International Journal of Yoga, Physiotherapy and Physical Education
www.sportsjournal.in
ISSN: 2456-5067
Received: 16-09-2022, Accepted: 03-10-2022, Published: 20-10-2022
Volume 7, Issue 5, 2022, Page No. 74-79

A study on prevalence of nomophobia and associated factors with smartphone users among medical students and academicians

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Abstract
Background and Purpose: Smartphone's popularity has risen to such an extent in recent years that it is unimaginable for the people to stay away from it even for a while. The excessive usage has emerged to a condition termed as nomophobia or a form of behavioural addiction towards smartphone associated to the anxiety caused by detachment from the mobile network or inability to have access to a smartphone. Nomophobia is a modern age phobia introduced to our lives as a repercussion of the interaction between people and mobile phone. This study was conducted to find out the prevalence of nomophobia among the population in India aged above 18 years to 50 years.
Material and Methodology: A 31-item nomophobia questionnaire was used to assess the prevalence of nomophobia among the medical students, also the purpose and in which context smartphone was used. The data was collected using a personal information form which includes the demographic variables, a self-administered google survey form for smartphone usage purpose and pattern, moreover form was distributed among the targeted audience via email, WhatsApp and other social media. A total of 200 valid responses were collected, entered into a Microsoft Excel spreadsheet, and analysed in SPSS software.
Result: Almost 90% of the population has some or other symptoms of Nomophobia. About 90% of the population check their smartphone without reason. Majority (62.7%) of the participants were using smartphone for 3 to 6 hours in their leisure time (54.2%) and spent their maximum time on social media (52.7%). Eye strain (31.8%) was noted as the main health consequence of nomophobia. In addition to this, it was found that smart phone being user-friendly (87.1%), provided them with Easy access of information (92.5%), convenient way of working(83.1%).Also the Subjects experienced insecurity issues (53.2%) due to smartphone.
Conclusion: The results of the study are suggestive of mobile phone dependence among medical students. The data is indicative of nomophobia to be an emerging problem of the modern era which needs attention. Thus, we can conclude that various activities done by youth confirms that they are addicted to smart phone.

Keywords: nomophobia, smartphone addiction, medical student, internet usage, nomophobic, young adult

Introduction

Mobile phones have become indispensable part of our lives. It is estimated that approximately 6.628 billion smartphones are used globally. About 94% of those in the age group of 18 to 29 are users of smart phones. [1, 2, 3] The number of smartphone users in India was estimated to reach over 748 million in 2020, moreover this numbers are increasing rapidly day by day.

Mobile phone enables the user to have internet access, communicating, social networking and even able to monitor their health and lifestyle [1, 3]. In recent times there seems to have been a transformation of the cell phone from a status symbol to a necessity because of the countless perks that a mobile phone provides like personal diary, email dispatcher, calculator, video game player, camera, and music player [16]. Ever increasing reliance on smart phones among adolescents, young adults and college students may signify the evolution of smartphone use evolving from a habit to an addiction. [6] It is rude to use a mobile phone in a public place. But now the scenario has changed, almost every person can be seen busy on their smart phone at public place and it does not seem rude nowadays [16]. Presently, smart phones are being a critical part of maintaining social relationships and conveying the more mundane exigencies of everyday life. Adolescents and young adults today cannot envision an existence without smartphones [7].

It is considered as the phobia of the 21st century and has been described in the context of clinical psychology as the irrational fear of not being able to reach to a mobile phone or not being able to communicate through a mobile device [4, 5]. Nomophobia has recently been used to describe the discomfort or anxiety caused by the non-availability of a mobile phone, personal computer or any other virtual communication device in individuals who uses them habitually [3]. There are various associated factors with mobile phone usage like necessity, escape route, sense of belongingness, staying updated, social desirability, independence, and routine habit. The various facilitating factors are access to information, user friendly, convenience, internet availability, communication allowance, replacement of face-to-face interaction. The controlling factors for smartphone usage are restriction from family, security concern, and feeling of missing out (FOMO).

Since the younger generation is the latest consumer of the mobile phones, and the under 25-year age group in professional colleges like medical colleges use mobile phones quite frequently since most of them reside in hostels. Day scholar students too want to be in constant touch with their family members and friends since they are out of their homes for the whole day and at nights while studying in colleges and working in hospitals [10]. Hence, current study

was an attempt to explore and collect precise data relevant to the causes, symptoms and complications of Nomophobia that may help to take effective preventive measures. The aim of the study was to explore the prevalence and correlation of associated factors on Nomophobia.

