Prevalence of Nomophobia and its Association with Loneliness, Self Happiness and Self Esteem among Undergraduate Medical Students of a Medical College in Coastal Karnataka

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Abstract

Background: Revolution in technology with introduction of variety of smart phones has lead to increase in mobile dependence. Increased use of smart phone seemingly has created issues and challenges for students. The burden of this problem is now on a raise globally

Objective: To assess the prevalence and severity of nomophobia related to the use of smart phones among undergraduate medical students and the association of nomophobia with loneliness, self happiness and self-esteem among in them.

Method: A cross sectional study was conducted among 228 undergraduate students. 57 participants were selected by simple random sampling technique from first, second, final year MBBS students and Interns who were using smart phones. A pretested validated self administered, structured questionnaire was used to collect general information, patterns of mobile phone use. Nomophobia, Loneliness, Self Happiness, Self esteem were assessed by using Nomophobia Scale (NMP-Q), University of California, Los Angeles (UCLA) Loneliness Scale, Subjective Happiness Scale, Rosenberg's Self-Esteem Scale, respectively. Statistical analysis was conducted using Chi-squared test, Mann Whitney U test for various associations. Karl Pearson correlation coefficient was used to correlate the scores of the scales used.

Results: Median age of the participants was 21 years. 36.8% of the participants were males and 63.2% were females. It was observed that, 100% of the participants had nomophobia. Moderate nomophobia was found to be 53.5%, while 11.4% had severe and 35.1% had mild nomophobia. Duration of smart phone use in a day and frequency of checking the smart phone showed statistically significant association with severity of nomophobia. Nomophobia was found to be positively correlated with loneliness and negatively correlated with self happiness and self esteem, however only correlation of nomophobia and self esteem was statistically significant.

Conclusion: This study highlights the high prevalence of nomophobia amongst medical students and reflects the relation of nomophobia and psychological well being.

Keywords: *Nomophobia, Medical Students, Loneliness, Self-esteem, Self-happiness.*

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Introduction

Technological revolution with introduction of variety of smart phones and further decreasing cost of smart phones has lead to increase in mobile dependence worldwide.[1] Nowadays, cell phones have become a part and parcel of our life for means of communication and a basic requirement with innumerable benefits like

facilitating social networking, gaining knowledge and updating it, as a means of entertainment and utility purposes as personal diary, calculator and calendaretc.[2] Indian market, just next to China has emerged as the second largest consumer market for mobile phone handsets.[3] In today's fast moving world, cell phone technology has introduced a new sense of speed and connectivity to social life.[4] The smart phones are popular connectivity devices among the youth, including medical students.

Excessive use of smart phone seemingly has created issues and challenges for students and the most pressing ones include physical or health related, psychological and social issues. It has also become a major parental concern.[5] According to Shambare et al. (2012), cell phones are "possibly the biggest non-drug addiction of the 21st century". Studies reveal that, college students have been using phones for more than 9 hours a day, which could lead to phone addiction. Smart phones have emerged as an example of "a paradox of technology", with both the property of freeing and enslaving. Freeing from the real world and enslaving to the virtual world.[6]

Nomophobia is one of the psychological problems and it is demonstrated by addictive use of phones by users including students.[7] Nomophobia is a term used to describe "the fear of being out of mobile phone contact" and the "anxieties mobile phone users suffer". Over use of mobiles have led to involvement of various psychological factors e.g., low self-esteem, extrovert personality etc. In addition other mental disorders like, social phobia or social anxiety, and panic disorder may also precipitate nomophobic symptoms. The burden of this problem is now on a raise globally.[8,9]

The young adults are more likely to be addicted from nomophobia (Secur Envoy study). A survey described that most of the teens (77%) reported anxiety when they were without their mobile phones. Scientists proposed certain psychological predictors for suspecting nomophobia in a person such as, self-negative views, younger age, low esteem, self-efficacy; high extroversion/introversion, impulsiveness and sense of urgency and seeking.[8]Since younger generation are the major users of the mobile phones we decided to conduct the study among undergraduates of a medical college. Research conducted on determining the causes and associated variables of nomophobic behavior is limited. Hence, this study was conducted to assess the prevalence and severity of nomophobia related to the use of smart phones among undergraduate medical students and the association of nomophobia with loneliness, self happiness and self-esteem among in them.

