lose time from college because of your use of a smartphone.	Yes	28.7%
		No	71.3%
9	Smartphone use affected your reputation among your family, friends or colleagues.	Yes	22.2%
		No	77.8%
10	Try to schedule or control the use of your smartphone but find that you really cannot.	Yes	43.9%
		No	56.1%
11	Good fortune drives you to use your smartphone.	Yes	43.9%
		No	56.1%
12	Misfortune compels you to use your smartphone.	Yes	23.4%
		No	76.6%
13	You feel an obsessive urge to use your smartphone to escape feelings of boredom or loneliness.	Yes	59.6%
		No	40.4%
14	Crave your smartphone after a short time without it.	Yes	45.6%
		No	54.4%
15	Substituted one smartphone app for other, thinking, for example, facebook is the problem and switching to Instagram.	Yes	35.1%
		No	64.9%
16	Feel an urge to use your smartphone as soon as you are awoken.	Yes	47.4%
		No	52.6%
17	Ever stolen to enable your continued smartphone use.	Yes	17.5%
		No	82.5%
18	Lied to or manipulated others to further your use of a smartphone.	Yes	27.5%
		No	72.5%
19	Feel it would be almost impossible to live without the uncontrolled use of your smart phone.	Yes	38.6%
		No	61.4%
20	Use a smart phone to enhance or replace normal relationships, or has your use of a smart phone affected your life in some other way.	Yes	38.3%
		No	61.7%

brief (TMD Brief) was used. The TMD Brief scale was validated by Chóliz M et al.⁶ The scale has a total of 32 questions about abstinence, abuse and interference with other activities, tolerance, and lack of control. The questionnaire had a good reliability (Cronbach's alpha = 0.94).⁷

The questionnaire consists of two parts: PART A: Diagnosis of Nomophobia (12 questions) PART B: Pattern of Nomophobia (20 questions). The Likert-type scale was used to categorize each question in Part A of the TMD Brief as never – 1, rarely – 2, sometimes – 3, often – 4, or frequently – 5. Therefore, the total minimum and total maximum scores of TMD brief were 12 and 60, respectively. Study participants scoring >30 (i.e., score of more than 50% of the total maximum score) were labelled as

Table 3: When do you check your phone for the first time after waking up

	n	%
Immediately after waking up	61	35.6%
Within first 30 min after waking up	58	33.9%
After 30 min of waking up	52	30.4%

Table 4: Nomophobia score in the study participants

	n	%
Less than 30	49	28.65
Equal to or more than 30	122	71.34

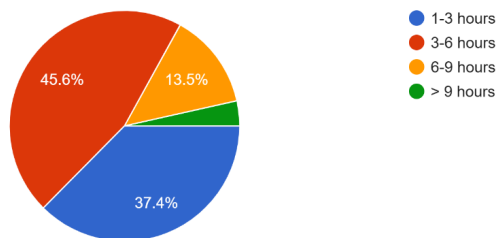


Fig. 1: Average time spent on mobile phone (hours)

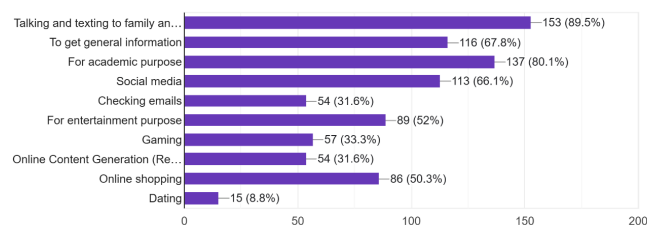


Fig. 2: Purpose for using the mobile phone

having nomophobia, that is, Mobile phone dependence.⁸

All students were approached personally after their respective classes. The objectives and purpose of the study was clearly communicated to the participants. The participants were asked to fill up the questionnaire in the class, every question was compulsory to answer and consists of assorted options. Those who were not willing to take part in the study and those who did not filled the questionnaire completely were exempted from the study. Any queries regarding the questionnaire were clarified by researchers.

