International Journal of Community Medicine and Public Health
Neelima BY et al. Int J Community Med Public Health. 2023 Mar;10(3):1048-1054
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20230319

Original Research Article

A cross sectional study on nomophobia among medical students in Tirupati, Andhra Pradesh

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Received: 09 January 2023
Accepted: 30 January 2023

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ABSTRACT

Background: Medical students are using more applications of smartphones in their course besides the primary purpose of communication. The excessive usage of smartphone has given rise to a condition known as "nomophobia". The objectives of the study are to estimate the prevalence of nomophobia and to evaluate the determinants of nomophobia among participants.
Methods: A cross-sectional study was conducted from July to August 2022 among 320 undergraduate medical students of Sri Venkateswara Medical College, Tirupati. NMP-Q questionnaire used as a tool for data collection. Ethical clearance was obtained from the Institutional Ethical Committee and informed consent was taken from the participant. Collected data was coded and entered into a Microsoft excel and analysed using statistical package for the social sciences (SPSS) software version 21.0.
Results: Prevalence of nomophobia among study subjects was found to be 100% (320); of which 59% showed moderate nomophobia followed by mild (35%) and severe nomophobia (6%). Nearly 60% of the students are using smart phone for communication, 56% for entertainment and 46% for study purpose.
Conclusions: All participants were suffering from nomophobia with different grades of severity. It was significantly associated with age, year of study, number of apps used, average time spent with mobile and messages sent per day. Most of them were using smart phone for communication, entertainment and study purpose.

Keywords: Nomophobia, Medical students, Smart phone, Communication

INTRODUCTION

Mobile phones have undoubtedly made one of the biggest changes in the field of personal communications in the present era. Smart phones are becoming a part of every one's life because of its advanced features and multiple applications.[1] By 2021, 5.3 billion individuals will have enrolled using mobile services, comprising nearly 67% of the world's population, according to data from the Global system for mobile communication association (GSMA).[2]

Younger generation is the largest consumer of the mobile phones and use phones more frequently.[1] Smartphones have many apps that are helpful to the students for communication, searching information, playing games, music, paying amount, watching movies, updating knowledge and news.[3]

With one mobile, they have all their solutions at palm. Thus, smart phone users so helplessly dependent on it. Despite having many advantages, it may put one at the risk of over use, misuse or problematic use. Nomophobia ("no-mobile phone-phobia") is relatively newer and is defined as "the feeling of discomfort, anxiety, apprehension or anguish caused by not having mobile phone.[4]

A typical nomophobic individual having common behaviour like spending too much time with mobile phones, checking phone immediately after bed, frequently checking phone, keeping phones close during sleep, using phones at late hours without sleeping, avoiding places where mobile phones are prohibited and having more than one mobile phone. The psychological impact of the use of this technology on individuals, groups and society is generally associated with changes in behaviour and habits before and after the existence of smartphones.[4] Individuals cannot avoid relationship with smartphones, and this greatly affects their interpersonal behaviour and social habits.

Thus, this situation confirms that a person has become more dependent on mobile phones in their daily lives.[5] It has high impact on student communities around the world. Popular gadgets attract medical students as well, and they find mobile phones useful in a variety of aspects of their professional and personal life. [6]

With this background, the present study was conducted to find out the prevalence of nomophobia and to evaluate the determinants towards smartphone usage among the medical students of Sri Venkateswara Medical College, Tirupati.

Objectives

Objectives of the study were: to estimate the prevalence of nomophobia among medical students, and to evaluate the determinants of nomophobia towards smartphone usage among medical students.

METHODS

Study design

An institutional based cross-sectional study was conducted.

Study setting

The study was conducted at Sri Venkateswara Medical College, Tirupati district, Andhra Pradesh.

Study period

The study conducted from July 2022 to August 2022.

Study subjects

Second and third year undergraduate medical students in Sri Venkateswara Medical College, Tirupati.

Inclusion criteria

Under graduate medical Students who were studying second and third year and who were willing to participate in the study.

Exclusion criteria

Second and third year MBBS students who were not willing to participate in the study were excluded.

Sample size

Sample size was calculated by using (z value of 1.96 as the degree of accuracy at 95% confidence interval', p=75%, absolute error of 5%).[7] Based on this, the sample size was calculated to be 300 with non-response rate of 5%, thus minimum sample size is 315. In the present study, around 320 study subjects were enrolled.

