

A Cross Sectional Study to assess the pattern of mobile phone usage and effects of problematic mobile phone usage on health among students of urban area of Western Maharashtra

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Abstract

Introduction: The world has become “Global Digital Suite”. Technological revolutions and inventions have provided the world with various inventions for various purposes. Excessive day by day increase in mobile phone usage throughout the world raises widespread concerns over its possible harmful effects on human health. This study was conducted with the aim of to assess the pattern of mobile phone usage and effects of problematic mobile phone usage on health among students of a selected college of an urban area of Western Maharashtra.

Methods & Materials: The present study adopted a cross sectional descriptive design. A total of 210 students were selected for the study. A questionnaire was developed to assess the pattern of mobile phone usage. PUMP scale was used to assess the problematic mobile phone usage and a self perceived questionnaire was used to assess the health effects of mobile phone usage.

Results: Findings revealed, majority of the students 174 (82.9%) were female and only 36 (17.1%) students were male, 91 (43.3%) students were using mobile phone for entertainment purpose, maximum students 139 (66.2%) were checking mobile phone more than 8 times in an hour, majority 82 (39%) of the students were spending more than Rs 750 on mobile phone per month, 135 (64.3%) students reported that they use mobile phone irrespective of time, 20 (9.52%) were having severe health effects of problematic mobile phone use, majority of the students 175 (83.3%) experienced tinnitus, 172 (81.9%) experienced depression, 168 (80%) of them experienced earache, 164 (78.1%) felt nomophobia, 160 (76.2%) textphrenia, 151 (71.9%) ringxiety, 149 (71%) suffered pain in the finger, 145 (69%) had disturbed sleep, 99 (47.1%) suffered headache because

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of problematic mobile phone usage. Chi-square value showed statistically significant association between mobile phone usage pattern with education of parents, monthly income, pocket money per month with 3df at 5% level of significance (p value <0.05).

Discussion: There was statistical significance association between mobile phone usage and effects of Problematic mobile phone usage on college students in India, as it is appearing as an emerging health

problem in college students.

Conclusion: It can be concluded that the need emerges for more extensive research in the concerned field to validate the findings and felt need to formulate policies, which should consider the problem of mobile phone addiction and educate the users regarding the same.

Keywords: Pattern of mobile phone usage; Problematic mobile phone usage; PUMP scale' nomophobia; Textphrenia; Ringxiety.

INTRODUCTION

A smart phone is an e-toy designed for the lonely inner child hidden in each and every one of us.
Shaurabh sharma

Technological development and new inventions have provided the world with various inventions for various purposes. Communication channels keeps on improving day by day and have upgraded communication, talking to a person with thousands of miles apart is simply a game of second's now.² Excessive day by day increase in mobile phone usage all over the world raises widespread concerns over its increasing harmful effects on human health Mobile internet usage has worked its way into the daily life of Smartphone and tablet users, enabling students to access and share information anytime and everywhere.

Today mobile phones have become the most essential item which we carry with us everywhere. It facilitates our relationships by making us able to contact with those whom we would not otherwise will be able to do conversations immediately as and when required. At the same time however such technology can be harmful and can lead to a lack of contact of one persons with another or the development of dependency. So it is a matter of thinking do mobile phones really improves our relationships, or do they damage them?

Aim: To assess the pattern of mobile phone usage and effects of problematic mobile phone usage on health among students of a selected college of an urban area of Western Maharashtra.

Primary objectives

- To assess the pattern of mobile phone usages among the students of a selected college.
- To assess the problematic mobile phone usage using PUMP scale.
- To assess the self-perceived effects of problematic usage of mobile phone on health

Secondary Objectives

- Associate the pattern of mobile phone usage among students of selected college with socio demographic variables.

REVIEW OF LITERATURE

The available literature on mobile phone highlights that there is a relationship between Mobile phone addiction and adolescent's mental and physical health problem. There are negative effects of mobile phone addiction among students. There is a gender differences in Mobile phone usage.

A significantly larger proportion of ringxiety sufferers also complained of hampered studies. The pattern of mobile phone use among the medical students appeared to be problematic, as a fairly large proportion suffered from ringxiety, they reported getting upset and they used their phones at restricted times and places. This problem needs to be recognized, all stakeholders must be made aware of the symptoms and measures must be taken to reduce.