Research in this area is critically important given the pervasive use of cell-phones by young adults, especially college students [17]. to determine possible association of Nomophobia with socio demographic determinants and to assess the health-related consequences.

Aims and Objective: To find the prevalence of mobile phone usage addiction among medical students. And To find correlation between mobile phone usage and associated factors

Material And Methodology

Study design was Cross- sectional study. Sampling design: purposive. The study population comprised of medical students and academicians of either sex of 18-50 years of age with Sample size: 200 and the Study duration was 6 months.

Procedure

The present study is a cross-sectional study and was conducted amongst 200 Medical students. A self-administered questionnaire was used to study mobile phone dependence among the subjects. Initially, the questionnaire was distributed among 500 students pursuing education, internship, both day scholars and holsters, through WhatsApp and mail (social media) for the study. The questionnaire was modified according to the local conditions. The mobile phone dependent students were then designated as nomophobes [18]. The data were collected to elicit information on demographic and psychographic aspects of the respondents. The demographic variables included age, gender, and education.

The psychographic variables included attitude towards usage of cellular phones, mobile phones dependence and associated anxiety. The questionnaire focusing on nomophobia had various components: duration, anxiety and stress experienced because of faulty connections; loss of mobile and battery discharge; frequency of use per hour, purpose of maximum usage, phone usage at night, hindrance in concentration at work and increased phone dependency.

The individual responses thus obtained were then compiled, processed, and analysed to arrive at the results on various issues

Statistical Analysis

The statistical analysis was performed using SPSS version 20. Descriptive statistics were carried out for the age, sex and outcome measures in the google form itself. Prevalence of Nomophobia was evaluated. Pearson correlation test was performed to identify the relationship between associated factors related to mobile phone usage. The level of significance was kept at $p \leq 0.05$.

Result

Socio demographic characteristics of the participants are depicted in Table 1. Duration of smartphone usage was found to be 3–6 hours in nearly half of the participants (62.7%), and 10.9% of the participants even reported using their smartphone for 7 hours and more per day. About 45% of the participants checked their phone at least 3 times per hour, followed by 38.3% participants checked their phones at least 4–6 times per hour.

Social networking and browsing internet were found to be the most used utilities in smartphones, which are 52.7% and 15.4% respectively. Smartphone use was found to be maximum during leisure time (54.2%), followed by the time before sleeping (34.8%). Almost 73% of the students admitted that they sometimes check their smartphones without any particular reason. Only 11.9% felt that their smartphone use was hampering their academic performance. Additionally 41.8% did not use their smartphone as an escape route during exams. Also, 52.2% said that they keep their smartphones next to them while sleeping, 51.2% participants sometimes used their smartphone after waking up whereas around 30% participants used their smartphone immediately after waking up.

Out of 200 responses from participants, the highest proportion of perceived ill health effect due to smartphone use was reported for eye strain (31.8%), followed by headache (14.9%). No perceived ill health was reported by 53 respondents In this study, it was found that smart phone being user-friendly (87.1%), provided them with easy access of information (92.5%) and convenient way of working (83.1%), because of this characteristic 159 subjects felt that smartphones increased their independency.

In addition, a significant proportion of (61.7%) subjects felt connected with the world when they have a smartphone. Nowadays face to face interactions are replaced by video calls (57.7%) because of advancement in technology.

Percentage prevalence of Nomophobia

After seeing the responses we can conclude that almost 90% of the population has some or other symptoms of Nomophobia. About 90% of the population check their smartphone without reason. About 68% had a perception that phone use was hampering academic performance. About 64% felt that if they didn't use the phone, they will be outdated about everything. About 68% were tensed and annoyed when their friends have seen their message and don't reply back. About 49% felt worried about leaving your phone at home.

Pearson correlation was performed to see the association between all the variables related to phone usage and symptoms of nomophobia. The level of significance was set at $p \leq 0.05$.

