INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PREVALENCE OF SMARTPHONE ADDICTION AND ASSOCIATED LONELINESS AMONG MEDICAL STUDENTS IN RURAL KANYAKUMARI DISTRICT - A CROSS SECTIONAL STUDY

Community Medicine

Dr.Priya R Panicker — Assistant professor, Department of Community Medicine, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Tamil Nadu, India.

Dr.Sivaanusuya.S* — Post graduate student, Department of Community Medicine, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Tamil Nadu, India. *Corresponding Author

ABSTRACT

Background: Smartphone overuse can be a sign of addiction and can affect both social and health aspects among the youth. Hence we conducted this study to assess the prevalence of smartphone addiction and its association with loneliness among medical students in rural Kanyakumari.
Methodology: A cross-sectional study was conducted among 150 medical students over 2 months. Data was collected and analyzed with a self-administered questionnaire from SAS-SV and UCLA.
Results: Out of 150 students 28% and 49.3% of them were addicted to smartphones and with severe loneliness. Duration, daily hours and purpose of usage were found to have a significant association with addiction. Severe loneliness was seen more among those with highly addicted (p 0.002).
Conclusion: The prevalence of smart phone addiction and loneliness is quite higher than seen previously. This warrants a better psychosocial support system for them to cope with loneliness.

KEYWORDS

Smartphone Addiction, Prevalence, Loneliness, Kanyakumari

INTRODUCTION:

During the past decade, the smartphone and internet has become one of the most important tools of urban and rural population for information, job opportunities, education and entertainment, including social media sites and networking. Now-a-days gradually it is becoming an integral part of our day-to-day lives with negative consequences.[1] Smartphone overuse can be a sign of addiction[1] and can affect both social and health aspects. Adolescents may develop attention deficits, behavioral change, somatic symptoms, and aggression.[2] Overuse is nothing but "dependence syndrome" which is the term used by the WHO, as continues use of something for a relief, comfort and in its absence causing cravings.[3] This is categorized either as substance abuse, such as drugs, alcohol and tobacco under ICD-10 or behavioral addiction, such as a mobile phone addiction.[4]

Substance abuse can be defined as any substance used in larger quantities or for durations longer than initially intended, and a desire to cut down, continued use of it regardless of adverse physical or psychological consequences and withdrawal symptoms.[4,5].

Internet addiction is stated as an impulse control disorder, characterized by pathological Internet use.[6] Behavioral and chemical addictions have similar seven core symptoms which are not integrally researched - salience, tolerance, mood modification, conflict, withdrawal, problems and relapse.[7] For instance, the report found association with psychological symptoms of smart phone addiction, that is, compulsion, functional impairment, tolerance, and withdrawal.[8,9]

People mainly use smartphone when they are alone, stressed or tensed and become addicted.[10] Globally smartphone addiction is a common adult problem and the term changed non-pathologically as "problematic smartphone use"[11] as they lose face to face interaction with others. Thus, smartphone addiction and loneliness becomes vicious cycle leading to severe mental health issues especially among the young adults.[12] According to the last census data (2011)[5] the Indian population is approximately 1.2 billion, and in this exponentially growing population, majority were young adults. It is estimated that in India, about 18 per 100 of the general population are active internet users with majority young adults.[2]

However, studies regarding loneliness, interpersonal problems and internet addiction among medical students in Tamil Nadu are still very few. Hence this study was undertaken to find the prevalence of smartphone addiction and loneliness among medical students in our college using SAS-SV scale and UCLA loneliness scale respectively and to identify any association between the two conditions.

METHODOLOGY:

The present cross-sectional study was conducted using a self administered semi-structured questionnaire after ethical consideration among medical students of a private medical college in Kanyakumari district, Tamil Nadu state over a period of 2 months (November to December 2019). Using a prevalence of smartphone addiction of 40% to 45% in a study by Sanjeev Davey and Anuradha Davey[4] (India) as 'p', 20% precision and 10% non-response rate in Cochran's formula $3.84pq/d^2$, sample size was calculated as 160. Among 400 medical students from first year to final year batches, 160 students were selected by stratified random sampling technique. Alternate numbers from the attendance register were selected, and in case of absence the next roll number was included to finalize 40 students from each batch. Those who submitted incomplete questionnaires were excluded from the final analysis.

