Original Article

The fear of smartphone notifications and calls among medical students: The phone ring phobia syndrome or telephobia

Yog P. Bairwa[1], Arun Udayaraj[2], Souvik Manna[3]

[1]Community Medicine, Government Medical College, Barmer, Rajasthan, India, [2]Department of Internal Medicine, ESICMCH, Alwar, Rajasthan, India, [3]Community Ophthalmology, AIIMS New Delhi, India

Abstract

Background: Telephobia is a kind of anxiety disorder in which the individual is afraid of either answering or making telephone calls. This study was conducted to determine the prevalence of telephobia among medical students and to determine the association of socio-demographic and other factors with this disorder. **Methods:** A total of 320 undergraduate medical students were enrolled at a tertiary medical college in Western India, of which 300 (93.75%) responded to the survey. A stratified sampling strategy with the proportional allocation method was used in which 40 males and 20 females were selected from each year of students, spanning 5 years. A specially designed semi-structured questionnaire was used for the study, consisting of demographic data, purpose of using the internet, gadget used, and a 10-item telephobia questionnaire modified from the Severity Measure for Agoraphobia—Adult (SMA-A) Questionnaire to measure student's avoidance of telephone calling and receiving. **Results:** The mean age of the study participants was 21.91 (±1.84) years, and most of the students were urban residents (184, 61.3%). The prevalence of mild, moderate, and severe telephobia was 33.0%, 7.67%, and 1.33%, respectively, giving an overall prevalence of 42%. Univariate analysis revealed that male gender (χ^2 = 9.822, df = 3, p = 0.0201), higher duration of internet usage (χ^2 = 41.15, df = 9, p value < 0.000), and viewing porn (χ^2 = 15.94, df = 3, p = 0.0011) had significant association with higher severity of telephobia. Viewing of porn sites was reported by 65 (21.7%) medical students, exclusively among males. **Conclusion:** A prevalence of 9% moderate to severe telephobia among medical students is much alarming, which may aggravate further as the students move from academic to clinical settings. The phenomenon of telephobia needs further exploration, to find its determinants and predictors, especially among vulnerable populations.

Keywords: Anxiety disorders, Internet use disorders, medical students, social phobia, telephobia

Introduction

The term telephobia was first coined in 1992, as fear of making or taking phone calls.[1] It is considered a type of social phobia or social anxiety, in which the sufferer may fear either receiving or making phone calls. Telephobia is commonly compared to glossophobia (stage fright) because they both involve having to engage with an audience. It can also be associated with agoraphobia which is fear of open places. Some people with telephobia avoid phone conversations, prefer text messaging, have social anxiety disorder, or have received negative news over the phone. The fear of making and receiving phone calls can be disruptive to both personal and professional lives. Telephone apprehension is likely to be related to one or more bad experiences, in which the sufferer received an obscene or angry call which makes picking up the phone the next time much harder. The reverse of this phenomenon is nomophobia which depicts an irrational fear of being without one's phone or of being

Address for correspondence: Dr. Souvik Manna, Room 311, Resident Doctor's Hostel, ESICMCH, Alwar, Rajasthan, India.
E-mail: souvikmanna311@yahoo.com

Received: 11-10-2023 **Revised:** 20-12-2023
Accepted: 21-12-2023 **Published:** 24-05-2024

Access this article online

Quick Response Code:

Website: http://journals.lww.com/JFMPC

DOI: 10.4103/jfmpc.jfmpc_1673_23

How to cite this article: Bairwa YP, Udayaraj A, Manna S. The fear of smartphone notifications and calls among medical students: The phone ring phobia syndrome or telephobia. J Family Med Prim Care 2024;13:1850-5.

unable to use one's phone for some reason. Another interesting phenomenon of phantom vibration and ringing (PV/PR) has also been reported in which a person perceives phone vibration and ringing without any obvious stimuli.[2]

