

Original Research Article

Prevalence of nomophobia and its impact among medical students at an institution in Andhra Pradesh during COVID: an online study

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ABSTRACT

Background: Nomophobia the fear of being out of mobile phone contact, which refers to the discomfort, anxiety, stress, nervousness and anguish caused by being out of mobile phone connect. Aim of the to focus on impact of COVID lockdown on students' developmental lifestyles and to assess the student's prediction towards development of nomophobia. The current study also aims to compare addictive internet/smartphone related behaviours, time spent on internet usage other than education and impact on sleep quality, academic performance before and during the coronavirus pandemic.

Methods: A cross sectional study was conducted at Narayana medical college for a period of 4 months from May 2020 to August 2020. A predesigned, validated questionnaire was developed (google survey form) and answers were collected from 600 students and interns in total by sending the questionnaire by email to all the participants. The responses were analyzed by SPSS, version 22.0. Test results with p value less than 0.05 only were considered statistically significant.

Results: In our study, prevalence of nomophobia was more in females (58.96%) than males (42.06%). Gaming was the most common cause of mobile phone usage (79.67%). Poor sleep quality and mobile phone dependence were highest in interns (85.33% and 68%). Variables tested in relation with academic performance were having statistically significant association with nomophobe score of 24.

Conclusions: Publicizing the negative consequences, creating awareness and health education during admission to medical graduates will definitely provide a ray of hope of opt utilization of mobile phone and decrease the chances of mobile addiction.

Keywords: Nomophobia, Sleep score, Poor sleep quality, Health education

INTRODUCTION

Technology is dominating people life today by making their life easier, flexible with innovations that could overcome upcoming challenges and compatible with the world. Mobile phone revolution with easy data availability at low cost made it more personal item with enhanced evolution. Mobile phone has made an erroneous change in the life style as mentioned as a double-edged sword with social media applications, internet usage and

gaming applications rather than educational accessibility. This mobile dependency has created a new stress to the life called nomophobia the fear of being out of mobile phone contact. This clearly refers to the discomfort, anxiety, stress, nervousness and anguish caused by being out of mobile phone connect.¹ Addiction to inter-net and new communicational tools as a health problem has recently been considered as a mental disorder.

The users of mobile phone throughout the globe has increased from millions to billions in recent times with availability of cheap smart phones and low-cost data packages. Young cell phone users are increasing with internet addiction with an unstoppable habit of texting, emails and social media chatting. Many studies have been conducted stating an increase in the prevalence of nomophobia among young users. The basic need of the study was how COVID pandemic situations had an impact on student's life style addictions on internet usage.²

Lockdown due to pandemic has forced closure of educational institutions and shift from normal classroom teaching to online teaching for the students. This methodology has driven students and faculty to investigate the availability of digital teaching platforms for educational implementation. Due to this, students were made to use widely mobile phones, I-pods, tabs and laptops with internet facility which further increased their accessibility to internet. This increased accessibility led to Problematic internet usage with addiction to social media, gaming's etc. Most of the studies pointed out that anxiety, depression and sleep deprivation are consistently linked and directly proportional to internet usage.³

This study will focus on impact of COVID lockdown on students' developmental lifestyles and to assess the student's prediction towards development of nomophobia. The current study will also aim to compare addictive internet/smartphone related behaviours, time spent on internet usage other than education before and during the coronavirus pandemic.

METHODS

The present study was a cross sectional study conducted at Narayana medical college, Andhra Pradesh in south India for a period of four months from May 2020 to August 2020. The institution has an admission of 250 undergraduate students every year with a total of 1250 students including the interns. The present study was explained to all the students and interns and informed written consent was obtained from all the participants of the study. The study protocol was presented before the institutional ethical committee and the questionnaire prepared for collection of data was also approved by the institutional ethical committee. The study was conducted as per the guidelines and the protocol instructed by ethical committee.

Study population and sample size

All the MBBS students who consented for participation in the study and all the phases including the interns were included. Students with history of alcohol or substance abuse or psychiatric disturbances and on medications and students with sleep disorders were excluded from the study. A total of 600 students consented for the study and participants with a minimum history of mobile phone

usage for past six months and daily 2-4 hours duration were included in the study.

Study tool

A predesigned validated questionnaire prepared according to collected literature and mobile dependence based upon Dr Marcus L. Raines was prepared in English and local language.⁴ The questionnaire was validated and modified according to local needs by a panel of subject experts including a psychiatrist. The questionnaire was objective and MCQ type and closed ended type. All the participants should definitely answer every question. The questionnaire included the socio demographic data (age, sex etc.) and psychographic details for mobile dependence, academic performance and sleep quality index. Each question has three responses and marked from one to three. Score was calculated based on the total score obtained after answering. Participants were labelled as no risk if score obtained was <20, at risk if 20-23 and nomophobic if 24.