Method

This cross sectional study was conducted among undergraduate students of a medical college during the study period of three months from January 2019 to March 2019. Ethical clearance for this study was obtained from the Institutional Ethics Committee and informed written consent was obtained from the study participants.

Sample size was calculated based on the findings of a study by SethiaS et al[10], they reported a 67% prevalence of nomophobia. Hence considering 95% confidence interval and an allowable errorof10% and a non-response rate of 10%, a sample size of 228 was obtained. 57 participants were selected from first, second, final year MBBS students and Interns. Medical students including interns who were using smart phones were selected by simple random sampling technique to reach the desired number of participants from each group.

A pretested validated self administered, structured questionnaire was used. The questionnaire was divided into three parts, Part A (general information, patterns of mobile phone use etc), Part B [Nomophobia Scale (NMP-Q)][7] and Part C (University of California, Los Angeles (UCLA) Loneliness Scale[11], Subjective Happiness Scale[12] and Rosenberg's Self-Esteem Scale[13]).

In the current study the tools used had good reliability (Cronbach's Alpha coefficient NMP-Q:0.86, UCLA loneliness: 0.84, Subjective self happiness:0.76, Rosenberg Self esteem:0.86)

Statistical Analysis: Data was analyzed using Statistical Package for the Social Sciences (SPSS 16) trial version. Results were expressed as frequencies and proportions for categorical variables and median and inter quartile range for continuous variables. The prevalence of nomophobia was calculated as percentage of participants who scored more than 20 in NMP-Q .Chi-squared test was applied to capture the statistically significant differences in severity grading of nomophobia and pattern of smart phone use. Fischer's Exact probability test was considered if more than 20%of the cells had an expected count of less than5. Mann Whitney U test was used to test the significant difference in nomophobia scores across the purpose of

smart phone usage. Karl Pearson correlation coefficient (r), was used to find the correlation of nomophobia scores with scores of loneliness, self happiness and self esteem among undergraduate medical students. The statistical significance level was fixed at $p<0.05$

Results

A total of 228 students participated in the study. The response rate was 100%.Median age of the participants was 21(Interquartile range 19.0; 23.0) years. Among the participants, 36.8% of the participants were males and 63.2% were females. It was observed that, 100% of the participants had nomophobia. Moderate nomophobia was found to be 53.5%, while 11.4% had severe and 35.1% had mild nomophobia. Prevalence of moderate to severe nomophobia was 67.9% among males and 63.2% among females. There was no statistically significant association between gender and severity of nomophobia (p= 0.47). The age of the participants did not have a statistically significant association with severity of nomophobia (p= 0.34).

First year students had the highest prevalence of moderate to severe nomophobia with 77.2%, followed by interns with 68.4% and second year and third year students with 57.9% and 56.1%, respectively. It was observed that there is minimal difference in the median nomophobia scores among different batches of students. However, it was found to be higher among 1st year students in comparison to other batches (p= 0.09). (Figure 1).

The severity of nomophobia was found to increase with increase in duration of smart phone use but however it was not statistically significant (p= 0.28). Duration of smart phone use in a day and frequency of checking the smart phone showed statistically significant association with severity of nomophobia (p= 0.02). (Table 1).

Most of the participants used their smart phone for browsing (90%), listening to music (92%), talking to family and friends (90%) followed by using social media (86%), texting (82%), for killing time (63%),gaming (40%) and watching movies (12%). It was found that gaming, texting, listening to music and use as time killer was significantly associated with nomophobia ($p<0.05$). (Table 2).

Most of the participants used their smart phone when they felt bored (96.1%) and when they were alone (86.4%) followed by when they were waiting for someone (87.3%) or travelling (71.1%). A small proportion of the participants reported using the smart phone while in the class (23.2%) and driving (6.6%). The participants reported that the average number of messages, calls and e-mails per day were eighty, ten and five respectively.