Although a plethora of literature has proved the presence of smartphone addiction, very scarce literature is found on telephobia. The word addiction comes from Latin addictus, which means excessively devoted to something with loss of ability to choose freely. In simple terminology, it is slavery to any object, which the person is unable to overcome with his own efforts. In recent years, the term addiction has been expanded beyond substance dependence to include non-substance-related behaviors that cause problems and impairment. Addiction to a substance and addiction to a behavior may look similar in their effects on behavioral patterns, emotions, and physiology.[3]

The digital revolution is a double-edged sword as it has made our lives inter-connected on one hand but has also made us dependent on technology for all our needs. As is common with other fears and phobias, there is a wide spectrum of severity of the fear of phone conversations and corresponding difficulties.[4] PV syndrome can be depicted on one end of the spectrum, with telephobia being on the other end. However, the actual number of people with this phobia is not known, owing to difficulty in defining and measuring this entity. A 2019 survey of UK office workers found that 40% of baby boomers (those born between 1946 and 1964) and 70% of millennials (those born between 1981 and 1996) experience anxious thoughts when the phone rings.[5] This shows that the younger generation (those in their 30s or 40s) are nearly twice more prone to telephobia as compared to senior citizens. The term "telephone apprehension" refers to a lower degree of telephone phobia, in which sufferers experience anxiety about the use of telephones, but to a less severe degree than that of an actual phobia.[6] Around 2.5 million people in Britain, that is, 10–15% of the adult population, suffer from "telephone apprehension." Sufferers may have no problem communicating face-to-face but have difficulty doing so over the telephone. The ringing can generate a string of anxieties, characterized by thoughts associated with having to speak, perform, and converse. Sufferers may perceive the other end as threatening or intimidating. Anxiety may be triggered by concerns that the caller's intentions and motives are not known, and there are no visual cues as to what is the caller's temperament.

Fear of making calls may be associated with concerns about finding an appropriate time to call and fear of being a nuisance. Some sufferers may be anxious about having to "perform" in front of a real or perceived audience at their end of the line. This is a particular problem for those who obtain orders in the workplace on phone, for example, medical interns, social workers, and field staff.[7]

The Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) has classified social phobias within the category of anxiety disorders.[8] Telephobia can lead to various psychological, physical, and social problems including impaired function at work, sleep deprivation, social isolation, and relationship problems.

The population of India is around 1.42 billion as of 2023, of which 700 million are internet users. In an evolution pattern unique to India, users who access the internet only through a mobile or tablet device constitute around 75% of new users and 55% of the aggregate user base in 2018, leading to increasing demand for content that is optimized for a small screen.[9] Despite the numerous benefits of telecommunication, researchers have maintained that youth are at particularly high risk for developing telephobia, especially medical students. One of the major goals of medical education is to encourage students to update their knowledge of medical science by becoming lifelong learners.[10] Changes in medicine and information technology continue to influence the learning of medical students. Another reason is stressful work environment and burnouts. Medical students are constantly exposed to stressors at work, and the mobile phone is mostly the source of this stress, in the form of emergency calls and bad news. Previous studies have demonstrated a clear relationship between burnouts and PV/PR.[11] The deleterious effects of telephobia in medical students may be disastrous for their mental and psychological well-being. Hence, there is an urgent need to study this uncommon manifestation of smartphone use. Research specifically on telephobia among young adults in healthcare systems is relatively new and limited. With this background, this study was conducted to determine the prevalence of telephobia among medical students and to determine the association of socio-demographic and other factors with this disorder.

Methodology

This study was conducted among 300 undergraduate medical students at a tertiary medical college in Western India. The sample size of 300 was calculated based on 49% prevalence of PR among medical students, 7% absolute error, 5% level of significance, 20% power, design effect 1.4 for stratified sampling, and non-response rate of 10%.[2] Before starting the study, Institutional Ethics Committee approval was taken, and the study adhered to the tenets of the Declaration of Helsinki, 2015.