Study tool

A pre-validated and pre-tested (NMP-Q) questionnaire containing 20 items with 7-point Likert scale, one point given for "strongly disagree" and seven points for "strongly agree" were used to obtain information regarding nomophobia.[8] The total scores are calculated by summing up responses to each item, resulting in nomophobia score ranging from 20-140 which was interpreted is as follows: upto 20=absence of nomo phobia, 20-60=mild level of nomo phobia, 60-100=moderate level of nomo phobia, and 100-140=severe level of nomo phobia.

Ethical consideration

Ethical clearance was obtained from the Institutional Ethical Committee and informed consent was taken from the individual participants.

Statistical analysis

Data was entered in Microsoft excel and analysed using statistical package for social sciences (SPSS) version 21.0. Descriptive statistics were used to tabulate baseline characteristics of the study population. Sociodemographic variables were represented by frequency and percentages. Chi-square test used to find out association between two categorical variables and p value <0.05 was considered statistically significant.

RESULTS

In this study, 320 medical students were participated. Majority of the students were in the age group of 21-26 years (61.6%) and most of them were using mobiles for more than 3 years (64.1%). Among the study subjects, 75.9% students were spending more than 3 hours of time on smartphone, 62.8% were making more than three calls per day, 90.3% were sending more than 20 messages per day and nearly 55.9% were using up to 25 smart phone apps (Table 1).

Nearly 35% of the study subjects shows mild nomophobia, 59% of them shows moderate nomophobia and only 6% had severe nomophobia. Hence, the prevalence of

nomophobia among medical students in the present study was found to be 100% (Figure 1).

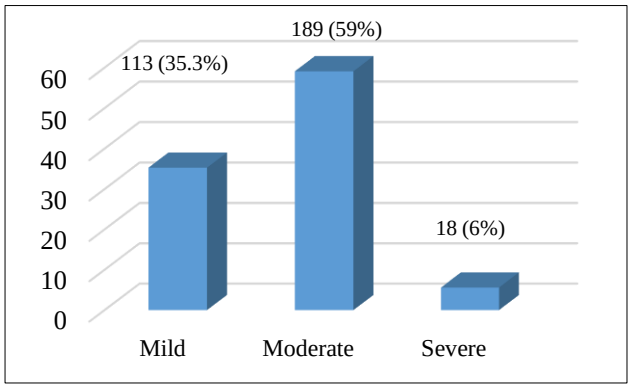

Figure 1: Grading of nomophobia among study participants.

Nearly 60% of the participants were using smart phones for the purpose of communication, 55.6%, for entertainment purpose and 46.2% were using for the educational purpose (Figure 2).

Table 2 shows nearly 66% of students exposed to mobile screen for more than 8 hours. More than half of students (52.5%) were not used blue light filter in their mobile after the lights are turned off. while 68% keeping mobile under pillow while sleeping. Only 16.6% of subjects used mobile on airplane mode (Table 2).

Table 3 shows the results of the nomophobia questionnaire tool (NMP-Q), which revealed that, the majority of students agreed with the statement that they would not experience anxiety from routine email checking (86.9%), followed by students who agreed that they would not feel anxious from not being able to check their notifications (74.7%). Nearly (63.4%) agreed that being unable to access information irritates them. Besides that, 52.5% of them reported feeling anxious when they failed to communicate with friends or family, 49.7% reported feeling nervous due to not having access to information, 39.4% confirmed that they constantly check for the data signal, and 38.4% mentioned that low battery causes them anxiety. If they were unable to use their smartphone or its features when they wanted to, 73.4% of people stated that they would not be irritated. 69.4% of them disagreed with the statement that they could not wait even a short while without checking their smartphones (Table 3).

