

An institution-based study to assess the prevalence of Nomophobia and its related impact among medical students in Southern Haryana, India

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ABSTRACT

Background: Inappropriate usage of mobile phones is very hazardous for school and college students as it results in poor academic performance due to the poor concentration during classes or lectures over use of mobile phones, accidents due to reduced concentration while driving, and poor social relations due to preference for mobile usage and avoiding nearby people. **Aim:** Considering the above facts, the present study was conducted with an aim to estimate the prevalence of nomophobia among students and interns of medical college and its negative impacts on their sleep quality, and academic performance. **Methods:** The present study was conducted at SHKM GMC, Nalhar, Nuh from November to December 2018 among 600 MBBS students and interns who were using mobile phones using a pretested, predesigned, and standardized questionnaire. Test results with *P* value less than 0.05 only were considered statistically significant. **Results:** Nearly two fifth of the study subjects (40.1%) were found to have nomophobic, with scores more than twenty-four. The Pearson's chi square analysis reflected that most of the academic performance variables such as decline in study habits and grades, reduced concentration, and coming late for classes have a statistically significant (*P* = 0.000) association with nomophobe score. **Conclusion:** In conclusion, a significant burden of mobile phone addiction and a tendency for impaired control that compromises the health and wellness were prevalent in medical students. Measures need to be taken to address this challenge in view of the current era of growing information technology.

Keywords: Academic performance, medical college, sleep quality index

Introduction

Mobile phone has its omnipresence in our day to day life and have transformed from being a symbol of status to a felt need. Nowadays, the addiction for mobile phones is quite common and the terminology identified for this addiction is nomophobia. In general terms, nomophobia is the fright or panic developed among individuals when they are unable to access their mobile

and the anxiety they develop when there is no mobile signal or no talk time or mobile with low or discharged battery which in turn severely strikes on their concentrating intellect.^[1] Nomophobia is considered as the disorder of the 21st century. As the mobile phones influence and alter the individuals' state of mind, the diagnosis for nomophobia is mental disorder.^[2]

Communication was the major function served by mobile phones after its invention; but, nowadays, its function has evolved as mobile computers that come with preloaded multiple apps for music, games, shopping, videos, calculators, cameras, alarms, including several distinguished advantages in terms of

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enhanced and smooth connection socially, offering reduction in loneliness and secured sense of feeling in case of emergencies. Moreover, due to the increasing demand, decreasing cost, and more affordability and availability, dependency of mobile phone is raising worldwide.^[3]

As compared to landline connection which took more than a century to reach one billion users, the mobile phones with no wonder took around 20 years to attract this much users. Around the globe there are around 6.8 billion people who have subscribed for the mobile connections during 2019 and out of them 2.7 billion were smartphones users and the count is pacing up with the passing of hours.^[4,5] Initially, India was chasing China for population explosion, but the aim of chase has shifted to mobile phones and the markets of India have evolved as the largest market for mobile phones after the Chinese market. As per the Telecom Regulatory Authority of India (TRAI), there were 1168.3 million subscriptions for mobile connections whereas the total population of India itself is 1339.2 million during the month of July 2019 and out of them 373 million were smartphones users.^[5,6]

In India, irrespective of residing area, literacy status, and age all people have mobile phone dependency. Unfortunately, this communication technology has some negative outcomes too and nomophobia affects the health of individuals in various dimensions including physical, social, and psychological. Recently, it has been found that excessive and increased usage of mobiles have exposed humans to radio frequency radiations and whether they have a harmful effect on individual health is the hour of query being raised due to the thermal and nonthermal effects of mobiles. The well-documented harmful effects from mobiles radiation are headaches, fatigues, stressed day, disturbed sleeps, impaired memories especially short-term, reduced concentrating power, dizzy feeling, hot sensations in or around ear, facial dermatitis, and frustration and to far extent it causes increased number of fits in children with known epilepsy, neurogenic cancers, and hypertension.^[7]

Also using mobile phones in an inappropriate way is very hazardous for school and college students as it results in poor academic performance due to disturbance during classes or lectures, accidents due to poor concentration while driving, and degraded social relations due to the preference for the mobile calling and avoiding nearby people.^[8,9] It is a well-known fact that there sometimes medical students undergo a state of pressure during their career and as an intern which make them an easy prey for nomophobia; therefore, considering the above facts, this study was conducted with an objective to estimate nomophobia prevalence among the students and interns of medical college and to find out its negative impacts on their quality of sleep and academic performance.