Data collection

An online session (zoom) was conducted to all the participants in batches of 100 and orientation towards the questions was done. The questionnaire was answered by a google questionnaire form and form was send as a link to all the participants and responses were recorded. The total participants were covered in six batches in a period of three months and responses were recorded from every participant. The questionnaire form was thoroughly checked for complete answering and if found not answered once gain the form was send and response was collected.

Statistical analysis

The collected data was primarily entered in MS excel spread sheet, coded and analyzed for any corrections/errors. Analysis was carried out using IBM SPSS Statistics for windows, version 22.0 (IBM Corp. Armonk, NY, USA). Categorical variables were presented as percentages and Pearson's chi-square test was used to test the association between the variables, an association was significant if p value was <0.05.

RESULTS

In the present study a total of 600 participants who consented for participation were included. There were no dropouts and all the participants answered every question in the study proforma. Females dominated in our study with 58% (348/600) and male students were 42% (252/600). The age range of the study group was 18-26 years with 17 years minimum age and maximum of 26 years. The mean age of the total study group was 22.14±1.9 years, male participants was 22.04±3.8 years and female participants was 21.48±2.5 years. Phase wise distribution of students is represented in Figure 1, with

33.17% in final phase (Part 1 and 2), 26.33% in phase-1, 28% in phase-2 and interns accounted for 12.5%. The unequal distribution of subjects in different phases is due to different passing rates during different phases of the study.

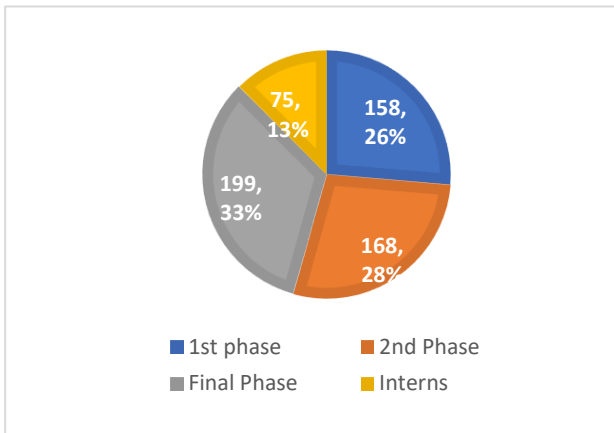


Figure 1: Representing phase wise distribution of study participants.

Figure 2 highlights the common causes of mobile phone usage among the study participants. Inclusion criteria of the participants was minimum one-hour duration of usage and usage with minimum of six months duration. Students stated multiple reasons for using mobile phone, but the reason for most frequent usage in a day was enquired in the present study. 79.67% of participants stated gaming as common cause, followed in order by next social media usage (72.17%), Academic usage (64%), Movies and Music, selfies (38%) and calling and texting (SMS) only in 20.5%. Other causes like usage during to avoid loneliness, only chat etc. were observed in 18.335 of participants.

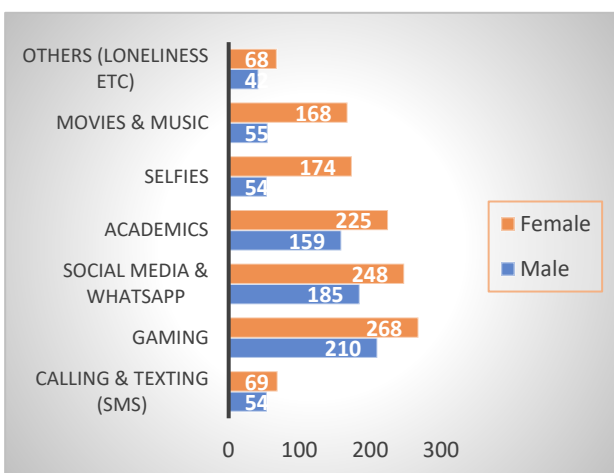


Figure 2: Common reasons for mobile phone usage among the study group.

In the present study, 78% of the participants were using mobile phone for >2 hours/day with calling, gaming, social media usage etc. According to nomophobic score

analysis, females' participants around 58.96% scored 24 (nomophobic), 19.65% were at risk of nomophobic and 21.39% were normal. 42.06% of male participants were nomophobic, 38.10% were at high risk and 19.84% were normal. In our study the prevalence of nomophobia was higher in females than males and the association was statistically significant (p value<0.05) (Figure 3).