A specially designed semi-structured questionnaire was used for the study, developed using Delphi techniques.[12,13] It consisted of demographic data, purpose of using the internet, gadget used to access internet, and a 10-item telephobia questionnaire modified from the Severity Measure for Agoraphobia—Adult (SMA-A) Questionnaire to measure the student's avoidance of telephone calling and receiving. Each item on the measure is rated on a 5-point scale (0 = never; 1 = occasionally; 2 = half of the time; 3 = most of the time, and 4 = always). The total score can range from 0 to 40 with higher scores indicating greater severity of telephobia. Rasch analysis was used to transform the ordinal scores into a metric continuous score ranging from 0 to 100 for each student. This metric score allowed the investigators to think

of the severity of the student's telephobia in terms of none (0), mild (1), moderate (2), severe (3), or extreme (4).

The sampling technique was a stratified random sampling method in which year of study and gender were used as strata, and the proportional allocation method was used to obtain sample size of each stratum. The male: female proportion in the medical college was 60:40; hence, 40 males and 20 females were selected from each year spanning 5 years. The sampling frame consisting of list of all undergraduates in the medical college was obtained from the academic branch, and separate lists based on gender and year were prepared. From the stratified list, the required number of participants was selected using simple random sampling. The students were approached either after their classes or at hostels to participate in the survey. Informed consent was obtained, and all survey procedures were explained in the local language.

Data collected were tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) version 26. For the Rasch analysis, R software was used (version 4.3.2). The univariate analysis was performed using Chi-square test to find the association of exposure variables with telephobia categories.

Results

There were 320 students enrolled in this study, of which 300 completed the questionnaire (response rate: 93.75%). The mean age was 21.91 (±1.84) years. Most of the students were urban residents (184, 61.3%), and there was equal representation from each of the 5 years of students. The overall prevalence of telephobia was 42%, with 9% having moderate to severe phobia [Table 1]. Males had significantly higher prevalence of moderate to severe phobia (11.5%) as compared to females (4.0%).

Of 300 participants, 174 (58%) were normal users (phobia score <20), 99 (33%) were having mild phobia (phobia score 20–49), 23 (7.67%) were having moderate phobia (phobia score 50–79), and only four (1.33%) had severe telephobia (phobia score >79). A statistically significant association was found between male gender (χ^2 = 9.822, df = 3, p = 0.0201), higher duration of internet usage ((χ^2 = 41.15, df = 9, p value < 0.000), and viewing porn sites (χ^2 = 15.94, df = 3, p = 0.0011) with greater severity of telephobia, indicating a positive association on the univariate analysis [Figure 1, Tables 2-4].

On comparing medical students by their preference of using free time with phobia scores, it was found that among 174 normal users (score <20), 78 (44.8%) remained online in free time and 96 (55.2%) spent their free time with friends/family. However, out of 23 students with moderate phobia (score 50–79), nine (39.1%) students remained online in free time and 14 (60.9%) spent their free time with friends/family, and the difference was not statistically significant (p > 0.05).

Viewing of porn sites was reported by 65 (21.7%) medical students, exclusively among males. Out of 174 normal users (score <20), 38 (21.8%) had access to porn sites and 136 (78.2%) did not. However, among 23 students with

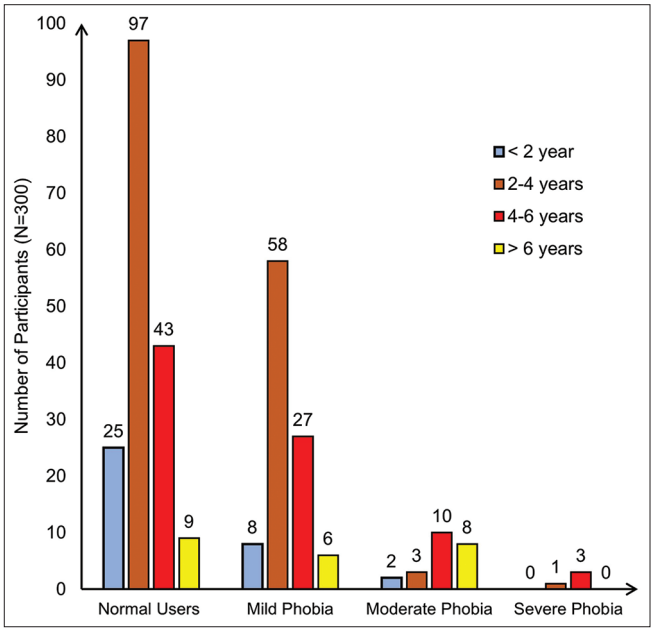

Figure 1: Comparison between duration of Internet use (in years) and telephobia categories (N = 300)

