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Original Research Article

Mobile Phone Dependence among Undergraduate Students of a Medical College of Central India: A Descriptive Cross-sectional Study

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ABSTRACT

Background: Mobile phone use has become a significant part of student's life. The attitude and time channeled toward these devices has enslaved the students, making them addicts. In the recent times, the concept of behavioral addiction has gained significant attention know as nomophobia which literally means "no mobile phobia" that is the fear of being out of mobile phone contact. Studies show that excessive mobile phones use can be associated with mental health such as anxiety, depression, low self-esteem, internet addiction, high impulsivity, loneliness, social isolation etc. Students do not necessarily realize their level of dependence to their cell phones. To address this problem and create awareness among medical students the present study was planned. Objectives of this study were 1)To assess prevalence of nomophobia among medical students 2) To assess pattern of mobile phone usage. 3) To know health related consequences of nomophobia

Methods: College based cross sectional study was conducted among undergraduate medical students of Central, India. All undergraduate students from 1st MBBS to final MBBS were enrolled in the study. Data was collected from 489 medical students with a pr-designed pretested questionnaire. "test of mobile phone dependence" (TMD Brief) was used to assess nomophobia.

Results: The prevalence of nomophobia was 43.96%, which was marginally more among males (46.4%) compared to females (41.8%). Sleeplessness; 1st year MBBS (30.5%), 2nd year MBBS (35.0%), 3rd year MBBS (28.2%) and 4th year MBBS (24.6%) followed by headache 1st year MBBS (32.2%), 2nd year MBBS (21.7%), 3rd year MBBS (30.8%) and 4th year MBBS (43.9%) were most common symptoms experienced due to mobile phone dependence. In this study according to duration of usage of mobile phone majority of medical students were using their mobile phone for more than 4 hours per day which was found extremely significant association between mobile addiction in all professional years; MBBS 1st Prof (44.1%), MBBS 2nd (40.0%), MBBS 3rd Prof (51.3%) and MBBS 4th prof (59.6%). While according to main purpose of usage of mobile phones in all professional years is social networking; MBBS 1st Prof (69.5%), MBBS 2nd (61.7%), MBBS 3rd Prof (56.4%) and

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MBBS 4th prof (68.4%) was found to be statistically significant. Simultaneously according to habit of unlocking mobile phone repeatedly; 1st year MBBS, 2nd Year MBBS, 3rd year MBBS and 4th Year MBBS students; test was found to be statistically significant in the study respectively.

Conclusions: The present study high prevalence of nomophobia among undergraduate medical students is an alarming issue and it should be addressed on priority basis.

Keywords: Nomophobia, Medical students, Test of mobile phone dependence.

INTRODUCTION

Mobile phone use has become a significant part of student's life[1]. Usage of mobile phones is not intended for negative purposes and influence; however, the attitude and time channeled toward these devices has enslaved the students, making them addicts[2]. In the recent times, the concept of behavioral addiction has gained significant attention. Behavioral addiction for mobile phones has been variously termed as mobile phone dependence, mobile phone problematic use, problem cell phone use, mobile phone abuse and nomophobia.[3]

Studies show that excessive mobile phones use can be associated with different aspects or problems of mental health such as anxiety, depression, low self-esteem, internet addiction, high impulsivity, loneliness, social isolation [3]etc. Students do not necessarily realize their level of dependence to their cell phones.[4]

Mobile phone addiction, also known as mobile phone anxiety and mobile phone syndrome, is a behavioral addiction characterized by the compulsive and excessive use of smartphones that may result in decreased social functioning and psychological and behavioral disorders in patients[5].

Some medical students have gotten addicted to their phones because of their excessive usage in the last several years, which has been increased by the pandemic, the demands of online courses, and the long hours spent at home away from the constraints of the group environment[6].

According to the findings, there is a strong correlation between medical students' mobile phone use and a variety of mental health issues (including but not limited to interpersonal sensitivity, paranoia, depression, anxiety, hostility, and compulsion), all of which have a chilling effect on their academic performance and have now emerged as a social public health concern[7].

As the future pillar of the healthcare industry, medical students have a heavy learning task, and their mobile phone addiction should receive closer attention. Therefore, it is of great significance for understand the current situation and risk factors of mobile phone addiction among medical students in India. Therefore; mobile phone addiction was used to assess the strength of the relationship between various factors and mobile phone addiction in order to provide a basis for prevention of phone addiction.

