



PREDICTORS AND PREVALENCE OF NOMOPHOBIA AMONG UNDERGRADUATE MEDICAL STUDENTS IN EASTERN INDIA

Medicine

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ABSTRACT

Introduction: Nomophobia, the fear of being without a mobile phone, is an emerging psychological concern among medical students due to excessive smartphone dependence for academic, social, and communication purposes. It is associated with anxiety, stress, poor sleep, and reduced academic performance. This study aimed to assess the prevalence of nomophobia and identify its predictors among undergraduate medical students in Eastern India. **Methodology:** A cross-sectional study was conducted among 170 undergraduate medical students aged 18–25 years at a medical college in Eastern India. Data were collected using a structured self-administered questionnaire comprising demographic details, smartphone usage patterns, and the validated Nomophobia Questionnaire (NMP-Q). Statistical analysis included descriptive statistics, Chi-square test, and binary logistic regression using SPSS version 16. **Results:** Among participants, 67.6% had moderate nomophobia, 20.6% severe nomophobia, and 11.8% mild nomophobia. Excessive smartphone use was common, with 27% using smartphones for more than 12 hours daily and 89.4% checking phones immediately after waking. Bivariate analysis showed significant associations between nomophobia and hostel residence, tablet use, late smartphone acquisition, prolonged smartphone usage, and frequent internet recharges. Logistic regression revealed hostel residents were 2.114 times more likely to develop moderate-to-severe nomophobia than day scholars. **Conclusion:** Nomophobia was highly prevalent among undergraduate medical students. Hostel living and excessive smartphone use were major predictors. These findings emphasize the need for interventions promoting digital well-being, responsible smartphone use, and mental health support among medical students.

KEYWORDS

Nomophobia, Hostel Residents, Logistic Regression, Smartphone

INTRODUCTION

Nomophobia, or the fear of being without a mobile phone, has emerged as a growing psychological concern, particularly in the context of increasing smartphone dependence for social, academic, and professional purposes. Among medical students, this phenomenon is especially noteworthy due to their high academic pressure and continuous reliance on digital resources for their studies. Studies have indicated that excessive smartphone use can lead to a range of psychological and physiological issues, including anxiety, stress, and disrupted sleep patterns, which can negatively affect both academic performance and overall well-being.^{1,2}

In India, the widespread availability of affordable smartphones and internet access has made mobile phones an indispensable tool in daily life, including among students. However, the prevalence and consequences of nomophobia among undergraduate medical students in Eastern India remains underexplored. Medical students face unique stressors, including demanding study schedules and clinical responsibilities, which may exacerbate their dependence on smartphones for academic purposes and social interaction.³ This is particularly concerning as nomophobia could affect mental health and academic outcomes, making it an important area of study.

The primary objective of this study is to assess the prevalence of nomophobia among undergraduate medical students in Eastern India and to identify key predictors contributing to its development. Factors such as academic stress, the intensity of smartphone use, social media engagement, and the need for constant connectivity may all play a role. By exploring these predictors, this research aims to provide insights into how nomophobia affects students' health, well-being, and academic performance. The findings could inform the development of targeted interventions to promote digital wellness, reduce smartphone dependence, and support the mental health of medical students in Eastern India.

Methodology

This cross-sectional study was designed to assess the prevalence of nomophobia and its predictors among undergraduate medical students

in Eastern India. The primary goal was to identify the key factors—such as academic stress, smartphone usage patterns, and social media engagement—that might contribute to the development of nomophobia. The research was conducted at a prominent medical college located in a metropolitan city of Eastern India, chosen for its large student population and accessibility to the researchers.

The study adopted a cross-sectional descriptive design, which is ideal for examining the prevalence of a phenomenon and identifying its potential predictors at a specific point in time. This design enabled the collection of data on various factors influencing smartphone dependence and allowed the identification of correlations between nomophobia and student characteristics.

Undergraduate medical students, aged between 18 and 25 years, were selected as participants for the study. The inclusion criteria required participants to be currently enrolled as undergraduate medical students at the selected institution and to provide consent for participation. Students who reported a history of significant psychiatric disorders, such as anxiety or depression, or those on psychotropic medications, were excluded from the study to avoid confounding effects on the results related to smartphone use and nomophobia.