Materials and Methods

Study area and period

The present study was conducted at SHKM GMC, Nalhar, Nuh from November to December 2018. The college was started in

2013 with its first batch of MBBS students and since then around 100 MBBS students join each year. Therefore, currently there were 600 MBBS students including interns.

Study design

This was an institution-based cross-sectional study.

Study population and sample size

The study participants included 600 MBBS students and interns who were using mobile phones for the past six or more months for at least 1–2 hours per day. Participants with history of alcohol or substance abuse and any psychiatric or sleep disorder were not included in the study. The purpose of the study was explained and informed written consent was obtained from all the study participants and anonymity and confidentiality of the participants was maintained throughout the study.

Study tool

A pretested, predesigned, and standardized questionnaire was prepared. The language of the questionnaire was English and all the questions were objective and multiple-choice type. The questionnaire included demographic details such as age, gender, socioeconomic status, and residence; psychographic details for mobile phone dependence; academic performance details, and Sleep Quality Index (PSQI) details.

The questions regarding the mobile phone dependence were compiled from the existing literature including Dr. Marcus L. Raines.^[10,11] The collected questions were subjected to content validation by a panel of 15 medical experts. The purpose was to identify the items with a high degree of agreement among experts. Aiken's V was used to quantify the concordance between experts for each item. Questions that had an Aiken's V >0.7 were selected for the study.^[12]

The questionnaire focusing on the psychographic details consisted of eight questions, i.e. duration of having mobile phone with self; anxiety and stress experienced because of faulty connections; loss of mobile and battery discharge; amount spent per month on recharge; reaction shown to phone ringing at inappropriate times; frequency of change of phone/sim cards, and reactions because of inability of using the phone for a period of one week. Every question was compulsory and consisted of three responses depicting maximum to minimum mobile phone association. Scoring was done on the basis of response to each of the question. Score obtained below 20, 20–24, and above 24 were labeled as participants not at risk, at risk, and nomophobia, respectively.

Data collection

Everyday activity included briefing of the study through face to face interaction among students of different batches and those pursuing internship. The questionnaire was self-administered by participants under the direct supervision of investigator. The participants took part in the batches of 12–15 counts per

session, so that day to day academic activities of the college and hospital is not hampered. In this way, all selected students and interns were covered in the study during the defined period. The questionnaire required 30–45 minutes per batch to be completed. The completed questionnaires were then collected and checked for the completeness. Ethical approval was obtained from the Institutional Ethical Committee. IEC approval letter no. SHKM/IEC/2016/64, dated: 19/06/2016.

Data analysis

The collected data were entered in the MS Excel spreadsheet, coded appropriately, and later cleaned for any possible errors. Analysis was carried out using IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp. Armonk, NY, USA). During data cleaning, more variables were created so as to facilitate the association of variables. Clear values for various outcomes were determined before running the frequency tests. Categorical data were presented as percentages (%). Bivariate analysis using Pearson's chi square test was used to examine the association between nomophobia and students studying year, academic performance and Sleep Quality Index (PSQI). All tests were performed at a 5% level of significance; thus, an association was significant if the *P* value was less than 0.05.

Results

In the present study, due to the appropriateness of questionnaire and presence of interest among the study subjects, there was no questionnaire which was found to be incompletely filled. The study subjects comprised of three forth males (75.8%) and one forth females (24.2%). Due to the remote location of college, the maximum subjects were staying in hostels (95.6%) and only a few were day scholars (4.4%). Nearly two thirds of the study subjects (59.5%) were using mobile for more hours other than calling. For more than half of the study subjects (52.8%), the sleep quality index (PSQI) was more than five, i.e. poor and nearly two fifth of the study subjects (40.1%) were found to have nomophobe score of more than twenty-four, i.e. nomophobia and nearly one third of the subjects (32.7%) were at risk for nomophobia [Table 1].

