

Prevalence and determinants of Nomophobia among medical undergraduates in North Kerala

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Abstract

Nomophobia, a form of anxiety disorder, has been found to be prevalent among young adults. This study aims to identify the determinants and prevalence of nomophobia among medical undergraduates in a private medical college in North Kerala. A cross-sectional study was done among 438 medical undergraduates sampled by convenience sampling. A self-administered questionnaire to assess nomophobia and its determinants was provided to participants. Analysis was done using SPSS version 23 software, and the chi-square test was used to test the associations between categorical variables. The prevalence of mild nomophobia was 15.1% (n=66), moderate nomophobia was 70.1% (n=307), and 13.9% (n=61) had severe nomophobia as per the nomophobia scale. Most participants aged 20–22 years (75.3%) reported higher levels of nomophobia compared to the 17–19 years group (7.7%) and those above 22 years (16.8%) [p value 0.006]. Hostellers (94.2%) reported higher levels of nomophobia compared to day scholars (6.1%) [p value 0.010]. Those who had spent more than 4 hours per day on smartphones and who had a single phone in hand had statistically significantly higher prevalence of moderate-severe nomophobia. Nomophobia is an emerging psychological condition among medical students as well. The young adults and children should be given awareness and off-screen time to limit the smart phone use.

Introduction

Smartphones have become part of our life since few years, relying on them for communication, navigation, networking, and entertainment. Since it has become handy and provides better connectivity despite altitudes and longitudes, the constant need to stay connected with others has become easy nowadays. This has led to the emergence of a newer kind of anxiety related to mobile phone usage, termed Nomophobia. Nomophobia, or no mobile phone phobia, is a psychological condition where people have a phobia or fear of being detached from mobile phone

connectivity (Bhattacharya et al., 2019). However, the term “Phobia” is a misnomer, because it mostly seems to be a kind of anxiety disorder. The term nomophobia is constructed on definitions described in the DSM-IV; it has been labelled as a “phobia for a particular/specific thing (Bragazzi et al., 2014). It could be attributed as Phobia of the 21st century. Situations such as loss of phone/ network/ drain of battery often initiates anxiety like symptoms in Nomophobics. They also share peculiar characteristics like impulsivity in using mobile phones and use multiple phones with extra chargers often to avoid the experience of

disconnection with the virtual world (Bragazzi et al., 2014). Post COVID-19, there is a significant increase in the feelings of losing ubiquitous connectivity provided by mobile phones as reported by the higher prevalence of nomophobia among university students (Humood et al., 2021; Kadiyal et al., 2022). A recent nationwide meta-analysis (Mudgal et al., 2025) from 24 studies across India estimated a pooled prevalence of 59% for moderate nomophobia and 14% for severe nomophobia. Nomophobia is not an isolated condition, as it is commonly found along with sleep disturbances (46%), headaches (43%), and low self-esteem. (Bansode et al., 2025) Also, social anxiety is increasingly noted where students prefer digital interaction over face-to-face communication as a defence mechanism against social stressors (Mudgal et al., 2025). Though mobile phone dependence and addictions have been studied a lot in the past, there is a paucity of literature about Nomophobia usually unidentified as a disorder and has the potential for risks in the future if unaddressed. While previous research (Humood et al., 2021; Kadiyal et al., 2022) has established the rising prevalence of Nomophobia globally, most Indian studies have focused on general adolescent populations or university students. There remains a significant knowledge gap regarding determinants of Nomophobia among the medical undergraduates of Kerala. Hence, this study aimed to fill this void by providing a localised epidemiological profile that is necessary for targeted institutional policymaking.