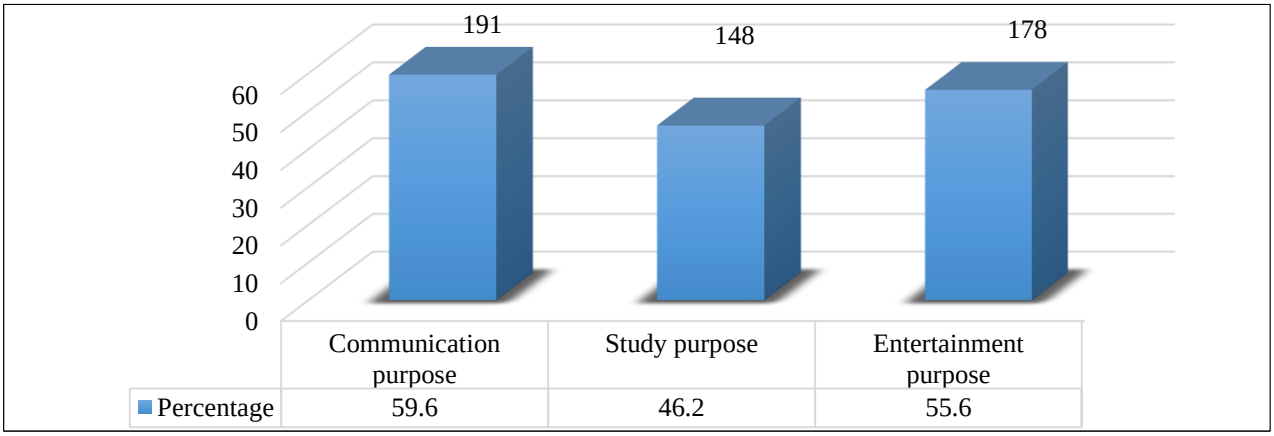

Figure 2: Purpose of using smartphone.

Table 1: Sociodemographic and behavioural characteristics of study population and association with nomophobia.

Variables	Mild, n=113 (%)	Moderate, n=189 (%)	Severe, n=18 (%)	Total, N=320 (%)	Chi-square and p value
Age group					
18-20	33 (10.3)	82 (25.6)	8 (2.5)	123 (38.4)	6.32
21-26	80 (25.0)	107 (33.4)	10 (3.1)	197 (61.6)	0.043*
Gender					
Male	49 (15.3)	65 (20.3)	7 (2.2)	121 (37.8)	2.43
Female	64 (20.0)	124 (38.8)	11 (3.4)	199 (62.2)	0.297
MBBS year					
2nd year	57 (17.8)	107 (33.4)	15 (4.7)	179 (55.9)	6.9
3rd year	56 (17.5)	82 (25.6)	3 (0.9)	141 (45.3)	0.032*
Duration of smartphone use (years)					
<3	39 (12.2)	68 (21.3)	8 (2.5)	115 (35.9)	0.66
≥3	74 (23.1)	121 (37.8)	10 (3.1)	205 (64.1)	0.717

Continued.

Average time spend on smartphone (hours)					
<3	42 (13.1)	33 (10.3)	2 (0.6)	77 (24.1)	16.41
>3	71 (22.2)	156 (48.8)	16 (5.0)	243 (75.9)	0.00*
Average time you check your smartphone per day (times)					
<10	60 (18.8)	53 (16.6)	3 (0.9)	116 (36.3)	22.37
>10	53 (16.6)	136 (42.5)	15 (4.7)	204 (63.8)	0.00*
How often you check your mobile every day (>1 hour)					
<1	33 (10.3)	33 (10.3)	4 (1.3)	70 (21.9)	5.5
>1	80 (25.0)	156 (48.8)	14 (4.4)	250 (78.1)	0.051*
Calls made per day					
≤3	75 (23.4)	119 (37.2)	7 (2.2)	201 (62.8)	4.8
>3	38 (11.9)	70 (21.9)	11 (3.4)	119 (37.2)	0.089
Message sent per day					
≤20	18 (5.6)	12 (3.8)	1 (0.3)	31 (9.7)	7.41
>20	95 (29.7)	117 (55.3)	17 (5.3)	289 (90.3)	0.025*
Smartphone apps					
Upto 25	72 (22.5)	101 (31.6)	6 (1.9)	179 (55.9)	6.98
>25	41 (12.8)	88 (27.5)	12 (3.8)	141 (44.1)	0.030*

Table 2: Pattern of usage of smart phone among study participants.

S. no.	Mobile-related sleep risk factors	Percentage
1	Mobile phone screen usage time ≥8 hours/24 hours	65.9
2	Using mobile phone without blue light filter after the lights are turned off	52.5
3	Keeping mobile under pillow	67.8
4	Not keeping mobile on airplane mode while sleeping/switch off	83.4

Table 3: Nomophobia questionnaire tool (NMP-Q).