The prevalence of nomophobia was higher among female study subjects (49.6%) as compared to males (37.1%) and this association was statistically significant ($P = 0.027$). There was unequal distribution of study subjects in respective years due to different passing rates. While analyzing the nomophobe score of the study subjects for respective years, it was observed that the prevalence of nomophobia was highest among the first year professionals (59.9%) and it was least among the interns (17.5%) and this association was found to be statistically significant ($P = 0.000$) [Table 2].

The Pearson's chi square analysis reflected that most of academic performance variables such as decline in study habits and grades, reduced concentration, and coming late for classes were having statistically significant ($P = 0.000$) association with

Table 1: Demographic, mobile phone usage, and sleep quality details of respondent (n=600)

Characteristics	Number of students (%)
Gender	
Male	455 (75.8%)
Female	145 (24.2%)
Place of residing	
Hostel	574 (95.6%)
Day scholar	26 (4.4%)
Duration of Smartphone use other than calling	
<1 hour/day	116 (19.3%)
1-2 hours/day	127 (21.2%)
>2 hours/day	357 (59.5%)
Sleep quality Index	
<5 (Normal)	283 (47.2%)
5 or more (Poor)	317 (52.8%)
Nomophobe score	
<20 (No risk)	163 (26.2%)
20-24 (At risk)	196 (32.7%)
>24 (Nomophobia)	241 (40.1%)

nomophobe score except for one variable i.e. increased missed classes ($P = 0.474$) [Table 3]. Similarly, there was statistically significant association ($P = 0.000$) between sleep quality index and nomophobe score and nearly half of the subjects (50.4%) with poor sleep quality index were having nomophobia [Table 4].

Discussion

Practices of primary care is actually a continuum of care that not only make provision of disease prevention, health promotion, management of various illnesses and health education but also take care of all the dimensions of health in various health care settings. This study is relevant to the practice of primary care as findings of this study may be utilized for prevention of mobile phone-related morbidities and making provision of preventing negative health consequences, thus maintaining the optimal health of students.

Basically, mobiles have become the essential part of day to day activity. As in recent years, the purchasing power parity of individuals has tremendously improved in the country which has enabled the access of mobiles even to the adolescents and younger adults. Moreover, improved internet speed has constantly regularized nomophobia. As mobiles influence and alter the individuals state of mind, the diagnosis for nomophobia is mental disorder as per the American Psychiatric Association. It is no doubt that nomophobia is early in inception and is in the budding stage; but, there are various facts and facets related to it. The most common observed features of nomophobia are frequent mobile screen unlock, having mobile in close proximity while going to bed, being frightened or panicked when unable to make access to mobile, panic due to low or discharged battery, and most importantly, spending most of the day on mobile phone. Assuming nomophobia is one of the troublesome nondrug addictions and has emerged as a threat for present and future

Table 2: Association between nomophobia and gender and year of study

Gender	Nomophobe score <20 (n=163)	Nomophobe score 20-24 (n=196)	Nomophobe score >24 (n=241)
	Frequency (%)	Frequency (%)	Frequency (%)
Male (455)	131 (28.8%)	155 (34.1%)	169 (37.1%)
Female (145)	32 (22.1%)	41 (28.3%)	72 (49.6%)

$\chi^2=7.2$, $df=2$, $p=0.027$

Students in different year of study (n=600)	Nomophobe score <20 (n=163)	Nomophobe score 20-24 (n=196)	Nomophobe score >24 (n=241)
	Frequency (%)	Frequency (%)	Frequency (%)
1 st year professional (112)	12 (10.7%)	33 (29.4%)	67 (59.9%)
2 nd year professional (Junior batch) (96)	17 (17.7%)	25 (26.1%)	54 (56.2%)
2 nd year professional (Senior batch) (113)	21 (18.5%)	43 (38.1%)	49 (43.4%)
3 rd year professional (part-I) (98)	30 (30.1%)	35 (35.7%)	33 (34.2%)
3 rd year professional (part-II) (89)	39 (43.8%)	28 (31.4%)	22 (24.8%)
Interns (92)	44 (47.8%)	32 (34.7%)	16 (17.5%)