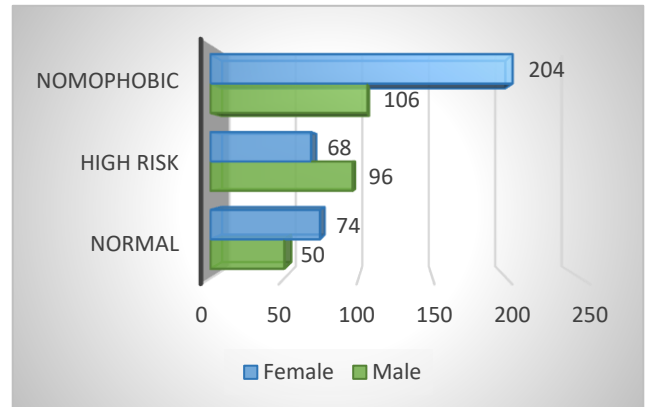


Figure 3: Gender distribution based on nomophobic score in our study.

Table 1 explains the association between mobile phone dependence, sleep quality index and nomophobic score analysis with phase wise analysis of study participants. With regard to mobile phone dependence with >2 hours of duration, interns dominated with 85.33% followed in order by 1st phase (79.75%), 2nd phase 967.86%) and final phase (62.31%). While analyzing the sleep quality index with regard to phase wise distribution of study subjects it was observed that score of 5 or more (Poor sleep quality) was highest in interns (68%) followed in order by 2nd phase (60.7%), final phase (55.78%) and least in 1st phase (50.63%). The association between sleep score and phase of study was found to be statistically significant (p value<0.05) in our study. Analysis of nomophobe score and phase of students in our study explains that score of 24 was identified maximally in 1st phase students (62.03%) followed in order by Interns (58.67%), second phase (46.43%) and final phase (44.22%) and was statistically significant (p value<0.05) (Table 2).

Table 3 summarize the findings of our study in relation with nomophobia and sleep quality index (PSQI).63.08% of the study participants who were nomophobic had poor quality sleep (score >5) in relation to participants with nomophobic score between 21-23 with 24.42% and in normal study participants it was only 12.5%.

Table 4 explains the association of nomophobic score with academic performance during online sessions. All the variables tested in relation with academic performance like absenteeism for online classes, delay in attending the classes, lack of concentration and reduction in grade/performance were having statistically significant association (p value<0.05) with nomophobe score of 24.

Table 1: Mobile phone dependence, sleep quality parameters of study participants.

Variables	1 st phase (No, %)	2 nd phase (No, %)	Final phase (No, %)	Interns (No, %)	Total
Duration of smartphone usage other than calling (Hour)					
<1	14 (8.86)	25 (14.88)	40 (20.10)	7 (9.33)	86
1-2	18 (11.39)	29 (17.26)	35 (17.59)	4 (5.33)	86
> 2	126 (79.75)	114 (67.86)	124 (62.31)	64 (85.33)	428
Total	158	168	199	75	600
PSQI (sleep quality index)					
<5 (Normal)	78 (49.37)	66 (39.3)	88 (44.22)	24 (32)	256
>5 or more (Poor)	80 (50.63)	102 (60.7)	111 (55.78)	51 (68)	344
Total	158	168	199	75	600
Nomophobe score					
<20	28 (17.72)	32 (19.05)	57 (28.64)	7 (9.33)	124
20-23	32 (20.25)	54 (32.14)	54 (27.14)	24 (32)	164
24	98 (62.03)	78 (46.43)	88 (44.22)	44 (58.67)	312
Total	158	168	199	75	600

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

Variables	Nomophobe score <20 (n=124) (%)	Nomophobe score 21-23 (n=164) (%)	Nomophobe score 24 (n=312) (%)
Gender			
Male (n=252)	50 (20.63)	96 (38.10)	106 (42.06)
Female (n=348)	74 (21.26)	68 (19.54)	204 (58.62)
Students in different phases of study (n=600)			
1 st phase (158)	28 (17.72)	32 (20.25)	98 (62.03)
2 nd phase (168)	32 (19.05)	54 (32.14)	78 (46.43)
Final phase (199)	57 (28.64)	54 (27.14)	88 (44.22)
Interns (75)	7 (9.33)	24 (32)	44 (58.67)

Table 3: Association between nomophobia and PSQI.

Sleep quality index	Nomophobe score <20 (n=124) (%)	Nomophobe score 21-2 (n=164) (%)	Nomophobe score 24 (n=312) (%)
<5 (Normal) (n=256)	81 (31.64)	80 (31.25)	95 (37.11)
>5 or more (poor) (n=344)	43 (12.5)	84 (24.42)	217 (63.08)

Table 4: Association between nomophobia and academic performance during online classes.