RESULTS

The study was conducted on a total of 171 students of B.D.S. of various professional years. The percentage of female participants was 69.6%, Maximum (32.2%) participants were of third professional year. Majority (26.9%) of participants were of 22 years.

Figure 1 showed that majority of participants (45.6%) spent around 3-6 hours with 3.5% spending more than 9 hours. Majority of students use their mobile phone to communicate with family and friends (89.5%) and for entertainment purposes (52%). Around 80% students are using mobile phones for academic purposes (Figure 2).

Around 33.9% participants used mobile phones within 30 minutes of waking up which is not statistically significant. A good proportion of students attend the call while driving and told that they had problems like accidents or lack of concentration.

Table 1 is showing Item questions to diagnose nomophobia (Likert-scale responses) – PART A (n=171), while table 2 shows pattern of mobile usage among the study participants – PART B (n=171).

DISCUSSION

Nomophobia, rooted in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), emerges as a consequence of excessive phone use, contributing to psychological issues like diminished self-esteem and a propensity for social withdrawal.

Nomophobia (no mobile phone phobia) is characterized by a range of clinical features associated with excessive mobile phone use. These include frequent and prolonged use of a mobile phone, spending considerable time on it, and consistently carrying a charger. Individuals with nomophobia often feel anxious or nervous at the thought of losing their handset or when the phone cannot be used due to lack of

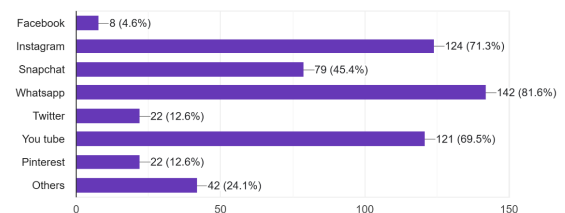


Fig. 3: Frequently used social media

balance, network issues, or low battery. Other features include repeatedly checking the phone screen for missed calls or messages, sleeping with the mobile device in bed, and engaging in fewer face-to-face social interactions while preferring communication through new technologies. Incurring financial debt or excessive expenses related to mobile phone use is also considered a characteristic of mobile phone dependence and nomophobia.⁹

The present study evaluated the prevalence and behavioral impact of nomophobia and smartphone usage patterns among dental students of different professional years. With the rapid integration of smartphones into academic, social, and personal life, problematic smartphone use has emerged as an important public health concern among young adults, especially healthcare students. The findings of the present study demonstrated a high level of smartphone dependence among dental students, with considerable effects on sleep, concentration, emotional behavior, and daily activities.

The present study assessed nomophobia among dental students revealed that out of 171 students studied 122 (71.34%) were nomophobic. Studies by Myakal et al, reported a similarly high prevalence of mobile phone dependence at 71.39%, aligning with findings from Dongre et al, Sharma et al, and Dimple et al., where prevalence rates ranged from 68.92% to 82.1%.¹⁰⁻¹³ In contrast, Prasad et al noted a lower prevalence of nomophobia at 24.12%.¹⁴

In our study there was no significant association between nomophobia and gender. Bianchi and Phillips¹⁵, Pavithra MB et al¹⁶ in their study found that there is no difference between the females and males with regard to the mobile phone addiction. These results indicate that mobile phone use is universal and also equally distributed among male and female students in universities. However, the pattern of smartphone usage varied significantly among males and females. Males preferred playing games, watching videos, and listening to music, whereas, females preferred usage of communication and social networking applications. Additionally, we also noted that playing online games among males, and using social networks among females are important reasons of smartphone addiction.

The primary purposes of smartphone usage among the participants were communication with family and friends (89.5%) followed closely by academic purposes (approximately 80%) and entertainment (52%). This reflects the dual role of smartphones in modern student life as both educational aids and sources of leisure. The increased use of smartphones for academic activities may be attributed to online lectures, educational applications, digital study material, and easy internet accessibility. However, excessive dependence on smartphones, even for academic purposes, may predispose students to compulsive usage behavior.