$\chi^2=79.9$, $df=10$, $p=0.000$

Table 3: Association between nomophobia and academic performance

Academic performance	Nomophobe score <20 (n=163)	Nomophobe score 20-24 (n=196)	Nomophobe score >24 (n=241)	Test of significance
	Frequency (%)	Frequency (%)	Frequency (%)	
Decline in study habits and grades				
Yes (n=248)	48 (19.3%)	79 (31.8%)	121 (48.9%)	$\chi^2=17.4$, $df=2$, $p=0.000$
No (n=352)	115 (32.6%)	117 (33.2%)	120 (34.2%)	
Reduced concentration				
Yes (n=231)	58 (25.1%)	55 (23.8%)	118 (51.1%)	$\chi^2=20.7$, $df=2$, $p=0.000$
No (n=369)	105 (28.4%)	141 (38.2%)	123 (33.4%)	
Increased missed classes				
Yes (n=114)	26 (22.8%)	41 (35.9%)	47 (41.3%)	$\chi^2=1.49$, $df=2$, $p=0.474$
No (n=486)	137 (28.2%)	155 (31.9%)	194 (39.9%)	
Getting late for classes				
Yes (n=216)	34 (10.7%)	44 (20.4%)	138 (68.9%)	$\chi^2=79.1$, $df=2$, $p=0.000$
No (n=384)	129 (33.6%)	152 (39.6%)	103 (26.8%)	

Table 4: Association between nomophobia and Sleep Quality Index (PSQI) and gender

Sleep Quality Index (PSQI)	Nomophobe score <20 (n=163)	Nomophobe score 20-24 (n=196)	Nomophobe score >24 (n=241)
	Frequency (%)	Frequency (%)	Frequency (%)
Score 5 or more (n=317)	64 (20.2%)	93 (29.4%)	160 (50.4%)
Score <5 (n=283)	99 (34.9%)	103 (36.3%)	81 (28.8%)

$\chi^2=32.1$, $df=2$, $p=0.000$

time, with a general pattern having specific features, it is aptly modifiable and is the need of current hour to recognize the pattern of nomophobia among school and college going students.^[1,13-15]

The findings of this study reveal the prevalence of nomophobia and a number of vital associations between nomophobia, sleep quality, and academic activities among medical college students and interns. In the present study, nomophobia was observed among nearly 40% of study subjects. In studies conducted by Choudhury *et al.*, Sharma *et al.*, Dixit *et al.*, Basu *et al.*, and Dasgupta *et al.*, the prevalence of nomophobia among medical students were 14.6%, 18.5%, 21.9%, 40%, 42.5%, and 75% respectively, whereas the prevalence of nomophobia in the studies conducted by Prasad *et al.* among dental students and among secondary school students were 24.7%. Methodological

heterogeneity arising from the different questionnaires used for assessment of mobile phone addiction precludes an accurate comparison with our study findings.^[3,16-20]

In present study the prevalence of nomophobia was higher among the female study subjects as compared to males and such female preponderance was observed in Ahmed *et al.*, Sharma *et al.*, and Bartwal *et al.*, studies and whereas studies by Choudhury *et al.* and Jamir *et al.*, showed higher mobile phone dependence among male students as compared to female students. Nomophobia was equally prevalent irrespective of gender in studies conducted by Basu *et al.* and Dixit *et al.*^[3,16,20-24]

In the present study, more than two thirds of the study participants used mobiles for more than two hours apart from

calling. Studies by Ranjbaran *et al.*, Anju *et al.*, and Sharma *et al.*, revealed that more than half of the of study participants had daily usage of mobiles above two hours including calls, messaging, gaming, listening to songs, watching movies, assessing net, WhatsApp™, and Facebook™.^[25-27]

Nomophobia was highest among first year professionals as compared to other groups in the present study and was similar to the findings of Ahmed *et al.*, de sola *et al.*, Naidu *et al.*, and Dasgupta *et al.*, which showed that younger individuals were at a higher risk of developing addiction-like behavior from their mobile phone usage. However, Basu *et al.*, revealed that as such no statistically significant difference exist among young age individuals and other groups for nomophobia.^[16,17,21,28,29]