Table 1: Socio-demographic profile of the study participants and level of telephobia among them (*N*=300)

Age (in years)	Male	Female	Total	*p*
18-19	48 (24.0)	25 (25.0)	73 (24.3)	χ^2=0.338, df=3, p=0.9527
20-21	47 (23.5)	24 (24.0)	71 (23.6)	
22-23	50 (25.0)	22 (22.0)	72 (24.0)	
>24	55 (27.5)	29 (29.0)	84 (28.0)	
Urban residents	95 (47.5)	89 (89.0)	184 (61.3)	χ^2=48.41, df=1, p=0.000*
Rural residents	105 (52.5)	11 (11.0)	116 (38.6)	
Normal users (phobia score <20)	121 (60.5)	53 (53.0)	174 (58.0)	χ^2=9.822, df=3, p=0.0201*
Mild (phobia score 20-49)	56 (28.0)	43 (43.0)	99 (33.0)	
Moderate (telephobia score 50-79)	19 (9.5)	4 (4.0)	23 (7.6)	
Severe (phobia score >79)	4 (2.0)	0	4 (1.3)	
Total**	200 (66.6%)	100 (33.3%)	300	

*statistically significant, **row percentage

Table 2: Comparison between duration of internet use (in years) and scores based on telephobia scale (*N*=300)

Duration of Internet use	Telephobia					
	Normal users (phobia score <20)	Mild (phobia score 20-49)	Moderate (telephobia score 50-79)	Severe (phobia score>79)	Total	*p*
<2 year	25 (14.4%)	8 (8.1%)	2 (8.7%)	0 (0%)	35 (11.7%)	χ^2=41.15, df=9, *p*<0.00001
2-4 years	97 (55.7%)	58 (58.6%)	3 (13%)	1 (25%)	159 (53%)	
4-6 years	43 (24.7%)	27 (27.3%)	10 (43.5%)	3 (75%)	83 (27.7%)	
>6 years	9 (5.2%)	6 (6.0%)	8 (34.8%)	0 (0%)	23 (7.6%)	
Total	174 (58.0%)*	99 (33.0%)*	23 (7.67%)*	4 (1.33%)*	300 (100%)	

*row percentages

Table 3: Comparison of medical students by their preference of using free time with telephobia categories (*N*=300)

Preference for using free time	Online	Friends/family	Total	*p*
Normal users (phobia score <20)	78 (44.8%)	96 (55.2%)	174	χ^2=1.008, df=3, *p*=0.7993
Mild (phobia score 20-49)	41 (41.4%)	58 (58.6%)	99	
Moderate (telephobia score 50-79)	9 (39.1%)	14 (60.9%)	23	
Severe (phobia score >79)	1 (25%)	3 (75%)	4	
Total	129 (43%)*	171 (57%)*	300	

*row percentages

Table 4: Comparison of usage of porn sites among medical students based on telephobia categories

Usage of porn sites	Yes	No	Total	*p*
Normal users (phobia score <20)	38 (21.8%)	136 (78.2%)	174	χ^2=15.94, df=3, *p*=0.0011
Mild (phobia score 20-49)	14 (14.1%)	85 (85.9%)	99	
Moderate (telephobia score 50-79)	12 (52.2%)	11 (47.8%)	23	
Severe (phobia score >79)	1 (25%)	3 (75%)	4	
Total	65 (21.7%)*	235 (78.3%)*	300	

*row percentages

moderate phobia (score 50–79), 12 (52.2%) had access to porn sites and 11 (47.8%) did not, and the difference was statistically significant ($P < 0.05$).