Objective

- To estimate the prevalence of Nomophobia among medical undergraduate students
- To evaluate the determinants of Nomophobia among medical undergraduate students

Method

A cross-sectional study was conducted in a private medical college in North Kerala, which has about 800+ medical undergraduate students. The study was held during April – June 2024 through convenience sampling among medical undergraduates. The sample

size was calculated using Cochran's formula,

$$N = \frac{Z^2_{\alpha} PQ}{d^2}$$

Taking P as 22.1% (Prevalence of Severe Nomophobia) and absolute error of 5%, based on a recent study done in Pune (Farooqui et al., 2018). With a 20% non-response rate, the calculated sample size was 318, 438 students were analysed in this study. All undergraduates with smartphones were included, and those who were not available during the study period were excluded. A semi-structured questionnaire in English was administered to all students who were willing to participate in the study to collect data. The questionnaire consisted of basic socio-demographic details, characteristics of smartphone usage, and a 7-point nomophobia [NMP-Q] scale (Yildirim et al., 2015). The NMP-Q scale measured the dimensions such as (i) not being able to communicate (ii) losing connectedness (iii) not being able to access information, and (iv) giving up convenience. The scale ranged from 1-7 where 1 represents strongly disagree, and 7 represents strongly agree. The total scores were calculated by summing up responses to each item, resulting in a nomophobia score ranging from 20 to 140, and were categorised as:

Up to 20 = absence of nomophobia

21-60 = mild nomophobia

61-100 = moderate nomophobia

101-140 = severe nomophobia

Previous studies (Mallya et al., 2018; Mudgal et al., 2025; Alagesan et al., 2025) have consistently confirmed that the NMP-Q is highly reliable, with Cronbach's alpha ranging from 0.82 to 0.96, well above the standard acceptable threshold of 0.70. This indicates that the 20 items in the scale are highly consistent in measuring the same construct. The data was analysed using statistical package for social science (SPSS) version 25. Qualitative variables were expressed as frequency and percentages. And quantitative variables as mean $\pm$ standard deviation. The association between various variables and nomophobia was assessed using the chi-square test/Fisher's exact test. A p -value < 0.05 was taken as statistically significant. Institutional ethical board approval was obtained before the study [IECKMCT14/2024-29.02.2024].

Table 1: Basic sociodemographic profile of participants (n=438)

Variable		Frequency	Percentage
Age (years)	17-19	34	7.9
	20-22	330	75.3
	>22	74	16.8
Gender	Female	341	77.9
	Male	97	22.1
Year of study	Phase 4	46	10.5
	Phase 3	139	31.7
	Phase 2	118	26.9
	Phase 1	135	30.8
Place of residence	Hostel	411	93.8
	Home	27	6.2
Relationship status	In a relationship	53	12.1
	Single	385	87.9

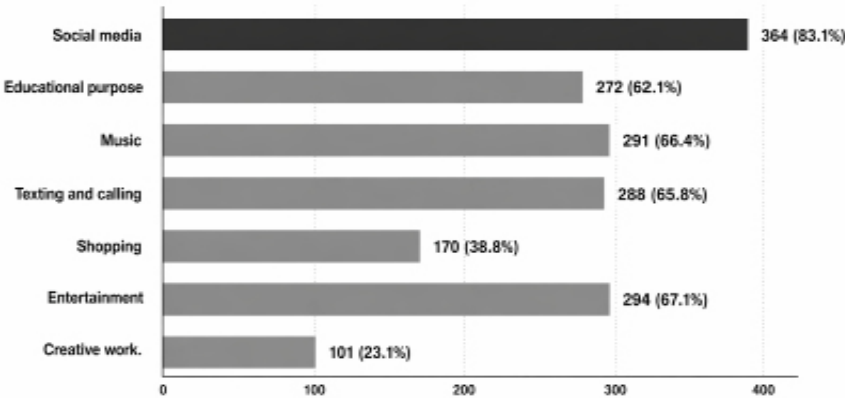


Figure1: Purpose of Smartphone use by participants

Most of the students had a single smartphone in hand (92.4%), and the first age of mobile phone use was above 15 years for 60% of them, followed by 11-15years (31.1%). The majority were using smartphones for the past 1-5 years (59.3%), followed by 34.7% for 6-10 years. About one third (32.2%)

spent an average of 4-5 hours per day on a smartphone. The source of internet was a personal data plan for two-thirds (66%0 of participants. About 31% checked their smartphone every 30 minutes, and 11% checked every 10 minutes. (Table 2)

Table 2: Characteristics of smartphone use (n=438)

Variable		Frequency	Percentage
No of mobile phones in hand	Single	405	92.4
	Two	29	6.6
	More than 2	4	2.0
Age at first use of smartphone	Under 10 years	36	8.2
	11-15 years	136	31.1
	Above 15 years	266	60.7

Table 2: Characteristics of smartphone use (n=438)(Cont.)