Table 1

Variable	Associated Factors	Corealtion (r)	P Value	N
	Phone use without reason	0.077	0.682	200
Duration	Hampering Academic Performance	0.077	0.284	
	Lonely Without Phone	0.003	0.962	
	Tensed	0.024	0.734	

Table 2: Demonstrates Positive correlation of duration with phone use without reason, hampering academic performance, lonely without phone, tensed

Variable	Associated Factors	Corealtion (r)	P Value	N
	STAY WITHOUT PHONE	-0.95	0.182	200
DURATION	USER FRIENDLY	-0.37	0.604	
	INSECURITIES	-0.1	0.132	
	WORRIED	-0.88	0.214	

Table 3. Demonstrates strong negative correlation of duration with phone use with stay without phone (-0.95), weak negative correlation of duration with user friendly (-0.37), weak negative correlation of duration with insecurity issues that if your number goes into wrong hand then it can be troublesome for you (-0.1), strong negative correlation of duration with worried about leaving your phone at home(-0.88).

Table 3

Variable	Associated Factors	Corealtion (r)	P Value	N
	Phone Without Reason	-.173*	.014	200
	Hampering Academic Performance	-.173*	.014	
Frequency	Insecurities	-.026	.715	
	Worried	-.042	.556	
	Tensed	-.135	.057	

Table 4. Demonstrates weak negative correlation of Frequency with phone use without reason (-.173*), hampering academic performance (-.173*), insecurity issues that if your number goes into wrong hand then it can be troublesome for you(-.026), worried about leaving your phone at home (-.042), tensed and annoyed when their friends have seen their message and don't reply back (-.135).

Table 4

Variable	Associated Factors	Corealtion (r)	P Value	N
FREQUENCY	LONELY WITHOUT PHONE	.032	.651	200

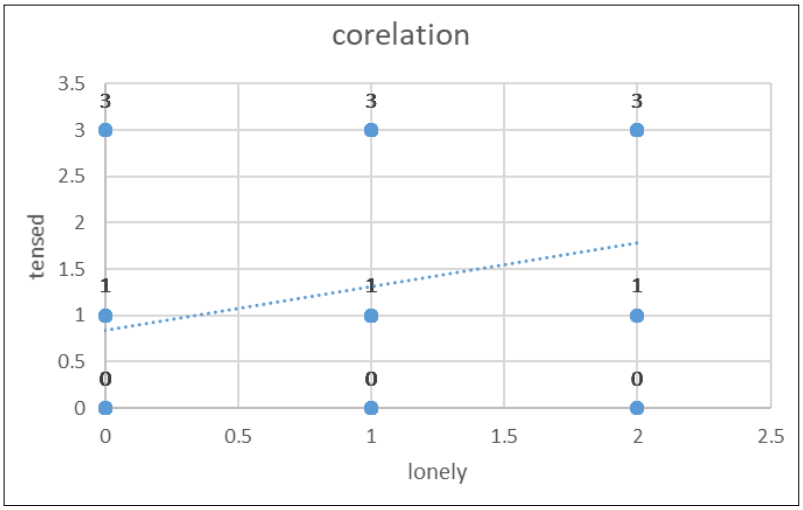
Table 5. Demonstrates weak positive correlation of frequency with lonely at those places when you cannot have access to your phone. (r=032)

Table 5

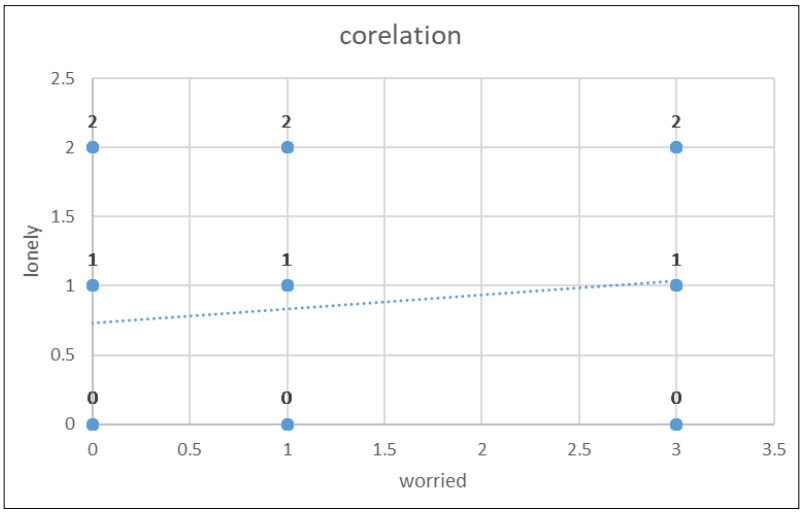
Variable	Associated factors	Corealtion (r)	P Value	N
Lonely Without Phone	Tensed	.264**	.000	200
	Insecurities	.193**	.006	
	Worried	.156*	.027	