The usage of mobiles during class or demonstration severely hinder learning potential resulting in degradation academically, due to which mobiles are considered as item of distress in schools and colleges. In the present study it was observed that nomophobe scores were inversely associated with the academic performances of the study participants, i.e. with the increased nomophobe scores among participants there was decreased academic performances and vice versa. Ahmed *et al.*, and Anju *et al.*, revealed that nomophobia has a severe effect on the academic performance of study participants which includes lesser class attendance, degraded studying habit and grading, inability to concentrate, frequently missing classes, and habitually reaching lately for class. The most common reason for missing and reaching late for the class by the students might be the late-night, excessive engagement with mobiles.^[21,26]

In the present study, it was observed that there was a direct relationship between nomophobe score and sleep quality index (PSQI) and as the nomophobe score increases along with that sleep quality index also increases and vice versa. It is well documented that disturbed sleep hygiene has serious impacts on various dimension of health including cognitively and academically. Worsening of sleep quality causing waking time tiredness has been observed with mobile phone overuse and a tendency toward addiction was also reported in the studies of Basu *et al.*, Anju *et al.*, and Ranjbaran *et al.*^[16,25,26]

As the sample size for the study was large which provided better representation of the various regions of Haryana with distinct settings, it can be counted as the strength of the study. However, not assessing the mental health problems such anxiousness, depression or stress might be the limitations of the study. The findings from the study are alarming as the younger generation is getting easily dependent on mobiles and such dependence may welcome unwanted psychological and psychiatric diseases. Therefore, it is suggested that further studies shall include mental health assessment among the study participants, especially those with nomophobia.

Conclusion

In conclusion, a significant burden of mobile phone addiction and a tendency for impaired control that compromises the health and wellness were prevalent in medical students. The present study hopes to draw the attention and enhance the awareness of at least the students and interns of medical colleges regarding this evolving public health problem and the negative consequences associated with it and it can be hoped that it will gradually inculcate appropriate and essential utilization of mobiles among students.

Declaration of patient consent

The authors certify that they have obtained all the appropriate patient consent forms. In the forms, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. King AL, Valença AM, Nardi AE. Nomophobia: The mobile phone in panic disorder with agoraphobia: Reducing phobias or worsening of dependence? *Cogn Behav Neurol* 2010;23:52-4.
2. Asensio Chico I, Diaz Maldonado L, Garrote Moreno L. Nomophobia: Disorder of the 21st century. *Semergen* 2018;44:117-8.
3. Sanjay D, Harish S, Bhagwat AK, Arpita B, Abhilasha G, Alia KZ, Akansha S. A study to evaluate mobile phone dependence among students of a medical college and associated hospital of central India. *Indian J Community Med* 2010;35:339-41.
4. Michael M, Colin B, Mika K. The health hazards of mobile phones. *Br Med J* 2000;320:1288-9.
5. Number of smartphone users worldwide from 2016 to 2021 [Internet]. Statista.com [Last cited on 2019 Oct 8]. Available from: <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>.
6. TRAI releases Telecom Subscription Data as on 31st July, 2019 [Internet]. Telecom Regulatory Authority of India: New Delhi, India; 2019. Available from: https://main.trai.gov.in/sites/default/files/PR_No.49of2019_0.pdf. [Last cited on 2019 Oct 18].
7. Khan MM. Adverse effects of excessive mobile phone use. *Int J Occup Med Environ Health* 2008;21:289-93.
8. Loughran SP, Wood AW, Barton JM. The effect of electromagnetic fields emitted by mobile phones on human sleep. *NeuroReport* 2005;16:1973-6.
9. Burch JB, Reif JS, Noonan CW, Ichinose T, Bachand AM, Koleber TL, *et al.* Melatonin metabolite excretion