Discussion

This study was conducted to ascertain the proportion of medical students reporting telephobia in a medical college in Western India. This study reported a prevalence of moderate to severe telephobia as 9% among medical students. The entity of telephobia is very scarcely reported in the literature, as against telephone addiction or internet addiction which is reported so frequently. The prevalence of internet addiction reported among medical students varies from 30.1% to 44.5% globally and 19.3% to 42.8% in India.[14-16] A variety of symptoms have been reported among persons suffering from telephone phobia, many of which are shared with anxiety disorders. The sufferer may experience feelings of panic, terror, and dread, known as "fight or flight" response. The phenomenon of PV/PR has also been much widely reported in the literature, especially among medical students, with prevalence ranging from 60% to 74% for PV and 49% to 74% for PR, respectively.[2,17-19]

People who suffer from telephobia often encounter difficulties at work. A case report was documented of a nurse who suffered from telephobia and was unable to perform her duties as ward sister, not related to her abilities as a manager or as a clinician, but because of her phobia.[20] The telephone is important for both contacting others and accessing important and useful services. Strain is created in the workplace because use of phones may play a crucial role within a career.

Associated avoidance behavior may include asking others (e.g., relatives at home) to take phone calls and exclusively using answering machines. The rise in the use of electronic text-based communication (the internet, email, and text messaging) has given many sufferers alternative means of communication that they may find considerably less stressful than the phone. At the same time, members of a younger generation who have grown up with digital communication increasingly find both making or receiving phone calls "intrusive," preferring to use media that allow them to "participate in the conversation at the pace they choose."

Previous studies show that more men than women suffer from telephone apprehension, while more women than men suffer from PV.[19] This finding is also replicated in this study. However, there is a general tendency for women to be more skillful at interpersonal communication than men.

The 2019 survey of UK office workers found that 40% of baby boomers (those born between 1946 and 1964) and 70% of millennials (those born between 1981 and 1996) experience anxious thoughts when the phone rings.[5] This proportion was 42% in this study (mild, moderate, and severe phobia). However,

the age-groups are different, as this study was conducted on Generation Z (those born after 1995), which is much more comfortable and used to the digital revolution, as compared to the older generation. Another Indian study involving medical students from Bengaluru found 39.5% of them to be suffering from nomophobia, suggesting high mobile phone use.[21] The nomophobia or no mobile phone phobia is the opposite of telephobia where a person is afraid of losing contact with the world in the absence of mobile phone, and is also considered an anxiety disorder among young adults.[22]

A study from America among 343 undergraduate students (104 males and 239 females) at a University in Delaware employed UCLA Loneliness Scale, the Social Avoidance and Distress (SAD) Scale, and Preference for Online Social Interaction (POSI).[23] Path analysis revealed that the relationship between loneliness and POSI was spurious, and social anxiety was a significant positive predictor of POSI. The structural equation modeling revealed that gender was a significant direct predictor of social anxiety and social anxiety was a significant direct predictor of POSI.

Telephobia might also be associated with significant psychiatric disorders, such as alcohol abuse, attention deficit hyperactivity disorder (ADHD), depression, and anxiety. The watershed between telephobia and problematic internet use (PIU) is not well-defined, and studies have reported that social isolation plays a greater role in behavioral symptoms of PIU than does the presence of psychopathology.[23] Thus, the entities of telephobia, internet addiction, and nomophobia are not mutually exclusive, and there is wide overlap between them.

This study reported that males were significantly more telephobic as compared to females. Previous studies had also revealed that there was a higher involvement of males in internet chatting, online gaming, online gambling, virtual sex, and pornography as socialization offers lesser restriction to males in most cultural contexts which increases the likelihood of males becoming telephobic.[24] A previous study had indicated that subjective sexual arousal ratings for pornographic pictures were associated with a tendency toward cybersex addiction.[25] So, visiting pornographic sites is one of the key elements of social phobias and there are gender differences because males involve more in online activities, such as gaming, pornography, and gambling.[26] Access to porn sites and telephobic scores had significant association in this study. A previous study reported compromised well-being due to internet usage in the form of failure to manage time, missed sleep, and missed meals, such as patterns and norms of other addictions.[27]