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The objective of this study was to find out the prevalence of mobile phone dependence followed by to access pattern of mobile phone usage and to know health related consequences of nomophobia among undergraduate students of a medical university of Dewas city, India.

METHODOLOGY

Study Design: A descriptive college based cross-sectional study

Study Period: Study was conducted for 06 Months.

Study Population: Medical undergraduate students of a Amaltas institute of medical sciences, Dewas city, India. From first MBBS to Final year MBBS giving consent for the study

Study Area: Amaltas institute of medical sciences, Dewas

Inclusion criteria: Medical students given consent for study; those students using mobile phones for at least 5 years

Exclusion criteria: Exclusion of students not using mobile phones and not possessing mobile phones with them, students using mobile phones for less than 5 years.

A total of 507 undergraduates medical students were enrolled from all 4 batches of MBBS. Out of total 507 students 489 students participated voluntarily in the study. Rests 18 were either absent during data collection or declined to participate in the study.

Ethical approval

Institutional ethics committee approved the present study prior to the start of the data collection.

A pr-designed pretested questionnaire was used for data collection including all the basic socio-demographic data of study participants along with some questions for assessing pattern of mobile phone usage, health related consequence nomophobia etc. All the participants were informed the purpose of carrying out present study and informed oral consent was obtained from each participant.

The study was approved by Scientific and Ethical Institutional Review Committee of the college on 25th September 2024. Written informed consent was taken from each participants and confidentiality was maintained.

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Tool for assessing mobile phone dependence/ nomophobia as test of mobile phone dependence brief (TMD Brief) was used for assessing mobile phone dependence among study participants. TMD brief scale was designed and validated by Choliz et al[8]. Each question in TMD Brief was coded by likert type scale as never -1, rarely -2, sometimes -3, often -4 and frequently -5. therefore the total minimum and total maximum score of TMD brief were 12 and 60 respectively. The study participants scoring ≥ 30 (i.e score of more than 50% of total maximum score) were labeled as having nomophobia i.e mobile phone dependence.

Statistical Analysis

The data were compiled and analyzed in SPSS version 16 was coded and entered into Microsoft excel worksheet. The frequency distribution of the study subjects according to age, residence, guardian occupation was analyzed. The prevalence of mobile dependence was estimated in relation to certain selected characteristic factors such as duration of usage and main purpose of usage of mobile phones and factors associated with health issues and sleep pattern, followed by habit of unlocking mobile phones, use of mobile phones in washroom and unable to concentrate in studies due to mobile phone addiction. To find out the association of mobile phone addiction with the above factors, chi- square test was applied for some of the factors. The statistical significance was evaluated at 5% level of significance. Microsoft word and Micro Excel were used to generate tables.

RESULTS

Table 1: Mobile phone dependence among the study participants..

Characteristics	Category	Number of respondents in 489
Mobile phone dependence	Dependent	215 (43.96%)
	Non- Dependent	274 (56.04%)

Table 1: In the present study 215 (43.96%) medical students were mobile phone dependent. While medical students who were not-dependent on mobile phone were 274 (56.04%) respectively.

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Table 2: The demographic characteristics of the study population with Nomo-phobic presentation

Characteristics	Category	Nomo-phobic	No Nomo-phobic	Total No of students
Gender	**Male**	108 (46.4%)	125 (53.6%)	233 (47.7%)
	Female	107 (41.8%)	149 (58.2%)	256 (52.3%)
Age in years	**17–19**	11 (5.1%)	09 (3.4%)	20 (4.1%)
	20–22	136 (63.3%)	185 (67.5%)	321 (65.6%)
	23–25	65 (30.2%)	74 (27.0%)	139 (28.4%)
	≥ 26	03 (1.4%)	06 (2.18%)	09 (1.9%)
Residence	**Hostlers**	188 (45.2%)	228 (54.8%)	416 (85.1%)
	Day Scholars	27 (37.0%)	46 (63.0%)	73 (14.9%)
Guardian Occupation	**Medical**	18 (34.0%)	35 (66.0%)	53 (10.8%)
	Non- Medical	197 (45.2%)	239 (54.8%)	436 (89.2%)
Owned mobile phone (years)	**< 16 years**	89 (41.4%)	91 (33.2%)	180 (36.8%)
	16 – 18 years	80 (37.2%)	124 (45.3%)	204 (41.7%)
	> 18 years	46 (21.4%)	59 (21.5%)	105 (21.5%)
Academic Year	**1st year**	59 (42.4%)	80 (57.6%)	139 (28.4%)
	2nd year	60 (52.6%)	54 (47.4%)	114 (23.3%)