In the present study, 45.6% students spend around 3-6 hours and 13.5% around 6-9 hours on smart phone, while Bartwal et al¹⁷ reported 62.1% of the students spend more than 3 hours on smart phone. We also noted that the majority of students (51.5%) compromise their sleep as they were used mobile phones, also many students use mobile phone while eating, talking to other people. Few students also use mobile

phones while driving, compromising the road safety. It was also observed that male students were significantly more likely to use mobile phone during classes causing difficulty in concentration, and adversely affecting their academics.

Around 28.7% participants expressed that they have lost time from college because of use of a smartphone. 22.2% reported that smartphone use had affected their reputation among family, friends or colleagues. 43.9% participants stated that they cannot control the use of your smartphone, 41.5% participants responded that smartphone use negatively affects their work performance, 59.6% feel an obsessive urge to use smartphone to escape feelings of boredom or loneliness, 47.4% feel an urge to use smartphone as soon as they are awoken, 30.4% stated that smartphone usage has interfered or affected their personal relationships.

Several studies have attempted to identify the risk factors associated with nomophobia, and have emphasized on psychosocial and demographic factors.¹⁸ In a study conducted by Kubrusly et al.¹⁹ on 292 medical students, 64.5% were affected by moderate to severe nomophobia. They also reported a statistically significant association between nomophobia and Anxiety, showing that students with high levels of nomophobia tend to have higher levels of anxiety.

Some studies explored the links between mobile phone use and self-esteem, that is, the extent to which individuals view themselves as likeable and worthy. Two different types of evidence motivated these studies. First, persons with low self-esteem seem to favor indirect communication (e.g., email, SMSs), compared with individuals with high self esteem who generally preferred face-to-face communication.²⁰ Second, several studies found low self-esteem as a predictor for addictive behaviors,^{21,22} although this link was not consistently demonstrated.²³ In the framework of mobile phone research, low self-esteem was demonstrated as a strong predictor of dysfunctional use.²⁴ These results were generally interpreted in the sense that individuals with low self-esteem often experience the need to seek reassurance by contacting other people (e.g., friends or partners), which makes them susceptible to excessive use and dependence on the mobile phone.¹

There are various advantages that a smart phone provides to the user but everything that gives excitement causes addiction. This study revealed that 71.34% of the students were nomophobic and many others were in 'at risk' suggesting that Nomophobia will show no signs of abating in the near future among the students and younger generation.

The findings of the present study collectively indicate a growing prevalence of nomophobia among dental students. The academic burden, clinical responsibilities, stress, and easy accessibility of smartphones may contribute to increased dependence among healthcare students. Excessive smartphone use may adversely affect physical health, sleep quality, emotional wellbeing, interpersonal relationships, and academic performance.

CONCLUSION

Although mobile phones and modern technologies have significantly enhanced global communication and efficiency,



their prolonged and excessive use has raised concerns about dependence and addictive behavior. Advances in social media, social networking platforms, social informatics, and other digital tools have enabled individuals to perform tasks more quickly and effectively. However, increasing reliance on these technologies has been associated with problematic usage patterns, particularly among younger populations. The findings of this study indicate a growing level of mobile phone dependence among students, suggesting a rise in nomophobia. These observations highlight the need for further research, including multicentric studies, to better understand the psychological dimensions of nomophobia and to explore effective preventive and intervention strategies.