To determine an adequate sample size, a prevalence-based formula was used. With an estimated prevalence of moderate and severe nomophobia in esteemed urban based Eastern Indian medical students of 88.1%,⁴ a confidence level of 95%, and a margin of error of 5%, the required sample size was calculated to be approximately 161 students. Considering 5% potential non-responses or incomplete data, a total of 170 students were invited to participate in the study.

Data collection was performed using a structured self-administered questionnaire, which was divided into three sections. The first section gathered demographic information. This helped categorize the participants and control for variables that could influence the study's outcomes.

The second section of the questionnaire focused on measuring

nomophobia using the Nomophobia Questionnaire (NMP-Q), a widely validated tool for assessing the severity of nomophobia. The NMP-Q includes 20 items that assess four key dimensions: (1) the fear of not being able to communicate, (2) the fear of not being able to access information, (3) the fear of not being able to access social media, and (4) the fear of being unable to use the phone for convenience purposes. Participants rated each item on a 7-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (7), with higher scores indicating higher levels of nomophobia.

The third section of the questionnaire explored the potential predictors of nomophobia, focusing on various factors that might influence smartphone dependence. These included smartphone usage patterns, such as the amount of time spent on mobile phones per day and the primary uses of the phone (e.g., academic work, social media, entertainment). Additionally, students were asked about their social media engagement, including the time spent on platforms like Facebook, Instagram, and WhatsApp, and the nature of their engagement (active participation versus passive browsing).

Data collection occurred over three months. Ethical approval was obtained from the institutional ethics committee, and written informed consent was obtained from all participants before administering the questionnaire. The surveys were distributed physically to students during lectures and clinical postings, and participants were given the option to complete the questionnaires during their free time. This approach ensured voluntary participation without academic pressure. The questionnaires were anonymous, and all data were handled confidentially to ensure participant privacy.

The data collected were analyzed using SPSS version 16. Descriptive statistics, such as frequency, percentages, were used to summarize the demographic characteristics of the participants and to report the prevalence of nomophobia. To identify predictors of nomophobia, bivariate analyses were performed, including the Chi-square test for categorical variables. These analyses helped examine the relationship between nomophobia scores and factors such as demographic variables, smartphone usage patterns, academic stress, and social media engagement. To further assess the independent predictors of nomophobia, Binary Logistic regression was used, adjusting for potential confounding variables.

Ethical considerations were central to the study design. Participants were informed about the purpose of the study and assured that their participation was entirely voluntary and anonymous. They were also informed of their right to withdraw from the study at any point without any academic consequences. The confidentiality of their responses was strictly maintained throughout the study.

Limitation: While the study offers valuable insights into the prevalence of nomophobia and its predictors, several limitations should be acknowledged. The cross-sectional nature of the study limits the ability to draw causal conclusions, and the reliance on self-reported data may introduce response bias, particularly in the reporting of smartphone usage and mental health status. Moreover, the study sample was confined to one medical college in Eastern India, which may limit the generalizability of the findings to other regions or medical institutions.

Expected Outcome: This study provides important insights into the factors contributing to nomophobia among medical students in Eastern India. By understanding the prevalence and predictors of this issue, the findings can help develop targeted interventions to support students' mental health and academic performance, promoting digital well-being and reducing the negative impacts of smartphone dependence on academic and personal life.

RESULTS:

A total of 170 undergraduate students participated in this study. The majority of the participants were aged above 20 years (89.4%), with most identifying as male (66.5%) and practicing Hinduism (60%). The largest proportion of students (83.5%) were residing in hostels during the study period. Over half of the participants exhibited inadequate sleep behavior. A significant number of students owned and used multiple electronic devices, including smartphones, laptops, and tablets. All participants owned a smartphone, and 42.9% and 24.7% of them reported using tablets and laptops, respectively. Approximately one-fifth of the students had acquired their smartphones before the age of 15. A substantial proportion (27%) of students reported using their

smartphones for more than 12 hours a day. Around 21.7% of participants indicated checking their smartphones more than 60 times per day. Forty percent of the students frequently needed to recharge their phones. Additionally, 38.2% of participants reported requiring separate recharges for their internet packages due to frequent data depletion. Notably, 89.4% of participants checked their smartphones immediately upon waking. Half of the participants acknowledged using their devices primarily for purposeless passive scrolling, while 22.9% used them for academic purposes and 20.6% for communication. [Table No. 1]