Academic performance	Nomophobe score <20 (n=124) (%)	Nomophobe score 21-23 (n=164) (%)	Nomophobe score 24 (n=312) (%)
Absenteeism for online classes			
Yes	35 (8.95)	98 (25.06)	258 (65.98)
No	89 (42.58)	66 (31.58)	54 (25.84)
Reduction of grades in examinations			
Yes	54 (14.10)	84 (21.93)	245 (63.97)
No	70 (32.26)	80 (36.87)	67 (30.88)
Delay in attending classes			
Yes	59 (16.34)	78 (21.61)	224 (62.05)
No	65 (27.2)	86 (35.98)	88 (36.82)
Lack of concentration due to mobile phone dependence			
Yes	44 (11.58)	88 (23.16)	248 (65.26)
No	80 (36.36)	76 (34.55)	64 (29.09)

DISCUSSION

Nomophobia a catchy nomenclature derived from No mobile phobia is identified as a mental disorder among school students and adolescents which is on the rise due to addiction to mobile phone usage. Globally the prevalence of the disorder is on the rise and it's a serious threat to the advanced and digitally developing nations to curtail at early phase. Nomophobia is identified as a threat to our social, mental and physical health.⁵ Imposing lockdown during COVID has resulted in high use of social media and internet and, recent studies have shown an increase in nomophobia in Turkish youths.⁶ the aim of this study was to identify the prevalence of nomophobia among medical school graduates and its impact on sleep quality index, academic performance due to COVID-19.

In our present study conducted to assess the prevalence of nomophobia, we estimated the prevalence as 52%, and female were more nomophobic (58.96%) than male participants (42.06%). The present study highlights a changing trend of nomophobia among female medical graduates than male graduates. Our study findings were similar to the findings of Harish et al who reported similar prevalence of 50% in females and 49.4% among males. In their study the overall prevalence of nomophobia was 63.9% which is consideration of moderate risk as nomophobic in their study.⁷ However findings from the study of Pavithra et al states that prevalence of Nomophobia was only 39.5% and more in males (44.8%) than females (33.7%), similar results were also identified in the study of Dixit et al with only 18.5% prevalence in his study.^{8,9}

In our study, top three causes of mobile phone dependence for >2hours duration other than calling was gaming (79.67%), Social media usage (72.17%) and Academic usage (64%). Similar pattern of findings was reported from the study of Gupta and Madhusudan et al who reported video gaming as the most common cause of cell phone as addiction.^{10,11} Contrary to our study in developed nations, academic usage was identified as the common cause of mobile phone dependence in educational videos, research projects and study apps development. Our study revealed that nomophobic score of 24 was identified more in students using mobile phone for >2 hours of duration when compared to students using <2 hours of duration. This association was also found statistically significant. Similar findings were reported from the study conducted at Polish and Belarusian university students in 2012.¹²

In our study, nomophobia was mostly observed in the 1st phase students when compared to others which clearly indicates the increased dependence among young adults. Findings of our study were on par with Ahmed et al, who reported that Nomophobia was observed mostly in 1st phase and in interns who used it for academic activities.¹³ In our study we observed a statistically significant correlation. Dasgupta et al in his study between medical and engineering students observed that nomophobia was

observed more in 2nd phase students and in final year engineering students with no statistical correlation.¹⁴

Most of the studies conducted earlier explained the relationship between mobile phone usage and academic performance activities. They clearly state that performance and mobile phone usage are inversely proportional. In our study we clearly observed that all the academic performance variables were poor in students with nomophobe score was 24 and moderately affected in students with high-risk category. Choudhury et al and many other studies universally stated that academic performance was severely affected in all the students with mobile dependence and the most common reason was excessive usage during nights impeding to attend classes regularly leading to late and absenteeism.¹⁵

In our study we observed, as the score increases the sleep quality deteriorates. In our study, the prevalence of participants with poor sleep quality (score>5) was 57.34% and mostly observed in individuals with nomophobe score of 24. Similar study was conducted in students of Saudi Arabia, where extensive mobile phone usage led to headache, anxiety and sleep deprivation among the participants.¹⁶ Our study clearly established a causal relationship between poor sleep quality and mobile phone usage during night.

The study limitation was it was conducted in only one institution, however to assess the incidence among the graduates the study should include graduates from all the professional courses who are at increased risk of development of nomophobia. Increased participation will provide accurate estimation of the nomophobia, dependence to internet and sleep quality index among addicted students.

CONCLUSION

To conclude, gadget dependency is associated with significant health issues like mental anxiety, poor sleep quality and academical deterioration among the medical students. It's a great need at this moment to create awareness of this evolving public health problem mostly among the highly dependent and vulnerable adolescents and students. Publicizing the negative consequences and creating awareness will definitely provide a ray of hope of opt utilization of mobile phone and decrease the chances of mobile addiction. Health education during admission to medical graduates can restrict the addiction towards mobile phone.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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