The self-administered questionnaire was compiled from questions assessing demographic features, 10 questions from Smartphone addiction Scale-Short Version (SAS-SV)[12] using a 6-point Likert scale for agreement and 20 questions from University of California, Los Angeles (UCLA) Loneliness scale.[13] Informed consent were taken from each student before the data collection process. Out of 160 students, 10 submitted incomplete forms and hence these were excluded from final data analysis. Data was entered into MS Excel-2010 and analyzed with SPSS version 16. Descriptive statistics and Chi square tests were done with the significance level fixed at 5%.

RESULTS

Among 150 students, the age of students range from 19 to 21 years with mean age of 19.87 ± 1.469 years. More than half of students (58%) were female and 42% were male.

Regarding mobile usage, out of 150 participants, 0.7% of students do not use mobiles or smart phones at all while a majority (54.7%) of students uses them for 1 to 4 hours. Only 8.7% of students claimed to use mobiles for more than 8 hours per day.

Among the students, majority used smart phones for hearing music (58.7%), while 48.7% for social media, followed by communication purposes (37.3%), internet (25.3%), gaming (20.7%) and academic purposes (18%) respectively. Majority of students used mobiles during evenings, followed by night times and daylight hours at 56%, 30 % and 14 % respectively.

The scores of the students for Smartphone Addiction were computed from SAS-SV scale and 28% were found to be addicted to smartphones, with scores above the cutoff of 31 for males and 33 for females. Among the students, we found that 53.3% were less addicted and 46.7% were highly addicted to smart phone on daily basis as categorized by their median score. And on computing the loneliness scoring using the UCLA scale, we found that 50.7% were feeling average or frequent loneliness and 49.3% were feeling severe loneliness with a score of more than or equal to 31.

Bivariate analysis was done to analyze the effect of gender, age categories, years of mobile usage, daily hours of usage and purpose of usage on smartphone addiction among the students.

Table 1: Bivariate Analysis Of Smartphone Addiction

VARIABLES	SMARTPHONE ADDICTION				df	Pvalue
	Less addicted N%		Highly addicted N %			
Sex						
Male	32	40%	31	44.3%	1	0.596
Female	48	60%	39	55.7%		
Age						
<20years	60	75%	40	57.1%	1	0.021*
>21years	20	25%	30	42.9%		
Duration of years used						
<3years	49	61.3%	28	40%	1	0.009*
>4years	31	38.7%	42	60%		
Usage time per day						
<2hours	67	83.8%	42	60%	1	0.001*
>3hours	13	16.2%	28	40%		
Purpose of usage						
Music/videos	63	78.8%	50	71.4%	1	0.299
Social media,web, communication	17	21.2%	20	28.6%		

*significantly associated – p value <0.05

In our study association was found between smartphone addiction and age, Duration of years used, usage time per day with p value< 0.05 with CI 95% (Table-1). Similar bivariate analysis between loneliness and relevant demographic factors are described in Table 2 below.

Table 2: Bivariate Analysis Of Loneliness Among The Students

Category	LONELINESS				Df	Pvalue
	Frequent Loneliness N%		Severe Loneliness N%			
Sex						
Male	34	44.7%	29	37.2%	1	0.491
Female	42	55.3%	45	60.8%		
Age						
<20years	58	76.3%	42	56.8%	1	0.011*
>21years	18	23.7%	32	43.2%		
Duration of years used						
<3years	39	51.3%	38	51.4%	1	0.997
>4years	37	48.7%	36	48.6%		
Usage time per day						
<2hours	57	75%	52	70.3%	1	0.516
>3hours	19	25%	22	29.7%		
Purpose of usage						
Music/videos	56	73.7%	57	77%	1	0.635
Socialmedia,web, communication	20	26.3%	17	23%		

*significantly associated – p value <0.05

On bivariate analysis of smartphone addiction of the students with frequent and severe categories of loneliness, there was a statistically significant association between smartphone addiction and loneliness among the students (p 0.002, χ^2 9.68) as shown in Table 3 . Those who suffered from severe loneliness were 2.8 times more likely to be highly addicted to smartphones than those less lonely.