REFERENCES

- Joël Billieux. Problematic Use of the Mobile Phone: A Literature Review and a Pathways Model. *Current Psychiatry Reviews*. 2012; 8: 299-307. DOI: 10.2174/157340012803520522
- Singh BM. Cell phone dependence-a new diagnostic entity. *Delhi Psychiatry J*. 2008;11:123-4.
- Kang S, Jung J. Mobile communication for human needs: A comparison of smartphone use between the US and Korea. *Computers in Human Behavior*. 2014; 35:376-387.
- Katharine B. Phone-reliant Britons in the grip of Nomophobia, The independent. March 31, 2008. Available at <http://www.independent.co.uk/news/uk/home-news/phonereleiant-britonsin-the-grip-of-nomophobia-802722.html>.
- Shiny George, Namitha Saif, Biju Baby Joseph. A study on the mobile phone usage pattern and its dependence among medical students of a college in Kerala, India. *Int J Res Med Sci*. 2017;5(8):3615-361.
- Chóliz M, Pinto L, Phansalkar SS, Corr E, Mujahid A, Flores C, et al. Development of a brief multicultural version of the test of mobile phone dependence (TMD brief) questionnaire. *Front Psychol*. 2016; 25: 650. doi: 10.3389/fpsyg.2016.00650.
- Vezzoli M, Colombo A, Marano A, Zoccatelli G, Zogmaister C. Test for mobile phone dependence: Psychometric properties and confirmatory factor analysis. *Curr Psychol*. 2021;13:1-2.
- Balamurugan V, Ravi A, Mer HT, Chellamuthu L, Devarasu U, Balamurugan K. Assessment of nomophobia and its determinants among adults and adolescents in Semi-urban Chennai. *J Family Med Prim Care*. 2024;13:2361-6
- Nicola Luigi Bragazzi, Giovanni Del Puente. A proposal for including nomophobia in the new DSM-V. *Psychology Research and Behavior Management*. 2014;7:155-160.
- Myakal VV, Vedpathak VL. Nomophobia-mobile phone dependence, a study among students of a rural medical college. *Int J Community Med Public Health*. 2019;6:2034-40.
- Dongre AS, Inamdar IF, Gattani PL. Nomophobia: A study to evaluate mobile phone dependence and impact of cell phone on health. *Natl J Community Med* 2017;30;8:688-93.
- Sharma N, Sharma P, Wavare RR. Rising concern of nomophobia among Indian medical students. *Int J Res Med Sci*. 2015;3:705-7.
- Dimple VK, Wadde SK, Gattani PL. Mobile phone dependence among undergraduate medical students in Nanded city. *Ann Trop Med Public Health*. 2017;10:27.
- Prasad M, Patthi B, Singla A, Gupta R, Saha S, Kumar JK, Malhi R, Pandita V. Nomophobia: A Cross-sectional Study to Assess Mobile Phone Usage Among Dental Students. *J Clin Diagn Res*. 2017;11(2):ZC34-ZC39. doi: 10.7860/JCDR/2017/20858.9341.
- Bianchi A, Phillips JG. Psychological predictors of problem mobile phone use. *J Cyber psycho Behavior*. 2005;8:39-51.
- Pavithra MB, Suwarna M, Mahadeva Murthy TS. A study on nomophobia - mobile phone dependence, among students of a medical college in Bangalore. *National Journal of Community Medicine*. 2015; 6(2): 340-44.
- Bartwal J, Nath B. Evaluation of nomophobia among medical students using smartphone in north India. *Medical Journal Armed Forces India*. 2020; 76: 451e455.
- Notara V, Vagka E, Gnardellis C, Lagiou A. The Emerging Phenomenon of Nomophobia in Young Adults: A Systematic Review Study. *Addict Health*. 2021; 13(2): 120-36.
- Kubrusly M, Silva PG, Vasconcelos GV, Leite ED, Santos PD, Rocha HA. Nomophobia among medical students and its association with depression, anxiety, stress and academic performance. *Revista Brasileira de Educação Médica*. 2021, :45.
- Joinson AN. Self-esteem, interpersonal risk, and preference for e mail to face-to-face communication. *Cyberpsychol Behav* 2004; 7(4): 472-8.
- Richter SS, Brown SA, Mott MA. The impact of social support and self-esteem on adolescent substance abuse treatment outcome. *J Subst Abuse*. 1991; 3(4): 371-85.
- Conrad KM, Flay BR, Hill D. Why children start smoking cigarettes: predictors of onset. *Brit J Addiction*. 1992; 87(12): 1711-24.
- Luhtanen RK, Crocker J. Alcohol use in college students: Effects of level of self-esteem, narcissism, and contingencies of self-worth. *Psychol Addict Behav*. 2005; 19(1): 99-103.
- Ha JH, Chin B, Park DH, Ryu SH, Yu J. Characteristics of excessive cellular phone use in Korean adolescents. *Cyberpsychol Behav*. 2008;11(6):783-4. doi: 10.1089/cpb.2008.0096. PMID: 18991536.

