International Journal of Community Medicine and Public Health
Aseeba OPK et al. Int J Community Med Public Health. 2024 Dec;11(12):4835-4838
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20243651

Original Research Article

A cross-sectional study on the prevalence of nomophobia and its impacts on quality of life among medical students in Shimoga, Karnataka

Aseeba O. P. K., Praveen Kumar N.*, Chandana M.

Department of Community Medicine, Shimoga Institute of Medical Sciences, Shimoga, Karnataka, India

Received: 18 September 2024
Revised: 15 November 2024
Accepted: 16 November 2024

***Correspondence:**
Dr. Praveen Kumar N.,
E-mail: drpraveenbhat@gmail.com

ABSTRACT

Background: Nomophobia refers to discomfort, anxiety, nervousness, or anguish caused by being out of contact with a mobile phone. The highest smartphone penetration was seen among 18–24-year-olds. Recent research indicates that nomophobia is universally present, but the evidence of its effect on the quality of life of potentially vulnerable populations like medical students is less. This study was conducted to estimate the prevalence of nomophobia and to assess its impact on the quality of life of medical students.
Methods: A cross-sectional study was conducted among undergraduate medical students who were selected randomly. Nomophobia and quality of life were assessed using NMP-Q and SF 36 questionnaires, respectively.
Results: The study comprised 250 medical students. Prevalence of nomophobia was as follows- mild (11.2%), moderate (69.6%), and severe (18.8%). There was a negative correlation between nomophobia and the following domains of quality of life- role of limitation due to emotional problems ($r=-0.280$, $p<0.001$), energy/fatigue ($r=-0.296$, $p<0.001$), pain ($r=-0.232$, $p<0.001$), social functioning ($r=-0.263$, $p<0.001$) and emotional well-being ($r=-0.316$, $p<0.001$).
Conclusions: There is a high prevalence of moderate nomophobia with a negative impact on the multiple physical and emotional domains of the quality of life of medical students.

Keywords: Nomophobia, Quality of life, Smartphones

INTRODUCTION

The smartphone, a recent progression in information technology, has not merely replaced cellular phones but also supplanted others due to its mobility and other integrative features. It has become an essential element of human beings.[1] Smartphones have become increasingly popular because of their multiple application such as accessibility to information, connectivity, workplace application, etc.[2]

The number of smartphone users globally is projected to be nearly 7.7 billion by 2027.[3] Currently, smartphone penetration is about 71% in India.[4] The highest penetration rate in the use of smartphones was for the age group of 18-24 years, and the time spent by Indians on smartphones was recorded as 40% at 4.6 hours.[5]

Nomophobia (portmanteau for no mobile and phobia) refers to discomfort, anxiety, nervousness, or anguish caused out of contact with a mobile phone.[6] This term was coined by United Kingdom-based researchers who were assessing anxieties suffered by mobile users in 2008.[2] Researches by Bragazzi et al and Yildirim et al proposed to include nomophobia in diagnostic and statistical manual of disorders, 5th edition (DSM-V).

Recently, the negative consequences of the problematic use of smartphones have increased. The usage of smartphones causes various psychological problems, such as low self-esteem, social phobia, and social anxiety.[2]

A systematic review conducted on the prevalence of nomophobia indicates that nomophobia is universally present.[9] However, there is less evidence of its effect on the quality of life of potentially vulnerable populations like medical students. World Health Organization defines quality of life as a subjective evaluation of one's perception of their reality relative to their goals as observed through the lens of their culture and value systems.[10]

With this background, the present study aimed to estimate the prevalence of nomophobia and assess its impact on the quality of life of medical students of Shimoga Institute of Medical Sciences, Shimoga.

METHODS

A cross-sectional study was conducted among medical students of Shimoga Institute of Medical Sciences, Shimoga, Karnataka, India from January 2024 to April 2024. Medical students from phase I, phase II, phase III part I, and phase III part II who use smartphones were included in the study. The students who didn't give informed written consent were excluded from the study. Ethical approval was obtained from the institutional ethics committee.