Table 3: Association Between Loneliness And Smartphone Addiction

LONELINESS	ADDICTION				Pvalue
	Less		High		
Frequent	50	65.8%	26	34.2%	0.002*
Severe	30	40.5%	44	59.5%	

*significantly associated – p value <0.05

DISCUSSION
Greenfield et al found that the prevalence of Internet addiction is about 6% globally,[14] whereas Scherer et al in their study found that 14% of the college students are addicted[15]but, in our study, shows higher prevalence on smartphone addiction about 28 % among medical students. The prevalence of internet addiction among medical students varied across countries. Zhang et al in 2017 found the prevalence rate of smartphone addiction among medical students was higher than in the general population.[16] The prevalence studies of Berner et al in Iran reported 5.2 to 28.7% in 2014,[17] Salehi et al in Nepal found prevalence of 21% 2014,[18] Nath et al in Chile found 11.5% in 2016,[1] Boonvisudhi et al in India found 46.8 to 58.9% in 2017,[20] and Upadhayay et al in Thailand found 24.4% in 2017 respectively.[21]Usman et al, 2014 in his study found that internet addiction among medical students leads to poor academic performance and psychosocial problems which is similar to our study.[22]

Young defines Internet addiction as excessive time spent on smartphone with internet-related activities, with an increasing tolerance of being online, disturbed feelings when off line, and also he found that smartphone addiction is associated with loneliness, which is similar to our study.[6] However, he conducted few multivariate studies to investigate the correlation with loneliness, lifestyle factors, behavioral patterns, depression, and mobile phone dependence and he proposed that internet addiction is closely related to impulse control disorder as presented in the *DSM-IV*. But now, the disorder is not recognized as an individual entity. However, in India, the numbers of studies regarding these issues are limited.

In our study medical students, are active learners and also have freely accessed the internet for their academic purposes and for recreation and to be in contact with their family members. In factors associated with smartphone addiction and loneliness among medical students our study found positive association between addiction and loneliness and addiction with age, time usage per day and duration of usage which is similar to Satoko Ezoe et al[23]and Caplan et al[24] studies where association was found between internet addiction, depression and loneliness and no correlation was found in Nath et al study.[19] Valentina et al in his study found that mean SPA- score was 50.2±20.25 with 19 % non-addiction 64% slight addiction and 17% probable addiction to smartphone[25] which is higher in our study with 28% addicted and 72% non-addicted. Jocelyne Matar et al found that purpose of usage was maximum for texting (83%), entertainment/family (67%) and friends (62%) which is not similar to our study[26]and we found that purpose of usage was music, social activities, communication, internet, gaming, office of 59.7%, 48.7%, 37.3%, 25.3%, 20.7%, 18% respectively. Our study had several limitations. First, this study did not rule out depression or other mental health disorders which may be an important association of loneliness, interpersonal problems and internet addiction. Also, the data on mobile usage was self-reported and could not be validated.

CONCLUSION:
The prevalence of internet addiction among medical students in this study was high compared with medical students from other studies in various countries. The positive association between smartphone addiction and loneliness is alarming. Reasonable usage of smartphones is advised among students, especially among adults and less educated users who could be at higher risk of addiction, loneliness and depression. This study has conclusively shown that those who suffered from severe loneliness were more likely to be highly addicted to smartphones. This warrants a better psychosocial support system for medical students to help them cope with loneliness and promote their mental health. The relationship between loneliness and smartphone addiction is also an escalating global concern that necessitates future studies to investigate further on this concern.