Some of the important recommendations emanating from this study are the need to improve social cohesions and social interactions between students and their peers or guardians to prevent the possibility of fear associated with telephone use. The detrimental effects of watching porn have also been highlighted in this study. Previous studies have consistently shown the adverse mental and sexual health effects of pornography, especially depression, suicide ideation, and hypersexuality.[28-30] The sufferer of telephobia may find it helpful to explain the nature of the phobia to friends, so that a failure to respond to messages is not misinterpreted as rudeness or an unwillingness to communicate. Targeted interventions need to be designed to help them overcome this fear and use technology in a healthy and productive manner.

Conclusion

Over the years, telephobia has increased rapidly because of increased stress and poor interpersonal relationships, especially among medical students and practitioners. This study reported a 9% prevalence of moderate to severe telephobia among medical students in Western India. While a medical student should remain up to date with recent advances and technology using internet, the negative consequences of digital technology, especially telephobia, need to be studied, examined, and intervened to minimize the potential harm to the individual as well as the society. The study had a few limitations. First, the sample size was relatively small from one medical college in Western India. So, the generalizability of the findings is limited. Only uni-variate analysis was performed, and multi-variable analysis was not done owing to lesser sample size. Second, a cross-sectional study design means that causal inferences cannot be drawn. It is difficult to conclude a cause–effect relationship, that is, whether telephobia leads to psychiatric morbidity or a person with psychopathology is prone to telephobia. Nonetheless, our study is still important as it establishes the importance of the evaluation of existence of current psychiatric disorders when the clinician meets the subject with suspected telephobia.

This study provides a workable framework for further exploration of telephobia. Greater research is needed to find answers regarding the definition, classification, diagnosis, prevalence, and various factors associated with this disorder. It may pose a potential clinical threat as little is understood about treatment implications for this emergent disorder.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Kinchin D. Telephobia. Nurs Times. 1992-1993;88:28-9.
2. Mangot A, Murthy V, Kshirsagar S, Deshmukh A, Tembe D. Prevalence and pattern of phantom ringing and phantom vibration among medical interns and their relationship with smartphone use and perceived stress. Indian J Psychol Med 2018;40:440-5.
3. Van Rooij AJ, Prause N. A critical review of "internet addiction" criteria with suggestions for the future. J Behav

Addict 2014;3:203. doi: 10.1556/JBA.3.2014.4.1.