The sample size was calculated using Epi Info. Considering the prevalence of nomophobia among medical students 40.1%, absolute precision of 5%, 95% Confidence interval, and adjusted for population size, the minimum sample required was 229.[11] Considering the 10% non-response rate, the sample size increased to 250.

The list of all students from the first to the last phase was obtained from the academic section and given numbers from 1 to 600. Open Epi software was used to generate random numbers. Students selected by random numbers were approached and assessed the inclusion and exclusion criteria. Participants were provided with the self-administered questionnaire and the collected data.

The questionnaire had 3 parts- sociodemographic details, nomophobia questionnaire and sf 36 questionnaire. Nomophobia was assessed using the nomophobia questionnaire (NMP-Q), a pre-validated questionnaire with a Cronbach's alpha of 0.95. NMP-Q is a 20-item self-reported questionnaire. It comprises four factors (factor 1: not being able to communicate, factor 2: losing connectedness, factor 3: not being able to access information, and factor 4: giving up convenience). A 7-point Likert scale ranging from 1 (Strongly disagree) to 7 (strongly agree) is used for each item, and the total score is calculated. Total score ranges from 20-140. The results were interpreted as follows- 20 (no nomophobia), 21-59 (mild nomophobia), 60-99 (moderate nomophobia), and 100-140 (severe nomophobia).[8]

Quality of life was assessed using the SF-36 questionnaire. It considers the following domains- Physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. The Cronbach's alpha varied from 0.78 to 0.93 for each domain. Each domain is scored from 0 (worst possible health) to 100 (best health).[12,13]

Data were tabulated in Microsoft Excel, and data analysis was done using SPSS v 21. Qualitative variables were expressed as frequencies and percentages. Quantitative variables were expressed as mean±standard deviation, or median (interquartile range, IQR). The relationship between the NMP-Q and SF-36 scores was assessed using the Spearman correlation coefficient.

RESULTS

The study included 250 medical students. The students' median (IQR) age was 21 (19, 22). There were equal numbers of male and female students. Most participants (64%) had a permanent residence in an urban area (Table 1).

Table 1: Socio-demographic characteristics of study participants (n=250).

Characteristics	Frequency (%)
Gender	
Male	125 (50)
Female	125 (50)
Residence	
Urban	160 (64)
Rural	90 (36)
Phase of MBBS	
Phase I	76 (30.4)
Phase II	63 (25.2)
Phase III Part I	60 (24)
Phase III Part II	51 (20.4)

Table 2: Purpose of using the smartphone (n=250).

Purpose of using smartphone*	Frequency (%)
Check social media	232 (92.8)
Gaming	114 (35.6)
Online lectures	190 (76)
Music and video	215 (86)
Talking to family and friends	250 (100)
Checking emails	85 (34)
Others†	120 (48)

*Multiple responses, † Others include online shopping, clicking photographs, downloading files

The mean smartphone usage duration among the students was 3.98±2.3 years. The mean time spent on the smartphone daily was 5.26±2.3 hours. The purpose of the use of smartphones among students is given in Table 2.

The mean score of nomophobia was 82.64±19.93. Table 3 shows the prevalence of nomophobia. Most of the participants had moderate nomophobia (69.6%). Considering the four factors of NMP-Q, the overall highest mean score was for "not being able to communicate" (4.63±1.31) and lowest for "losing connectedness" (3.61±1.39).

Table 3: Prevalence of nomophobia among medical students.

Score	Description	Frequency (%)
20	No nomophobia	1 (0.4)
21-59	Mild nomophobia	28 (11.2)
60-99	Moderate nomophobia	174 (69.6)
100-140	Severe nomophobia	47 (18.8)

Table 4: Median scores of the domains of quality of life using SF-36.