- among cellular telephone users. *Intern J Radiation Biol* 2002;78:1029-36.
10. Check if you are nomophobia [Last cited on 2019 Oct 19]. Available from: <http://www.nomophobic.co.uk>.
 11. Raines ML [Internet]. An introduction to Nomophobia: Learn about Nomophobia [Last cited on 2019 Oct 19]. Available from: <http://www.nomophobic.co.uk/>.
 12. Aiken V. Content validity and reliability of single item or questionnaire. *Educ Psychol Meas* 1980;40:955-99.
 13. Lucia A, King S, Valença AM, Silva AC, Sancassiani F, Machado S, *et al.* "Nomophobia": Impact of cell phone use interfering with symptoms and emotions of individuals with panic disorder compared with a control group. *Clin Pract Epidemiol Ment Heal* 2014;10:28-35.
 14. Gezgin DM, Hamutoglu NB, Sezen-Gultekin G, Ayas T. The relationship between nomophobia and loneliness among Turkish adolescents. *Int J Res Educ Sci* 2018;4:358-74.
 15. Substance-Related and Addictive Disorders [Internet]. In: Diagnostic and Statistical Manual of Mental Disorders-5; 2013 [Last cited on 2019 Oct 19]. Available from: <https://www.dsm.psychiatryonline.org/doi/abs/10.1176/appi.books.9780890425596.dsm16>.
 16. Basu S, Garg S, Singh MM, Kohli C. Addiction-like behavior associated with mobile phone usage among medical students in Delhi. *Indian J Psychol Med* 2018;40:446-51.
 17. Dasgupta P, Bhattacharjee S, Dasgupta S, Roy JK, Mukherjee A, Biswas R. Nomophobic behaviors among smartphone using medical and engineering students in two colleges of West Bengal. *Indian J Public Health* 2017;61:199-204.
 18. Sharma S, Brahmankar T, Vishwanath G. Evaluation of mobile phone dependence among the students of government medical college. *East African Scholars J Med Sci* 2019;2:104-8.
 19. Prasad M, Patthi B, Singla A, Gupta R, Saha S, Kumar JK, *et al.* Nomophobia: A cross-sectional study to assess mobile phone usage among dental students. *J Clin Diagn Res* 2017;11:34-9.
 20. Choudhury S, Saha I, Som TK, Ghose G, Patra M, Paul B. Mobile phone involvement and dependence among undergraduate medical students in a Medical College of West Bengal, India. *J Educ Health Promot* 2019;29:1.
 21. Ahmed S, Pokhrel N, Roy S, Samuel AJ. Impact of nomophobia: A nondrug addiction among students of physiotherapy course using an online cross-sectional survey. *Indian J Psychiatry* 2019;61:77-80.
 22. Jamir L, Duggal M, Nehra R, Singh P, Sandeep Grover S. Epidemiology of technology addiction among school students in rural India. *Asian J Psychiatry* 2019;40:30-8.
 23. Sharma MK, Rao GN, Benegal V, Thennarasu K, Thomas D. Technology addiction survey: An emerging concern for raising awareness and promotion of healthy use of technology. *Indian J Psychol Med* 2017;39:495-9.
 24. Bartwal J, Nath B. Evaluation of nomophobia among medical students using smartphone in north India. *Med Armed Forces India* 2019;75:411-20.
 25. Ranjbaran M, Soleimani B, Mohammadi M, Ghorbani N, Khodadost M, Mansori K, *et al.* Association between general health and mobile phone dependency among medical university students: A cross-sectional study in Iran. *Int J Prev Med* 2019;10:126.
 26. Anju PT, Aswathy KS, Athira S, Athulya N. Mobile phone dependence and sleep quality among undergraduate students. *Indian J Forensic Med Toxicol* 2019;13:11-5.
 27. Sharma N, Advani U, Sharma L, Jain M, Sharma K, Dixit AM. Pattern of mobile phone usage among medical students. *Int J Acad Med* 2019;5:118-23.
 28. de-Sola J, Talledo H, Rodríguez de Fonseca F, Rubio G. Prevalence of problematic cell phone use in an adult population in Spain as assessed by the mobile phone problem use scale (MPPUS). *PLoS One* 2017;12:e0181184.
 29. Naidu RDR, De A, Vijaya K. Smart mobile phone usage pattern by students of professional colleges and it's dependence: A comparative profile. *J Biomed Sci* 2019;6:25.