*Corelation is significnt at .005 level (2 tailed)
** Corelation is significnt at .001 level (2 tailed)

Table 6. Demonstrates weak positive correlation of lonely at those places when you cannot have access to your phone with insecurity issues that if your number goes into wrong hand then it can be troublesome for you(.264**), worried about leaving your phone at home(.193**), tensed and annoyed when their friends have seen their message and don't reply back(.156*)

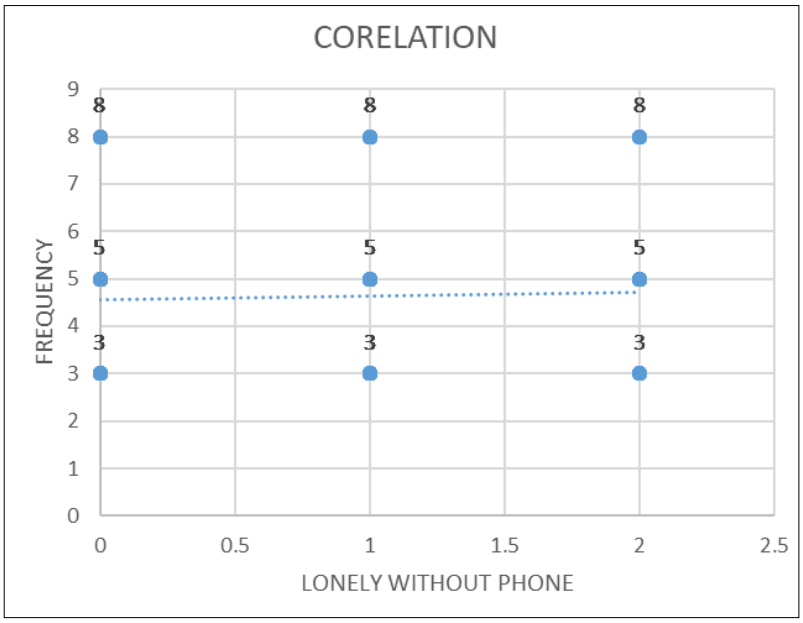


(a)

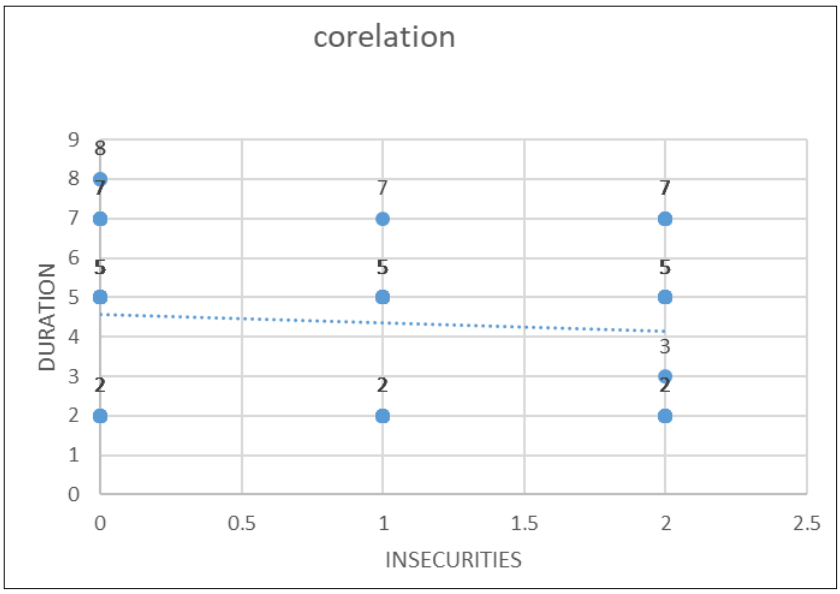


(b)

Graph 1: shows positive correlation (a)and negative correlation in (b)



(c)



(d)

Graph 2: Shows positive correlation (c) and negative correlation in (d)