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	3rd year	39 (32.2%)	82 (67.8%)	121 (24.7%)
	4th year	57 (49.6%)	58 (50.4%)	115 (23.5%)

Table 2: According to demographic characteristics majority of the study participants, were females i.e. 256 (52.3%) whereas among Nomo-phobic; males were more Nomo-phobic (46.4%) as compared to female (41.8%). Majority of the medical students were in the age group of 20 - 22 years i.e 65.6%. while majority of medical students lives in hostel I.e (85.1%). out of which (45.2%) students were Nomo-phobic. According to the guardian occupation majority i.e (89.2%) of medical students have their guardian from non-medical occupation. While according to owned their mobile phone majority of the medical students who were Nomo-phobic have their mobile phones since < 16 years of their age I.e 41.4% respectively. As the study conducted on medical students to assess the Nomo-phobic pattern among study participants; majority (52.6%) were found in MBBS 2nd Prof; followed by (49.6%) i.e from final years followed by MBBS 1st prof I.e (42.4%) and least with 3rd prof medical students i.e (32.2%) in the present study accordingly.

Table 3: Duration and purpose of mobile phone usage among the respondents.

Characteristics	**MBBS 1st prof**	**MBBS 2nd Prof**	**MBBS 3rd Prof**	**MBBS 4th Prof**	**Chi Sq**	***p*-Value**
Duration of usage						
1 – 2 hours per day	15 (25.4%)	24 (40.0%)	07 (18.0%)	04 (7.1%)	19.1008	0.0039*
2 – 3 hours per day	18 (30.5%)	12 (20.0%)	12 (30.7%)	19 (33.3%)		
> 4 hours per day	26 (44.1%)	24 (40.0%)	20 (51.3%)	34 (59.6%)		
Main purpose of usage						
Social networking	41 (69.5%)	37 (61.7%)	22 (56.4%)	39 (68.4%)	16.1733	0.0128*
Entertainment	05 (8.5%)	03 (5.0%)	10 (25.6%)	03 (5.2%)		
Academic purpose	13 (22.0%)	20 (33.3%)	07 (18.0%)	15 (26.3%)		

Table 3: In this study according to duration of usage of mobile phone majority of medical students were using their mobile phone for more than 4 hours per day which was found in all professional years; MBBS 1st Prof (44.1%), MBBS 2 nd (40.0%), MBBS 3rd Prof (51.3%) and MBBS 4th prof (59.6%). however after applying test, bi-variate analysis found to be extremely significant association between mobile addiction with the duration of usage of mobile phones in the study. While according to main purpose of usage of mobile phones in all professional years is social networking; MBBS 1st Prof (69.5%), MBBS 2nd (61.7%), MBBS 3rd Prof (56.4%) and MBBS 4th prof (68.4%) followed by academic purpose in MBBS 1st

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Prof (22.0%), MBBS 2nd (33.3%), MBBS 4th Prof (26.3%); test was found to be statistically significant in the study.

Table 4: Health issues and Addiction among medical students.

Characteristics	MBBS 1st prof	MBBS 2nd Prof	MBBS 3rd Prof	MBBS 4th Prof	*p*-Value
Health Issue					
Eye Ache	10 (16.9%)	11 (18.3%)	12 (30.8%)	14 (24.6%)	0.3178
Headache	19 (32.2%)	13 (21.7%)	12 (30.8%)	25 (43.9%)	0.0840
Neck stiffness	12 (20.3%)	15 (25.0%)	04 (10..3%)	04 (7.1%)	0.0337*
Sleeplessness	18 (30.5%)	21 (35.0%)	11 (28.2%)	14 (24.6%)	0.6626
Duration of sleep					
< 6 hours per day	32 (54.2%)	40 (66.7%)	11 (28.2%)	16 (28.1%)	0.0002**
> 6 hours per day	27 (45.8%)	20 (33.3%)	28 (71.8%)	41 (71.9%)	
Unable to concentrate in studies					
Always	43 (72.9%)	39 (65.0%)	31 (79.5%)	48 (82.2%)	0.0971
Never	16 (27.1%)	21 (35.0%)	08 (20.5%)	09 (15.8%)	
Use Mobile phones in washroom					
Always	35 (59.3%)	43 (71.7%)	20 (51.5%)	36 (63.2%)	0.2123
Never	24 (40.7%)	17 (28.3%)	19 (48.7%)	21 (36.8%)	
Habit of unlocking phone					