Domains	Median	IQR (Q1-Q3)
Physical functioning	90	70-100
Role of limitation due to physical health	75	25-100
Role of limitation due to emotional problems	33.33	0-100
Energy/fatigue	55	45-70
Emotional well being	60	48-76
Social functioning	62	50-75
Pain	77.5	65-90
General health	60	50-75

Quality of life was assessed using the SF-36 questionnaire. Table 4 shows the median scores with interquartile range (IQR) of 8 domains of the SF-36.

Table 5: Correlation between NMP-Q score domains of quality of life.

Domains	Correlation coefficient*	P value
Physical functioning	-0.067	0.288
Role of limitation due to physical health	-0.108	0.090
Role of limitation due to emotional problems	-0.280	<0.001†
Energy/fatigue	-0.296	<0.001†
Emotional well being	-0.316	<0.001†
Social functioning	-0.263	<0.001†
Pain	-0.232	<0.001†
General health	-0.179	0.005†

*Spearman correlation coefficient, †Correlation is significant

A correlation between the NMP-Q score and SF-36 scores was done (Table 5). There was a significant, weak, negative correlation between the nomophobia score and some domains of quality of life.

DISCUSSION

The usage of smartphones has become highly prevalent among youths, and it plays an integral part in daily living nowadays.[14] The excessive use of mobile phones can be viewed as a behavioural addiction, and it has been considered to be similar to substance abuse.[15]

The present study aimed to estimate the prevalence of nomophobia and its impact on the quality of life among medical students. Data was collected from 250 medical students. The mean smartphone usage duration was four years, and the average time spent on mobile phones was 5 hours daily. The findings are similar to the study conducted by Bartwal and Nath on medical students, where the duration of smartphone usage was more than three years, and the average time spent on mobile phones was more than 3 hours.[2]

In the present study, mobile phones were used mainly for talking to family and friends, followed by the use of social media. A study conducted by Pavithra et al showed that mobile phones were used mainly for social networking.[16] The usage pattern of mobile phones from the present study had similar findings of Bartwal and Nath.[2]

The mean NMP-Q score was higher than Ahmed et al in the present study.[17] The prevalence of nomophobia varied in different studies. It may be due to the difference in the nomophobia assessment method or the difference in culture. In this study, 11.2% of medical students had mild nomophobia, 69.6% of them had moderate, and 18.8% of them had severe nomophobia. The findings were similar to the study conducted by Madhusudhan et al, where most participants had moderate nomophobia.[18]

In the present study, the highest mean score was for not being able to communicate among the four factors of the NMP-Q questionnaire. It can be attributed to the most common usage of smartphones among the participants for talking to family and friends and social media usage. This is similar to the study conducted by Bartwal and Nath.[2]

The present study has a significant negative correlation between multiple domains of quality of life and nomophobia. It can be inferred that nomophobia has a negative impact on emotional well-being and social functioning. It also causes limitations in daily activities due to emotional problems. It may be due to stress, anxiety, comparing life with peers, lack of in-person socialisation rather than virtual socialisation, loneliness, sleep disturbances, and fear of missing out.[19]

It has also been noted that nomophobia can affect physical health also negatively. In the present study, there was a negative correlation between nomophobia and fatigue and the role of limitation of activity due to physical health. It may be due to headaches, backache, and eye strain associated with excess usage of mobile

phones. Similar findings were seen in the study by Daniyal et al.[20]

The present study gives the prevalence of nomophobia among the population age group where smartphone penetration is high. The limitations are that the study is based on only one institution and cannot be generalised.

CONCLUSION

The prevalence of moderate nomophobia was high among medical students, and it had a negative impact on multiple physical and emotional domains of quality of life. It indicates that the problem has to be addressed. Awareness can be created about the various implications of problematic usage of mobile phones.

ACKNOWLEDGEMENTS

The authors acknowledge support from all faculties of the department of community medicine and the valuable participation of the medical students.

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: Aseeba OPK, Kumar PN, Chandana M. A cross-sectional study on the prevalence of nomophobia and its impacts on quality of life among medical students in Shimoga, Karnataka. Int J Community Med Public Health 2024;11:4835-8.