Table 1: Distribution of participants according to the severity of nomophobia and pattern of smart phone use. (n=228)

Pattern of Smart Phone Use		Nomophobia		P value †
		Moderate to Severe (%)	Mild (%)	
Duration of smart phone use (years)	Less than 2	22(56.4)	17(43.6)	0.28
	2-5	64(63.4)	37(36.6)	
	More than 5	62(70.5)	26(29.5)	
Having mobile data plan	Yes	146(65.5)	77(34.5)	0.34*
	No	2(40)	3(60)	
Duration of Smart phone use in a day (hours)	Less than 2	15(46.9)	17(53.1)	0.02
	2-5	100(65.4)	53(34.6)	
	More than 5	33(76.7)	10(23.3)	
Smart phone check frequency	Once every half an hour	81(74.3)	28(25.7)	0.001
	Once in every half an hour to an hour	63(60)	42(40)	
	Once beyond an hour	4(28.6)	10(71.4)	
Number of applications in the phone	Less than 20	48(58.5)	34(41.5)	0.09
	20-50	84(66.1)	43(33.9)	
	More than 50	16(84.2)	3(15.8)	

Test of Significance used: †Chi square Test and *Fischers exact test

Table 2: Distribution of nomophobia scores on the basis of reason of smart phone use (n=228).

Purpose of smart phone use † (%)		Median Scores	Interquartile Range	p value *
Social Networking	Yes (86)	73.0	53.25; 88.75	0.24
	No (14)	70.0	49.0; 83.25	
Gaming	Yes (40)	77.0	58.0; 93.5	0.01
	No (60)	69.0	51.0; 83.0	
Texting	Yes (82)	74	55.0; 88.25	0.02
	No (18)	62.5	42.75; 84.5	
Calling	Yes (90)	74.0	53.75; 88.0	0.08
	No (10)	59.0	44.0; 81.0	
Time Killer	Yes (63)	75.0	55.25; 90.0	0.02
	No (37)	68.0	48.25; 82.75	
Music	Yes (92)	73.0	55.0; 88.5	0.04
	No (8)	54.0	41.0; 81.0	
Browsing	Yes (90)	73.0	52.0; 88.0	0.73
	No (10)	63.5	56.25 :87.50	
Movies/Series	Yes (12)	65.0	45.0; 83.0	0.09
	No (88)	74.0	53.5; 88.5	