REFERENCES:

1. Kim, H. (2013). Exercise rehabilitation for smartphone addiction. Journal of exercise rehabilitation, 9(6), 500.
2. Internet users (per 100 people)2015; Availabe from: http://data.worldbank.org /indicator/it.net.user.p2. accessed on 2018 Nov 12th
3. WHO; "Management of substance abuse: Dependence Syndrome;Availabe from: http://www.who.int/substance_abuse/terminology/definition1/en accessed on 2018 Nov 7th.
4. Davey, S., & Davey, A. (2014). Assessment of smartphone addiction in Indian adolescents: a mixed method study by systematic-review and meta-analysis approach. International journal of preventive medicine, 5(12), 1500.
5. Government of India. CENSUS 2011;Availabe from: http://www.census2011.co.in/. accessed on 2018 Nov 11th.
6. Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. Cyberpsychology & behavior, 1(3), 237-244.
7. Widyanto, L., & Griffiths, M. (2007). Internet addiction: Does it really exist?(revisited). In Psychology and the internet (pp. 141-163). Academic Press.
8. Lin, Y. H., Chang, L. R., Lee, Y. H., Tseng, H. W., Kuo, T. B., & Chen, S. H. (2014). Development and validation of the Smartphone Addiction Inventory (SPAI). PloS one, 9(6).
9. Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. CyberPsychology & Behavior, 8(1), 39-51.
10. Harwood, J., Dooley, J. J., Scott, A. J., & Joiner, R. (2014). Constantly connected–The effects of smart-devices on mental health. Computers in Human Behavior, 34, 267-272.
11. Bae, S. M. (2017). Smartphone addiction of adolescents, not a smart choice. Journal of Korean medical science, 32(10), 1563-1564.
12. Kwon, M., Kim, D. J., Cho, H., & Yang, S. (2013). The smartphone addiction scale: development and validation of a short version for adolescents. PloS one, 8(12).
13. Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. Journal of personality and social psychology, 39(3), 472.
14. Greenfield, D. N. (1999). Psychological characteristics of compulsive Internet use: A preliminary analysis. Cyberpsychology & behavior, 2(5), 403-412.
15. Shaw, L. H., & Gant, L. M. (2004). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. Journal of Obstetrics and Gynaecology Canada, 41(10).
16. Zhang, M. W., Lim, R. B., Lee, C., & Ho, R. C. (2018). Prevalence of internet addiction in medical students: a meta-analysis. Academic Psychiatry, 42(1), 88-93.
17. Berner, J. E., Santander, J., Contreras, A. M., & Gómez, T. (2014). Description of internet addiction among Chilean medical students: a cross-sectional study. Academic Psychiatry, 38(1), 11-14.
18. Salehi, M., Khalili, M. N., Hojjat, S. K., Salehi, M., & Danesh, A. (2014). Prevalence of internet addiction and associated factors among medical students from Mashhad, Iran in 2013. Iranian Red Crescent Medical Journal, 16(5).
19. Nath, Kamal, Subrata Naskar, and Robin Victor. "A cross-sectional study on the prevalence, risk factors, and ill effects of internet addiction among medical students in Northeastern India." The primary care companion for CNS disorders 18.2 (2016).
20. Boonvisudhi, T., & Kuladee, S. (2017). Association between Internet addiction and depression in Thai medical students at Faculty of Medicine, Ramathibodi Hospital. PloS one, 12(3).
21. Upadhayay, N., & Guragain, S. (2017). Internet use and its addiction level in medical students. Advances in medical education and practice, 8, 641.
22. Usman, N. H., Alavi, M., & Shafeq, S. M. (2014). Relationship between Internet addiction and academic performance among foreign undergraduate students. Procedia-Social and Behavioral Sciences, 114, 845-851.
23. Ezoe, S., & Toda, M. (2013). Relationships of loneliness and mobile phone dependence with Internet addiction in Japanese medical students. Open Journal of preventive medicine, 3(06), 407.
24. Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. Communication research, 30(6), 625-648.
25. Rotondi, V., Stanca, L., & Tomasuolo, M. (2017). Connecting alone: Smartphone use, quality of social interactions and well-being. Journal of Economic Psychology, 63, 17-26.
26. Matar Boumosleh, J., & Jaalouk, D. (2017). Depression, anxiety, and smartphone addiction in university students-A cross sectional study. PLoS one, 12(8).