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Always	49 (83.1%)	39 (65.0%)	34 (87.2%)	52 (91.2%)	0.0018**
Never	10 (16.9%)	21 (35.0%)	05 (12.8%)	05 (8.8%)	

Table 4: According to the health issues associated with mobile addiction majority of the study participants were facing Sleeplessness, headache followed by neck stiffness due to long working hours on mobile. However after applying test, bi-variate analysis found to be non-significant for sleeplessness, headache and eye-ache while neck stiffness was found to be statistically significant among medical students who were Nomo-phobic. While according to duration of sleep 1st years MBBS students and 2nd year MBBS students were sleeping less than 6 hours which was found to be statistically significant in this study respectively. Simultaneously according to habit of unlocking mobile phone repeatedly; 1st year MBBS, 2nd Year MBBS, 3rd year MBBS and 4th Year MBBS students; test was found to be statistically significant; while, unable to concentrate in studies and use of mobile phones in washroom were found not statistically significant in the study respectively.

DISCUSSION

The present study was conducted among a special group of students i.e. undergraduate students of rural medical college. It was a college based cross sectional study, the study revealed the prevalence of mobile phone dependence as 43.96% which is high. Similar findings were reported by Dongre et al, in their study among general population at Nanded, Sharma et al, study among medical students of Indore and Domple et al, in the study among undergraduate students of Nanded, the prevalence reported was 68.92%, 73% and 82.1% respectively [9,10,11].

In the current study, prevalence of nomophobia was slightly on higher side among males (46.4%) as compared to females (41.8%). Similar finding were noticed by another studies by Pavithra et al, and Beranuy et al, in their study among medical students of Banglore and the study conducted among college students respectively[11,12]. Contrary, finding were reported from studies by Domple et al, and Mok et al, in their study at Nanded medical college among undergraduate students and study among university students of Korea respectively[11,14]. While Bianchi and Phillips, has revealed that there is no difference of prevalence among male and females[15]. From the above reports, it seems that mobile phone dependence is universal and distributed equally among males and females. Considering the pattern of mobile phone usage, maximum students were using their mobile phones rather than calling; for Social media; 1st year MBBS (65.5%), 2nd year MBBS (61.7%), 3rd year MBBS (56.4%) and 4th year MBBS (68.4%); for academic purpose,1st year MBBS (22.0%), 2nd year MBBS (33.3%), 3rd year MBBS (18.0%) and 4th year MBBS (26.8%); for entertainment purpose 1st year MBBS (8.5%), 2nd year MBBS (5.0%), 3rd year MBBS (25.6%) and 4th year MBBS (5,2%). On the contrary, Pavithra et al, reported, maximum students were using their mobile phones for social networking (56%) and about (11%) for playing games, which was a cross sectional study among medical students of Bangalore[12]. These contrary finding are expected due to different study setting as rural and urban.

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It was noticed that, majority of the study participants were spending more than 4 hours per day on mobile phones which was found statistically significant while Subba et al, reported, only (13.9%) were spending equal to or more than 121 to 300 minutes per day (3-5 hours) and maximum were spending only about less than or equal to 30 minutes per day where the study was carried out among medical students of South India[16].

In the present study, most common health related consequence of mobile phone dependence was „disturbance of sleep" 1st year MBBS (30.5%), 2nd year MBBS (35.0%), 3rd year MBBS (28.2%) and 4th year MBBS (24.6%) followed by headache 1st year MBBS (32.2%), 2nd year MBBS (21.7%), 3rd year MBBS (30.8%) and 4th year MBBS (43.9%) etc. Similar results were reported by Dongre A.et al.,(2017)[9] and Masthi et al where lack of sleep (70.61%) was most common symptom compared to other symptoms, and„lack of sleep" (43%) as most common symptom followed by headache (29%) and other symptoms, respectively[17]. In another study by Alosaimi et al 43% subjects agreed that, their sleeping hours decreased since they began using smartphones[18]. Above reports shows that there is a definite association between mobile phone dependence and sleep disturbances.

CONCLUSION

The present study found that mobile phone dependence was common among the undergraduate medical students and is associated with time spent on mobile in a day, usage of mobile phone followed by ill health issues and un-academic compliance. There was marginal difference between males and females with regard to mobile phone dependence. These results suggest the need to develop educational programme to educate the students to use mobile phone meaningfully.

LIMITATION

The present study; results are dependent on the assumption that the undergraduate medical students gave honest responses to the questionnaire, as it was self – administered.

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CONFLICT OF INTEREST: Non declared

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