†Purpose of internet use had multiple responses; *Mann Whitney U Test

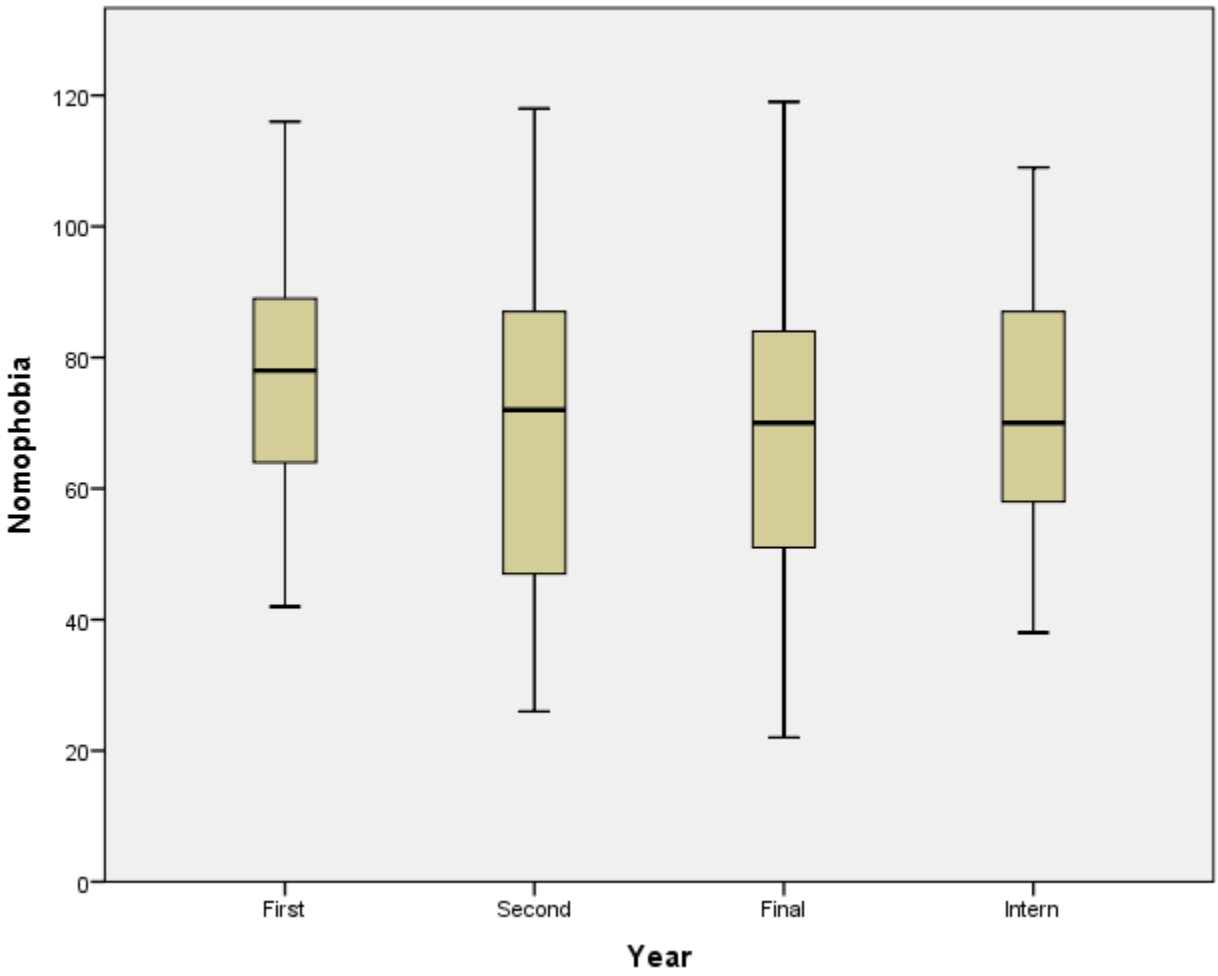

Figure 1: Box plot representing the nomophobia scores among the study participants. (n=228)

Nomophobia was found to be positively correlated with loneliness(r = 0.12) but showed no statistical significance (p = 0.06). Nomophobia was found to be negatively correlated with self happiness (r = -0.06) and self esteem (r = -0.13). Correlation of nomophobia with self happiness was not statistically significant (p = 0.3). Nomophobia and self esteem showed a statistically significant correlation (p = 0.05). (Figure 2).