S. no.	Question	Strongly disagree/ somewhat disagree/ disagree, N (%)	Neutral (agree/disagree) N (%)	Strongly agree/ somewhat agree/ agree, N (%)
1	Uncomfortable due to lack of access to information	105 (32.8)	59 (18.4)	159 (49.7)
2	Irritated, when I could not get information when I wanted to have	85 (26.6)	33 (10.3)	203 (63.4)
3	Being unable to get the news (e.g., happenings, and weather) on my smartphone would make me nervous.	186 (58.1)	29 (9.1)	106 (33.1)
4	I would be annoyed if I could not use my smartphone and/or its capabilities when I wanted to do so	235 (73.4)	33 (10.3)	55 (17.2)
5	Low battery makes me anxious	176 (55.0)	19 (5.9)	123 (38.4)
6	I get panic if my monthly data limit is exhausted	219 (68.4)	28 (8.8)	76 (23.8)
7	I check constantly for data signal, if there is disturbance in signal	157 (49.1)	37 (11.6)	126 (39.4)
8	I am afraid of getting stranded somewhere without smartphone	183 (57.2)	37 (11.6)	100 (31.3)
9	I could not wait even for a while without checking my mobile phone	222 (69.4)	29 (9.1)	168 (52.5)
10	I feel anxious if I could not communicate with my family/friends	109 (34.1)	43 (13.4)	168 (52.5)
11	I would be worried if my family/friends could not reach me by phone	94 (29.4)	27 (8.4)	199 (62.2)
12	I feel nervous if I do not receive calls or messages	194 (60.6)	35 (10.9)	91 (28.4)

Continued.

Continued.

S. no.	Question	Strongly disagree/ somewhat disagree/ disagree, N (%)	Neutral (agree/disagree) N (%)	Strongly agree/ somewhat agree/ agree, N (%)
13	I would be anxious if I could not maintain contact with my family/friends	119 (37.2)	36 (11.3)	164 (51.3)
14	I would be nervous if someone could not get hold of me	189 (59.1)	54 (16.9)	105 (32.8)
15	I feel anxious because I may lose constant connection with my family	161 (50.3)	36 (11.3)	123 (38.4)
16	I would be nervous because I would be disconnected from my online identity	192 (60.0)	41 (12.8)	87 (27.2)
17	I feel uncomfortable if I am not update on social media	239 (74.7)	28 (8.8)	53 (16.6)
18	I would feel awkward if I could not check my notifications	51 (15.9)	27 (8.4)	242 (75.6)
19	I feel anxious if I could not check my emails regularly	21 (6.6)	21 (6.6)	278 (86.9)
20	If I did not have my smartphone with me, I would feel weird because I would not know what to do	176 (55.0)	45 (14.1)	99 (30.9)

*For analysis purpose, responses in 7-point Likert scale were combined.

DISCUSSION

The present study shows that all the study participants (320) are having nomophobia (100%), of which 59.1% shows moderate nomophobia, followed by mild nomophobia (35.3%) and severe nomophobia (5.6%). Another study done by Anusuya et al in Chennai (2021) among medical students revealed that overall prevalence of nomophobia was (99%), in that 17.5% showed severe nomophobia, 56.3% moderate nomophobia and 25.3% had mild nomophobia.[9] Similar findings were observed in a study done by Asok et al in Manipur (2020), which showed 98.8% of the students are nomophobic of which 60.4% had moderate, 10.5% had mild and 27.9% had severe grades of nomophobia.[10] Sethia et al study in Bhopal (2018) revealed that overall 99.8% of medical students were suffering from nomophobia, among them 61.5% having moderate followed by 6.1% having severe grades of nomophobia and 1% were not suffering from nomophobia.[11] In another study conducted by Madhusudan et al in Kerala (2017), reported that overall, 416 (97%) of the students were nomophobic and 13 (3%) non-nomophobic.[1] 143 (33.3%) showed mild, 241 (56.2%) moderate, and 32 (7.5%) severe nomophobia, respectively. In contrast, Sharma et al shown that 75% of students accepted that they are actually nomophobics but they were unaware of this fact before this study.[7] Similarly lower prevalence of nomophobia was shown 18.5% among medical students in Indore by Dixit et al (2010).[12] It shows most of the studies revealed that almost all the participants were having nomophobia, which should be taken care.