Variable		Frequency	Percentage
Years of use of a mobile phone	1-5 years	260	59.3
	6-10 years	152	34.7
	>10 years	26	6.0
Average time spent on a smartphone per day	< 3 hours	61	13.9
	3-4 hours	128	29.2
	4-5 hours	141	32.2
	6-7 hours	72	16.4
	>7 hours	36	8.2
Source of internet use	Personal data plan	293	66.9
	Wi-Fi and cellular	141	32.2
	Not using the internet	4	0.9
Average interval between mobile use	Less than 10 min	48	11
	Every 15 minutes	81	18.5
	Every 30 min	138	31.5
	Every 1 hour	99	22.6
	Once every 2 or more hours	72	16.4

The overall prevalence of nomophobia among medical students was found to be 99.1% (n= 434), with 15.1% (n=66) reporting mild nomophobia, 70.1% (n=307) reporting moderate nomophobia, and 13.9% (n=61) reporting severe nomophobia. The proportion of moderate nomophobia was higher among females compared to males, but this difference was not statistically significant. Age was significantly associated with nomophobia ($p = 0.006$). Most participants aged 20–22 years (75.3%) reported higher levels of nomophobia compared to the 17–19 years group (7.7%) and those above 22 years (16.8%). Residence was significantly associated with nomophobia ($p = 0.010$). Hostellers (94.2%) reported higher levels of nomophobia compared to day scholars (6.1%). Although single participants (87.8%) reported higher nomophobia compared to those in

a committed relationship (12.1%), the association was not statistically significant ($p = 0.059$). Moderate nomophobia was significantly more common among those owning a single smartphone (92.4%) compared to those with two or more devices (7.5%), whereas severe nomophobia was higher among those with multiple phones ($p = 0.004$). Nomophobia was higher among those who started smartphone use after 15 years of age (60.9%) compared to those who started earlier (39.1%), but the association was not significant ($p = 0.088$). Those participants spending more than 4 hours daily on their smartphones (56.8%) reported higher nomophobia compared to those using ≤ 4 hours (43.1%) ($p = 0.029$) those with more than 5 years of phone use (40.8%) showed higher levels of nomophobia than those with ≤ 5 years (59.1%), but the difference was not statistically significant. (Table 3)

Table 3: Association between sociodemographic variables and levels of nomophobia.

Variable		Level of nomophobia			Total	χ^2 , df, p value
		Mild N (%)	Moderate N (%)	Severe N (%)		
Gender	Female	48 (14.1)	247 (72.4)	46 (13.5)	341 (77%)	1.985,1, 0.342
	Male	18 (18.5)	64 (66)	15 (15.5)	97 (33%)	
Age group	17-19	11 (32.4)	23 (67.6)	0 (0)	34 (7.7%)	14.489,4, 0.006
	20-22	48 (14.5)	235 (71.2)	47 (14.2)	330 (75.3%)	
	>22	7 (9.4)	53 (71.6)	14 (18.9)	74 (16.8%)	
Place of residence	Day scholar	10 (37.1)	13 (48.1)	4 (14.8)	27 (6.1%)	8.687, 0.010*
	Hosteler	60 (14.6)	294 (71.5)	57 (13.8)	411 (94.2)	
Relationship Status	Single	62 (15.3)	268 (70.5)	50 (13.2)	380 (87.8%)	5.615,2 0.059
	Committed	3 (5.6)	39 (73.5)	11 (20.8)	53 (12.1%)	
No of smartphones in hand	Single	62 (15.8)	290 (71.8)	50 (12.3)	402 (92.4%)	9.659, 0.006*
	2 or more	4 (12.2)	17 (54.5)	11 (33.3)	33 (7.5%)	
Age of first use	≤15 years	26 (15.2)	113 (66.1)	32 (18.7)	171 (39%)	4.852,2, 0.088
	>15 years	42 (15.7)	195 (73)	30 (11.3)	267 (60.9%)	
Average time spent on a smartphone	≤ 4 hours	26 (13.7)	145 (76.7)	18 (9.6)	189 (43.1%)	7.093,2, 0.029
	>4 hours	42 (16.9)	164 (65.9)	43 (17.2)	249 (56.8%)	
Years of phone use	≤5 years	44 (17)	187 (72.2)	28 (10.8)	259 (59.1%)	5.679,2, 0.058
	>5 years	23 (12.8)	122 (68.2)	34 (19)	179 (40.8%)	