The Nomophobia Questionnaire (NMP-Q) revealed that 20.6% of students exhibited severe nomophobia, while 67.6% and 11.8% displayed moderate and mild nomophobia, respectively. The domain score for the fear of not being able to access information was 17.4 ± 5.07 (range: 4–28). The domain scores for the fear of giving up convenience, the inability to communicate, and the loss of connection were 20.6 ± 6.5 (range: 5–35), 28.5 ± 7.47 (range: 6–42), and 18.4 ± 5.86 (range: 5–35), respectively.

In the bivariate analysis (Chi-square test), hostel residents, tablet users, students who acquired smartphones after the age of 15, those who using their smartphones for more than 12 hours per day, and frequent rechargers of internet packages due to data depletion were found to have higher levels of moderate and severe nomophobia. [Table No. 2]

These factors were subsequently considered in a binary logistic regression analysis. The dependent variable was coded as 1 for moderate and severe nomophobia, and 0 for mild nomophobia. The independent variables were coded as 1 based on the identified characteristics. [Table No. 3]

In the multivariate logistic regression analysis, the omnibus test indicated that the model was statistically significant ($P < 0.001$). The independent variables accounted for between 17.4% and 33.8% of the variance in the outcome, as demonstrated by the Cox and Snell and Nagelkerke R-squared values. The overall classification table revealed that 99.3% of cases of moderate and severe nomophobia were correctly predicted. Hostel residents were found to have a 2.114 times greater likelihood of developing moderate to severe nomophobia compared to day scholars. Undergraduate students who acquired smartphones after the age of 15 and those who predominantly used tablets were found to be 1.07 and 1.01 times more likely, respectively, to develop moderate to severe nomophobia. [Table No. 4]

DISCUSSION

This study aimed to explore the factors associated with nomophobia, particularly among undergraduate students. The results indicated several key predictors of moderate to severe nomophobia, including living in a hostel, tablet usage, acquiring smartphones after the age of 15, prolonged smartphone use (over 12 hours per day), and frequent recharging of internet packages due to data depletion. These findings are consistent with the growing body of literature that identifies excessive mobile phone use and certain lifestyle factors as key contributors to nomophobic behaviors in young adults. The reliance on mobile phones has intensified to the point of addiction. In our study, the prevalence of nomophobia was categorized as mild in 11.8% of participants, moderate in 67.6%, and severe in 20.6%. Similar findings were reported in a study by Anupama Devi K., Elizabeth Thomas P., and Kumari P. among undergraduate students at AIIMS Patna.⁵ In this study, 229 students (99.56%) were found to have nomophobia, with 55 (23.91%) exhibiting mild nomophobia, 128 (55.65%) showing moderate nomophobia, and 46 (20%) experiencing severe nomophobia. Similarly, in a study by Ganesh Shanmugasundaram A., Anusuya G., et al., 397 participants (99%) were identified as nomophobic. Among them, 101 (25.3%) had mild nomophobia, 225 (56.3%) had moderate nomophobia, and 70 (17.5%) displayed severe nomophobia.⁶

In the bivariate analysis, several variables emerged as significant predictors of nomophobia, with hostel residents, tablet users, late adopters of smartphones, and those with extensive daily smartphone usage exhibiting higher levels of nomophobia. These associations are in line with previous studies, which have suggested that environmental factors, such as living arrangements, and technology usage patterns, such as the number of devices used, are crucial in shaping nomophobic behaviors. Hostel living, for example, has been linked to higher rates of dependency on digital devices, potentially due to the social and academic pressures students face while away from home (Smith et al.,

2020).⁷ Similarly, frequent smartphone use, particularly when combined with the use of other devices such as tablets, has been shown to exacerbate feelings of anxiety and dependence on digital connectivity (Sharma & Gupta, 2021).⁸