The current study shows that there is no significant association of nomophobia with gender. A Study done by Mallya et al showed female preponderance with 64.28%.[6] Similar study done by Sethia et al in Bhopal (2018) reported a female preponderance of (56.1%).[11] Sharma et al study stated that out of 118 included respondents, 65 were females and 53 respondents were male students.[7] A study conducted in Tamil Nadu (2017) also showed that 60% of the study subjects were females whereas 40% were males.[13] In contrast, a study done by Anusuya et al in Chennai (2021) showed that among medical students, 50% were males and 50% were females.[9]

In view of present study findings, 59.6% were using smartphone for communication purpose followed by 55.6% for entertainment purpose and 46.2% for study purpose. These results are in accordance with a study done by Madhusudan et al showed that 54.4% of students were using smartphone for communication purpose followed by clinical or study purpose (38.8%).[5] Another study done by Mallya et al found that 48.8% of students were using mobile for entertainment purpose and 33% students for communication purpose respectively.[1] Study done by Anusuya et al among medical students, observed that 100% of the students used mobiles for communication with family and friends, 88.9% used for listening music followed by playing games (53.5%).[9]

The current study shows nearly 66% of students exposed to mobile screen for more than 8 hours. More than half of students (52.5%) were not used blue light filter in their mobile after the lights are turned off. while 68% keeping mobile under pillow while sleeping. Only 16.6% of subjects used mobile on airplane mode. Mallaya et al study observed that about 40.7% of students complained of sleep deprivation due to smartphone usage at night.[3] Rafique et al study stated that only 19.7% of subjects used airplane mode, while 70% kept the mobile near the pillow while sleeping.[14] The blue light filter feature was used by only 4.2% of the participants. Dixit et al study showed that 73% of the students stated that they keep their phones near them while sleeping.[12]

In the present study, the majority of students agreed with the statement that they would not experience anxiety from routine email checking (86.9%), followed by students who agreed that they would not feel anxious from not being able to check their notifications (74.7%). Nearly (63.4%) agreed that being unable to access information irritates them. Besides that, 52.5% of them reported feeling anxious when they failed to communicate with friends or family, 49.7% reported feeling nervous due to not having access to information, 39.4% confirmed that they constantly check for the data signal, and 38.4% mentioned that low battery causes them anxiety. Mallaya et al study also found that 33.8% agreed having frequently used smartphone while at work.[6] Majority (81.4%) disagreed that they checked for feeds while the classes were going on. Around 63.4% did not feel anticipation for a timely reply. Many students (45.5%) felt no anxiety over drainage of battery or loss of network signal. Majority (57.9%) expressed anger over not being able to use the smartphone when desired. Most of the students (63.4%) reported no restlessness for not being up to date with the latest in technology. Individuals become anxious when they forget to take their mobile phones with them, when the battery charge runs out, or when they have no network coverage. This state of anxiety adversely affects an individual's concentration to perform their daily activities.[12] Accordingly, 66% of smartphone users stated that they were worried about losing their phones and expressed their anxiety in this aspect.[15]

CONCLUSION

The present study revealed that all students participated in the study were nomophobics with different grades of severity, so it is a serious concern. Nomophobia was significantly associated with age, year of study, average time spent with mobile per day, number of messages sent per day, using a greater number of apps but not significantly associated with gender, duration of smartphone usage, frequent checking of mobile >10 times per day and number of calls made per day. The most common reasons for using smart phone were communication followed by entertainment and study purpose. There is a need for further research on nomophobia, as it is an emerging threat for social, mental, and physical health of the individuals particularly in young age.

Recommendations

Awareness programmes should be organized frequently in colleges to educate students about mobile addiction and its harmful effects. Students must be counselled regarding judicious use of smartphone. Advice regarding silencing the notifications of various unwanted apps and deleting the apps, which are too addictive. The college should encourage students to participate in more social activities and sports. The concept of "net free hours" would be introduced within the daily routines of the students.

ACKNOWLEDGEMENTS

Authors would like to thank all the undergraduate students who participated in the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Neelima BY, Kumari JP, Pallavi RS, Sivakala T, Srinivas K, Prabhu GR. A cross sectional study on nomophobia among medical students in Tirupati, Andhra Pradesh. Int J Community Med Public Health 2023;10:1048-54.