*Fishers Exact test

Discussion

The present study found that 15.1% participants had mild nomophobia, 70.1% had moderate nomophobia, and 13.9% had severe nomophobia. This implies that smartphones have been shifted as a psychological prosthetic rather than a communication tool. Our finding that 70.1% of participants experienced moderate nomophobia is consistent with the pooled prevalence of 59% reported in recent meta-analyses of Indian medical students (Mudgal et al., 2025) and similar studies in Uttarakhand,Pune, as well as in West Bengal (Bartwal et al., 2020; Farooqui et al., 2018; Alagesan et al., 2025). However, it differed from the Peruvian study, where mild nomophobia predominated at 66.9% (Copaja-Corzo et al., 2022) and the study conducted in Jeddah, where a higher prevalence of severe nomophobia was noted (33.9%) (Bano et al., 2021). —This suggests that socio-cultural academic environments could play a critical role. In the highly competitive medical landscape of Kerala, the smartphone may serve as a primary

stress-mitigation tool. Different kinds of learning practices are done in different universities, which could affect their digital behaviours. In addition, the prevalence rate may differ due to sample size, as many of them included only first-year students and adopted a convenience sampling method. However, all these studies shed light on the unrecognised higher prevalence among young medical undergraduates. Nomophobia score was higher in the age group of 20-22 years. This age group was significantly noted for a higher prevalence of Nomophobia in other studies done in Haryana and in Uttarakhand (Bartwal, 2020; Mengi et al., 2020). In the study among Peruvian medical students, the nomophobia score was reported to be lower among those aged above 24 years (Copaja-Corzo et al., 2022). Also, there was a significant association between nomophobia severity and students living in hostels in our study. This could be because of separation from the home environment (attachment theory), where the smartphone becomes a "transitional object" that provides a sense of

proximity to family and social circles. Nomophobia was also found to be higher among those who spent >4 hours/day on smartphones and who had only one smartphone in possession. Similarly, a higher prevalence among those who spent more than 3 hours on smartphones was also reported from Uttarakhand (Bartwal et al., 2020). Another study in central India also reported a significantly higher prevalence among those who used smartphones for more than 2 hours/day. Also, this study reported a significant interplay between nomophobia, loneliness, and low self-esteem (Baby et al., 2025). There could be factors such as personal insecurity as well, as many young people become dependent on smartphones to be available in their social circle.

Conclusion

Nomophobia is an emerging psychological condition among medical students as well. The irresistible use of smartphones and dependence on social media have led to increased screen time, which might have contributed to the higher prevalence. This study was limited to the burden estimation, but the physical and mental impact of an unrecognised phobic state needs to be studied further. The medical students should be given awareness and off-screen time to limit smartphone use, and digital wellness initiatives should be focussed on educational institutions. Nomophobia should be further explored so that the real consequences it has on individuals and the community can be identified, and preventive measures can be taken.

Limitations

Our study had limitations of study design, which was a cross-sectional study for burden estimation, and the sampling was done by convenience sampling.

Recommendations

Based on our findings, we recommend that medical colleges in the region integrate digital wellness initiatives at the institutional level to raise awareness

about such emerging forms of digital disorders. Furthermore, to build upon this work, future longitudinal studies are encouraged to track the progression of Nomophobia as students transition from pre-clinical to clinical phases, ensuring a more robust understanding of their digital behavioural patterns over time.

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