Manisha B, Sekha K C, Priyanka E P, Kumar U V, Mohan C R, Chandrasekhar V (2017) conducted a cross sectional study with the title a Study on Usage of Mobile Phones and its Effects on Sleep Disturbances of Students of Professional College at Eluru, A.P. The results of the study shows 144 (78.2%) students were sleeping less than 8 hrs per day. There was statistically significant association was found between inadequate sleep (sleep disturbance) and age, sex and number of calls attending per day. Based on the above study results, it was seen that tremendous mobile usage among the college students and it also affected their regular sleep, concentration of class and time bound completion of their regular academics but high percentage of passing and getting high marks in the university also noticed among these students.¹¹

Hindustan times on Monday (19 November, 2018) according to a report on "Smartphone

addiction is more dangerous than you thought, it causes depression, anxiety". Which was based on the research study from South Korea revealed that the extent to which internet and smart phone use affects daily routines, social life, productivity, sleeping patterns and feelings. Prolonged use of smart phones may significantly increase the risk of depression, anxiety and insomnia among teenagers. Researchers from the Korea University in South Korea have found an imbalance in the brain chemistry of young people addicted to smart phones and the internet they used magnetic resonance spectroscopy (MRS) to gain unique insight into the brains of smart phone and internet addicted teenagers.³

Wien Klin Wochensh (2018) conducted a study on a total of 150 students, from 2 universities from Timisoara. The study revealed a relative high number of students with a predisposition to smart phone use disorder, with significant correlations between indicators of smart phone addiction and stress scores. They found that Smartphone addiction is one of the most common non-drug addictions, accompanied by negative effects, such as depression, anxiety, self-disclosure, impaired academic performance, family life and human relationships.¹²

Matar B J, Jaalouk D (2017) conducted a cross sectional study to assess prevalence of smart phone addiction symptoms, and to ascertain whether depression or anxiety, independently, contributes to smart phone addiction level. Results showed prevalence rates of smart phone-related compulsive behavior, functional impairment, tolerance and withdrawal symptoms were substantial. 35.9% felt tired during daytime due to late-night smart phone use, 38.1% acknowledged decreased sleep quality and 35.8% slept less than four hours due to smart phone use more than once.¹³

Subramani P, Aaseer T S, Steohanie W KY, Bobby L C, Lee Yu Ren, (2017) conducted a study on smart phone usage and increased risk of mobile phone addiction. This study suggested that Many of the study participants agreed that mobile phone usage causes fatigue (12% agreed; 67.5% strongly agreed), sleep disturbance (16.9% agreed; 57.7% strongly agreed), and psychological disturbance (10.8% agreed; 54.8% strongly agree.¹⁴

Nikita M B, George K and Anna M (2018) conducted a cross sectional study on "The Effect of Electromagnetic Radiation due to Mobile Phone Use on Thyroid Function in Medical Students Studying in a Medical College in South India." The study was done to explore the association between

radiation exposure and thyroid dysfunction among mobile phone users. In this study, they found a significant correlation between the total radiation and the TSH values among both individuals with or without family study of thyroid dysfunction study of the students.¹⁵

Subramanian S S, M. S Rajesh (2017) conducted a cross sectional analytical study on 115 college students of Chennai using Smartphone to analyze the merits and demerits of smart phone usage among college students mainly its impact on health, the finding revealed 74% of the participants were female, more than 3 years 45% were using smart phones, 77% of the subjects were using more than 5 years daily, 66% had habit of checking the smart phone while sleeping, 72% of the participants have used for the academic purpose, 79% had headache, 54% with eyepain, 43% had neck and arm pain. With due knowledge of health hazards involved with smart phone, users should restrain from excessive usage and apply due precautions to get rid of negative effects on users health was the main outcome of this study.¹⁶

Salman Amin et al (2014) conducted a study on effect of using habits of cell phone on the this study was to assess some of the self-perceived effects of increasing cell phone usage on the well-being of college going students by knowing the opinion of parents and students. The empirical findings of the study depict that (26%) respondents think that students have very much lost focus on their study due to the use of cell phone, (34%) respondents which think that students have much lost focus on their study (21%) teachers and parents think students have somewhat lost focus on their study.¹⁷

Mahakud and Bhola (2014) conducted a qualitative Indian study on the nature of prevalence and dynamics of excessive social networking among the Indian youth. Results of the study indicate that most youngsters begin social networking at 14.6 years, being influenced by gender and nature of family. The average time spent was 3.6 hours daily, which was effected by degree of parental regulation. Most of the participants were found to carry social networking at night, interact with the opposite sex, have interest in electronic gadgets, ignore daily activities, hide their online tasks from others, use SNS secretly and feel frustrated in its absence. More male participant's usage social networking especially through mobile than to their female counterparts.¹⁸

Majeed-Ariss R, Baidam E (2015) conducted a study to assess Apps and Adolescents: A Systematic Review of Adolescents' Use of Mobile Phone and

Tablet Apps That Support Personal Management of Their Chronic or Long-Term Physical Conditions. A key finding of the review was the paucity of evidence based apps that exist, in contrast to the thousands of apps available on the app market that were not evidence based or user or professional informed. This review provides valuable findings and paves the way for future rigorous development and evaluation of health apps for adolescents with chronic or long-term conditions.¹⁹

MATERIAL AND METHODS

A cross sectional study method was used to assess the pattern of mobile phone usage among selected college. The study students were undergraduate Students of selected college willing to participate in the study who are attending college at least for last 6 months and students who are in the age group of 16-25 years. Students of foreign nationality studying in selected college were not included in this study.