4. Marshall JR, Lipsett S. Social Phobia: From Shyness to Stage Fright. 1994. p. 219.
5. Phone Anxiety Affects Over Half of UK Office Workers-Face For Business. Available from: https://ffb.co.uk/blog/630-phone-anxiety-affects-over-half-of-uk-office-workers. [Last accessed on 2023 Sep 29].
6. Fielding, Richard. Telephone apprehension : A study of individual differences in attitudes to, and usage of the telephone; 1990.
7. Kruger DJ, Djerf JM. High Ringxiety: Attachment anxiety predicts experiences of phantom cell phone ringing. Cyberpsychol Behav Soc Netw 2016;19:56-9.
8. Substance Abuse and Mental Health Services Administration. DSM-5 Changes: Implications for Child Serious Emotional Disturbance [Internet]. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2016 Jun. Available from: https://www.ncbi.nlm.nih.gov/books/NBK519708/[Last accessed on 2024 Mar 05].
9. Measuring digital development: Facts and Figures 2022. Available from: https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx. [Last accessed on 2023 Sep 29].
10. Frank JR, Snell LS, Cate OT, Holmboe ES, Carraccio C, Swing SR, *et al*. Competency-based medical education: Theory to practice. Med Teach 2010;32:638-45.
11. Chen CP, Wu CC, Chang LR, Lin YH. Possible association between phantom vibration syndrome and occupational burnout. Neuropsychiatr Dis Treat 2014;10:2307-14.
12. Niederberger M, Spranger J. Delphi technique in health sciences: A map. Front Public Health 2020;8:457. doi: 10.3389/fpubh. 2020.00457.
13. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. Int J Clin Pharm 2016;38:655-62.
14. Traore B, Aguilo Y, Hassoune S, Nani S. Determinants of internet addiction among medical students in casablanca: A cross-sectional study. Global Health J 2023;7:101-9.
15. Zhang MWB, Lim RBC, Lee C, Ho RCM. Prevalence of internet addiction in medical students: A meta-analysis. Acad Psychiatry 2018;42:88-93.
16. Joseph J, Varghese A, Vr V, Dhandapani M, Grover S, Sharma S, *et al*. Prevalence of internet addiction among college students in the Indian setting: A systematic review and meta-analysis. Gen Psychiatr 2021;34:e100496. doi: 10.1136/GPSYCH-2021-100496.
17. Rothberg MB, Arora A, Hermann J, Kleppel R, Visintainer P. Phantom vibration syndrome among medical staff: A cross sectional survey. BMJ 2010;341:c6914. doi: 10.1136/BMJ.C6914.
18. Goyal AK. Studies on phantom vibration and ringing syndrome among postgraduate students. Indian J Community Health 2015;27:35-40.
19. Mohammadbeigi, A, Mohammadsalehi N, Moshiri E, Anbari Z, Ahmadi A, Ansari H. The prevalence of phantom vibration/ringing syndromes and their related factors in Iranian' students of medical sciences. Asian J Psychiatr 2017;27:76-80.
20. Health: Don't call me, please, and I won't call you: To most of us, the ringing of the phone is at least a potential pleasure. But to some it is a source of anguish. Barbara Rowlands reports | The Independent | The Independent https://www.independent.co.uk/life-style/health-and-families/health-news/health-don-t-call-me-please-and-i-won-t-call-you-to-most-of-us-the-ringing-of-the-phone-is-at-least-a-potential-pleasure-but-to-some-it-is-a-source-of-anguish-barbara-rowlands-reports-1463066.html. [Last accessed on 2023 Sep 29].
21. Pavithra M, Madhukumar S, TS MM. A study on nomophobia-mobile phone dependence, among students of a medical college in Bangalore. Natl J community Med 2015;6:340-4.
22. Abdoli N, Sadeghi-Bahmani D, Salari N, Khodamoradi M, Farnia, *et al*. Nomophobia (No Mobile Phone Phobia) and psychological health issues among young adult students. Eur J Investig Health Psychol Educ 2023;13:1762-5.
23. Caplan SE. Problematic internet use and psychosocial well-being: Development of a theory-based cognitive–behavioral measurement instrument. Comput Human Behav 2002;18:553-75.
24. Anand N, Jain P, Prabhu S, Thomas C, Bhat A, Prathyusha P, *et al*. Internet use patterns, internet addiction, and psychological distress among engineering university students: A study from India. Indian J Psychol Med 2018;40:458. doi: 10.4103/IJPSYM.IJPSYM_135_18.
25. Griffiths MD. Internet sex addiction: A review of empirical research. Addict Res Theory 2012;20:111-24.
26. Cooper A, Delmonico DL, Burg R. Cybersex users, abusers, and compulsives: New findings and implications. Sex Addict Compulsivity 2000;7:5-29.
27. Oktug Z. Gender differences in internet addiction and tendency to express emotions. J Psychosoc Res Cyberspace 2010;1:39-53.
28. Dawson K, Nic Gabhainn S, Willis M, MacNeela P. Development of a measure to assess what young heterosexual adults say they learn about sex from pornography. Arch Sex Behav 2022;51:1257-69.
29. Camilleri C, Perry JT, Sammut S. Compulsive internet pornography use and mental health: A cross-sectional study in a sample of university students in the United States. Front Psychol 2021;11:613244. doi: 10.3389/FPSYG.2020.613244.
30. de Alarcón R, de la Iglesia JI, Casado NM, Montejo AL. Online porn addiction: What we know and what we don't-a systematic review. J Clin Med 2019;8:91. doi: 10.3390/JCM8010091.