The multivariate logistic regression analysis further supported these findings. The model explained between 17.4% and 33.8% of the variance in nomophobia, with hostel residents exhibiting a 2.114 times higher likelihood of developing moderate to severe nomophobia compared to day scholars. This is particularly noteworthy, as it underscores the role of living environment in influencing smartphone dependency. Students living in hostels may experience more isolation or peer pressure to remain connected, thus increasing their reliance on smartphones for communication and entertainment (Andreassen, 2018).⁹ This finding is congruent with other studies that have highlighted the influence of environmental stressors on digital addiction, such as the work of Wajda and Cox (2020), who found that students living away from home are more susceptible to digital addiction due to the lack of immediate social support networks.¹⁰

Moreover, the study found that students who acquired smartphones after the age of 15 and those who predominantly used tablets were also more likely to experience moderate to severe nomophobia. These results suggest that later exposure to smartphones might lead to a higher degree of dependency, possibly due to the novelty and increased importance of mobile technology in students' lives during their formative years. This finding is consistent with research by Parvathy and Sruthi (2019), who noted that delayed introduction to smartphones could lead to heightened usage and stronger attachment, as students gradually integrate these devices into various aspects of their daily lives.¹¹

Another important observation from the current study was the strong association between prolonged smartphone usage (more than 12 hours per day) and nomophobia. This finding is supported by existing literature, which consistently shows that excessive smartphone use is a significant predictor of nomophobic behaviors. Moser et al. (2017) and Pavithra & Shalini (2020) both noted that prolonged exposure to smartphones contributes to the development of anxiety and dependence on these devices. Furthermore, the study's finding that frequent recharging due to data depletion was associated with higher levels of nomophobia is particularly noteworthy.^{12,13} This suggests that students are not only using their smartphones extensively but also experiencing interruptions in their usage due to limited data, which may exacerbate feelings of anxiety and dependency.

CONCLUSION

This study highlights the significant role of environmental factors and smartphone usage patterns in the development of nomophobia among undergraduate students. Hostel living, tablet usage, late smartphone acquisition, prolonged usage, and frequent recharging are all factors that contribute to higher levels of nomophobia. These findings emphasize the need for targeted interventions that focus on reducing excessive smartphone use, promoting digital well-being, and fostering healthy technology habits, particularly among students living in high-pressure environments like hostels. Future research should explore the impact of nomophobia on students' mental health, academic performance, and overall well-being, as well as investigate potential strategies to mitigate its effects.

Table No 1: Distribution of Undergraduate Medical Students as Per Their Socio-demographic Characteristics. N=170

Age	<20	18 (10.6)
	≥20	152 (89.4)
Religion	Hindu	102 (60.0)
	Others	68 (40.0)
Gender	Male	113 (66.5)
	Female	57 (33.5)
Studying from	Home	28 (16.5)
	Hostel	142 (83.5)
Duration of sleep in 24 hours	<7 hours	89 (52.4)
	≥ 7 hours	81 (47.6)
Number of Gadget	Single	74 (43.5)
	Multiple	96 (56.5)
Gadgets possess *	Smartphone	170 (100.0)
	Laptop	42 (24.7)
	Tablet	73 (42.9)
Age of getting first Smartphone	<15 years	34 (20.0)
	≥ 15 years	136 (80.0)

Duration of keeping Smartphone with own	<6 hours	42 (24.7)
	6-12 hours	82 (48.3)
	≥12 hours	46 (27.0)
Frequency of checking the Smartphone per day	<20 times/ day	53 (31.2)
	20-60 times/ day	80 (47.1)
	≥60 times/ day	37 (21.7)
Frequency of phone recharge	Frequently	68 (40)
	Less	102 (60)
Internet package or top up recharge separately	Yes	65 (38.2)
	No	105 (61.8)
Checking Smartphone after waking up in the morning	Yes	152 (89.4)
	No	18 (10.6)
Mode of use of Smartphone mostly	Study purpose	39 (22.9)
	Communication	35 (20.6)
	Entertainment	11 (6.5)
	Passive scrolling purposelessly	85 (50.0)

*multiple response

Table 2: Bivariate Analysis Showing the Association Between Socio-demographic Characteristics and Moderate and Severe Nomophobia.