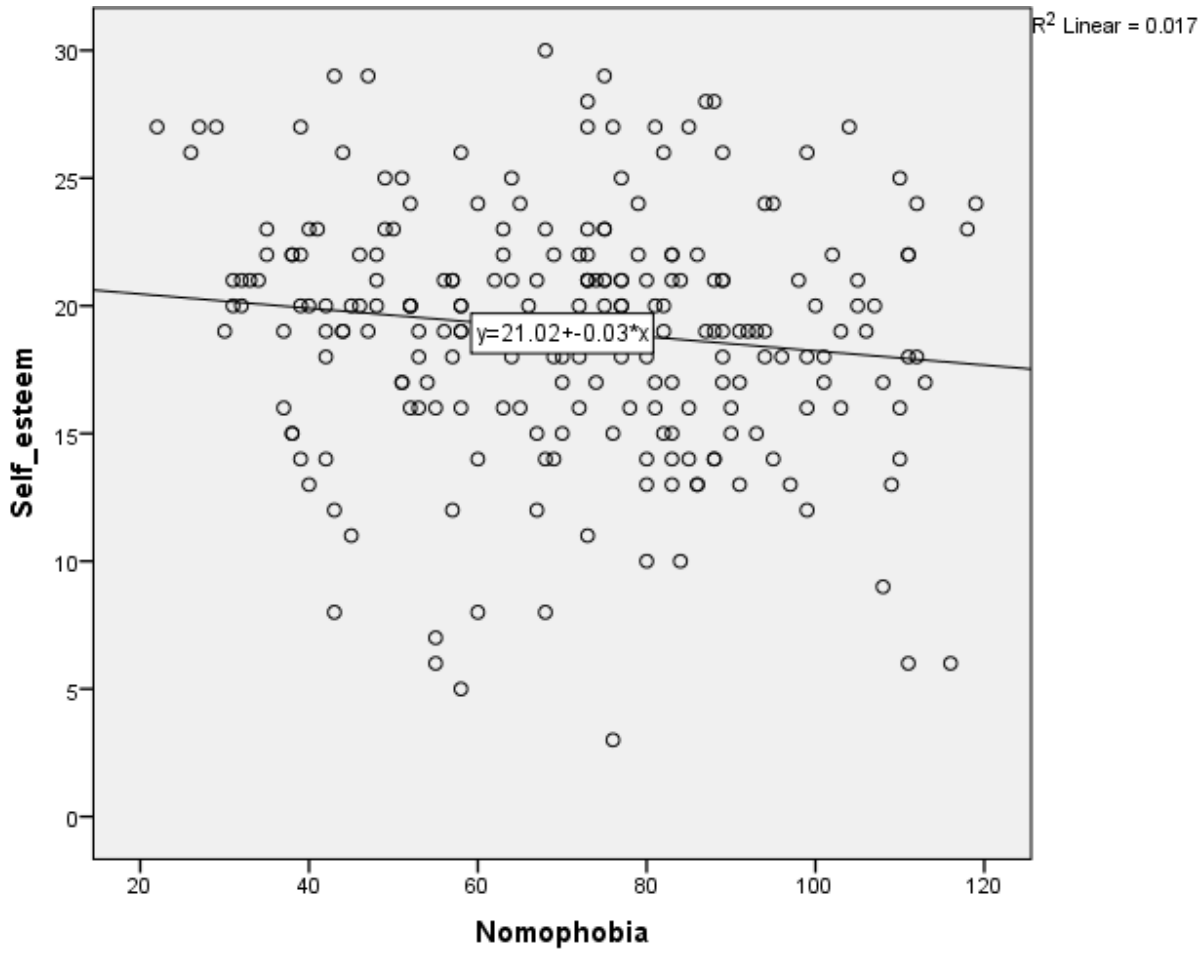

Figure 2: Scatter diagram representing the correlation between nomophobia and self esteem scores among participants. (n=228)

Discussion

In the current study, all the participants reported to have nomophobia, however 53.5% had moderate nomophobia, while 11.4% had severe and 35.1% had mild nomophobia. In a similar study done in a medical college in Kerala, the prevalence of nomophobia was reported to be 97%.[14] Sethia S et al also reported that only one participant did not report to have nomophobia.[10] In the current study 11.4% had severe nomophobia. Sethia S et al in their study in Bhopal reported that 6.1% of the participants suffered from severe nomophobia.[10] It is alarming that nomophobia is rising among medical students and those suffering from severe nomophobia is on the rise.

Most of the participants used their smart phone for browsing, listening to music, talking to family and friends. Similarly, the study by Madhusudan M et al reported that students were using smart phones for calling family members, friends and also for listening to music.[14]

In the present study nomophobia was found to be positively correlated with perceived loneliness and negatively correlated with happiness and self esteem,

also the correlation between nomophobia and self esteem showed statistical significance, this finding was similar to that reported by Ozdemir B et al.[15] The study conducted by Çakir and Oguz in 2015 on Turkish students in Ankara demonstrated a significant and positive correlation between smartphone addiction and loneliness.[16] Study done among Japanese medical students also reported that loneliness and mobile phone dependence were positively related to degree of addiction.[17] Suresh VC et al also reported a general trend of lower levels of subjective happiness in association with higher levels of internet addiction.[18]These results give an alarming indication that the youth are getting more and more dependent on smart phones, which may lead to serious psychiatric and psychological problems among the users.[19]

Conclusion: This study highlights the high prevalence of nomophobia amongst undergraduate medical students hence there is a need to increase awareness about increasing incidence of nomophobia amongst the medical students. The correlation of nomophobia with loneliness, self esteem and happiness reflects the relation of nomophobia and psychological well being. The observations in this study are from a small group of students, which may not reflect the scenario worldwide. However, millions of smart phone users are added every day indicating that full blown nomophobia has all the potential to reach to an epidemic scale. What we are seeing may be the just the tip of an ice berg which warrants further research.

Limitations: The generalisability of results is low as the study was carried out only among students from one medical college. Social desirability bias for the purpose and pattern of smart use cannot be ruled out.

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