Discussion

Present study was conducted on prevalence of nomophobia and associated factors with smartphone users among medical students and academicians. Considering the pattern of mobile phone usage, majority of students were using their mobile phones for social media (52.5%); to get general information through browsing internet (15.5%); for calling and SMS (10.5%) and mobile phones were easiest way to access information to them (92.5%). Findings from similar studies have also shown comparable patterns of mobile phone usage with social networking and academic reference being the most common reasons for usage.[8,11] Studies by Kanmani *et al.* and Pavithra and Suwarna Madhukumar have also found social networking having the highest proportion of users among medical undergraduates, ranging from 56% to 77%.[8] Studies from Turkey and Spain also had reported social networking as the most frequent activity among smartphone users.[13,14]

In our study, it was found that around 52% students are using their smartphone mainly for social media. These factors may have contributed to our results. Moreover, 79.5% students considered that using a smartphone increased their independency. Out of all 87% think that smartphone is user-friendly. About 92.5% agrees saying that smartphone provides easy access of information.

The most common health-related consequence of mobile phone dependence observed in the present study was eye strain (31.5%) followed by headache (15%), and 26.5% participants considered that it does not cause any health issues. In a study by Mohd Hairulnisam Samsudin *et al*, headache (62.5%) was observed and disturbance of sleep (52.8%) was second most prominent health issues, which occur due to overuse of mobile devices. In a study by Masthi *et al*, lack of sleep (43%) was observed to be the most common health-related consequence followed by headache (29%) [12]. Likewise, Dongre A *et al*., had also reported the lack of sleep as the most common health-related consequence in about 71% of study participants [19]. As with the findings observed in other similar studies, in contrast our study showed that headache and disturbed sleep, which are 15% and 12%.

Checking the smartphone without any reason was found to be significantly contributing to nomophobia on linear regression. More than 65% of the students checked their smartphones without any reason [15], and in this study 72.6% respondents sometimes check their smartphone without any reason, moreover only 17.4% respondents always check their phones without any reasons. In this study only 29.9% respondents used their smartphone after waking up. The proportion of respondents checking their smartphones soon after waking up was 55% in the study of G. jilisha *et al* [15], whereas Kanmani *et al* [20]. found this proportion to be 69%. As smartphone usage is becoming necessary, it is also establishing a routine among its users which over time becomes habitual. Hence, users might subconsciously feel the need to browse through their phone or check for notifications, which may explain the high proportion, in both the studies, of participants with nomophobia who checked their phones without any need or as soon as they woke up.

Pearson correlation was performed to see the association between all the variables related to phone usage and symptoms of nomophobia. The study demonstrated weak positive correlation of duration of phone usage with phone use without reason(r=0.077), hampering academic performance (r=0.077), lonely at those places when you cannot have access to your phone (r=003), tensed and annoyed when their friends have seen their message and don't reply back (r=0.024).which suggest that as the duration of phone usage increased, hence the symptoms of nomophobia also increased. Present Study Demonstrated weak positive correlation of frequency with lonely at those places when you cannot have access to your phone. (r=032), suggest that frequent use of mobile phone resulted in symptoms of nomophobia. Results of present study suggest weak positive correlation of lonely at those places when you cannot have access to your phone with insecurity issues that if your number goes into wrong hand then it can be troublesome for you(.264**), worried about leaving your phone at home(.193**), tensed and annoyed when their friends have seen their message and don't reply back(.156*).this justifies that the subjects having symptoms of nomophobia feel lonely when they do not have access to their mobile phones which is an alarming situation.

Conclusion

The present study indicates almost 90% of the population has some or other symptoms of Nomophobia. About 90% of the population check their smartphone without reason, which shows that there is higher prevalence of nomophobia among the medical students and may result in health-related complications. While usage of mobile phones include positive outlook also, like attending online classes and referring for academic purposes, the extended addiction and dependence on mobile phones has to be avoided by the students.

Limitation of the study

Variation in use of mobile phones, region/state wise was not analysed. The tool used in the study was not translated into different regional languages due to time constraints. Questionnaires provided to the respondents in English format only, thus restricting to the English knowing section of the population. The sample in this study was mainly restricted to the educated section or society of the population, comprising of the medical students and working professional (academicians & clinical therapist). The questionnaires adopted were the only tools used for collection of data. Results obtained could be affirmed by other instruments and observation techniques also.

Future scope of the study- Cluster sampling could be used to understand the region/state wise perspective for use of mobile phones. Questionnaires could be translated into regional languages and survey can be performed via interview method to include uneducated population from society also.

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