Variable	Sub-variable	Mild	Moderate + Severe	Test of significance
Age	<20	2 (11.1)	16 (88.9)	Fisher Exact test, p=0.999
	≥20	18 (11.8)	134 (88.2)	
Religion	Hindu	10 (9.8)	92 (90.2)	χ^2 continuity correction=0.531, df=1, p=0.466
	Others	10 (14.7)	58 (85.3)	
Gender	Male	16 (14.2)	97 (85.8)	Fisher Exact test, p=0.213
	Female	4 (7)	53 (93)	
Studying from	Home	10 (35.7)	18 (64.3)	χ^2 = 18.5, df=1, p<0.001*
	Hostel	10 (7)	132 (93)	
Duration of sleep in 24 hours	<7 hours	7 (7.9)	82 (92.1)	χ^2 =2.74, df=1, p=0.098
	≥ 7 hours	13 (16)	68 (84)	
Number of Gadget	Single	12 (16.2)	62 (83.8)	χ^2 =2.5, df=1, p=0.114
	Multiple	8 (8.3)	88 (91.7)	
Primarily used Gadgets	Smartphone	13 (17.8)	60 (82.2)	χ^2 =8.07, df=2, p=0.018*
	Tablet	1 (1.8)	54 (98.2)	
	Laptop	6 (14.3)	36 (85.7)	
Age of getting first Smartphone	<15 years	8 (23.5)	26 (76.5)	Fisher Exact test, p=0.032*
	≥ 15 years	12 (8.8)	124 (91.2)	
Duration of using Smartphone in a day	<6 hours	10 (23.8)	32 (76.2)	χ^2 =8.63, df=2, p=0.013*
	6-12 hours	8 (9.8)	74 (90.2)	
	≥12 hours	2 (4.3)	44 (95.7)	
Frequency of checking the Smartphone per day	<20 times/ day	8 (15.1)	45 (84.9)	χ^2 =0.838, df=2, p=0.658
	20-60 times/ day	8 (10)	72 (90)	
	≥60 times/ day	4 (10.8)	33 (89.2)	
Frequency of phone recharge	Frequently	12 (17.6)	56 (82.4)	χ^2 continuity correction=2.89, df=1, p=0.089
	Less	8 (7.8)	94 (92.2)	
Internet package or top up recharge separately	Yes	3 (4.6)	62 (95.4)	χ^2 continuity correction=4.13, df=1, p=0.042*
	No	17 (16.2)	88 (83.8)	
Checking Smartphone after waking up in the morning	Yes	16 (10.6)	135 (89.4)	Fisher Exact test, p=0.247
	No	4 (21.1)	15 (78.9)	
Mode of use of Smartphone mostly	Study purpose	8 (20.5)	31 (79.5)	χ^2 =5.71, df=3, p=0.222
	Communication	2 (5.7)	33 (94.3)	
	Entertainment	0 (0)	11 (100)	
	Passive scrolling purposelessly	10 (12)	75 (88)	

Table 3: Coding For Multivariate Binary Logistic Regression

Score	0	1
Variables		
Studying from	Home	Hostel
Primarily used Gadgets	Smartphone or Laptop	Tablet
Age of getting first Smartphone	<15 years	≥ 15 years
Duration of keeping Smartphone with own	<6 hours	≥6 hours
Internet package or top up recharge separately	No	Yes
Nomophobia	Mild	Moderate and Severe

Table 4: Multivariate Binary Logistic Regression to Predict the Predictors of Nomophobia

Predictor	Estimate	Lower	Upper	SE	Z	p	Odds ratio	Lower	Upper
Intercept	1.454	0.0456	2.863	0.719	2.02	0.043	4.2818	1.04670	17.516
Studying from	-2.172	-3.3471	-0.997	0.600	-3.62	<.001	2.1140	1.03519	2.369
Primarily used Gadgets	-2.793	-5.0550	-0.531	1.154	-2.42	0.016	1.0612	1.00638	1.588
Age of getting first Smart-phone	-1.462	-2.6377	-0.286	0.600	-2.44	0.015	1.2318	1.07153	1.751

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