Research design: A Cross sectional descriptive study design was used.

Setting: Undergraduate college of Western Maharashtra. Sampling technique: Stratified Random Sampling.

Population: Students studying in undergraduate classes.

Data collection methods: The study sample was assured of confidentiality of their response. Data was collected by giving the questionnaire related to socio-demography, mobile phone usage pattern, PUMP scale and effects of mobile phone on health. The respondents were co-operative and the data was thus collected and compiled for data analysis.

DATA ANALYSIS & INTERPRETATION

The data collected was organized, analyzed and interpreted using descriptive and inferential statistics. The scheme of statistical analysis was as follows: **Section I:** Demographic profile. **Section II:** Mobile phone usage patterns. **Section III:** Assessment of Problematic mobile phone usage by using PUMP scale. **Section IV:** Assessment of self-perceived effects of problematic mobile phone usage on health. Chi square test was used to find association among socio-demographic variable and pattern of mobile phone usage pattern.

RESULTS

Section I: Demographic profile

The Socio demographic characteristics of the students revealed that majority of the students i.e. 98 (46.7%) were of age group of 18-20 years whereas only 04, (1.9%) subjects were of more than 24 year of age. Most of the students 174 (82.9%) were female only 36 (17.1%) students were male. In the present study majority of the students 189 (89.5%) were staying in urban locality whereas only 22 (10.5%) were staying in rural areas at the time of the study. As per the findings of the present study majority of the students 142 (67.6%) were staying without family, only 68 (32.4%) were staying with family. As per the findings of present study mobile were used by students from all income group but 79 (37.1%) families were earning more than Rs 60,000 per month, 52 (24.8%) families were in the middle income group of Rs 40,001 - Rs 60,000 per month, rest of families were earning less than Rs 40,000 per month.

Section II: Mobile phone usage patterns

- **Main purpose of Mobile phone usage by the Students-** It was observed in the present study that maximum 91 (43.3%) students were using mobile phone for entertainment purpose, 52 (24.8%) were using for academics, 45 (21.4%) were using for calls and only 22 (10.5%) were using for social networking.
- **Duration of Mobile phone usage by the Student-** It was observed in the present study that maximum 114 (54.3%) of the students were using mobile phone more than 2 year, more than 56 (26.7%) were using mobile phone since more than 3 year, only 6 (2.9%) were using mobile phone since one year.
- **Age of getting an independent phone-** Findings of present study revealed that 101 (48.1%) students got their independent mobile phone at the age of less than 10 years; only 22 (10.5%) student got their mobile phone after 18 years of age.
- **Average time of mobile phone usage in a day by students-** It was observed in the present study that 60 (28.6%) students were using mobile phone heavily for more than 2 hours. 29 (13.8%) were using mobile phone for one to two hours daily only 44 (21%) were using for 30 to 60 min in a day. There were only 77 (36.7%) students who were using mobile phone for less than 30 min in a day. Frequency of checking mobile phone in an hour-According to present study maximum

Table 1: Description of mobile phone usage pattern of students

n=210

Parameters		No of Students	Percentage
		(f)	(%)
Main Purpose of Mobile Phone use most of the time	Call	45	21.4
	Academics	52	24.8
	Social networking	22	10.5
	Entertainment	91	43.3
Time duration of Mobile Phone usage	1 Year	6	2.9
	2 Year	114	54.3
	3 Year	34	16.2
	>3 Year	56	26.7
Age of getting an independent phone	<10 Yrs	101	48.1
	10 - 15 Yrs	61	29
	16 - 18 Yrs	26	12.4
	>18 Yrs	22	10.5
Mobile Phone use on an average in a day	>2 Hrs	60	28.6
	1 - 2 hrs	29	13.8
	30 min - 1 hr	44	21
	<30 min	77	36.7
Frequency of checking mobile phone in an hour	>8 times	139	66.2
	6 - 7 times	43	20.5
	4 - 5 times	19	9
	2 - 3 times	9	4.3
Monthly expenditure on mobile (in Rs)	<250	16	7.6
	251 - 500	33	15.7
	501 - 750	79	37.6
	>750	82	39
Reaction when mobile not in working	Feel lonely and depressed	11	5.2
	Feel agitated and angry	100	47.6
	Check back again and again for network	60	28.6
	Get engaged in other task	39	18.6
Part of the day of maximum mobile phone usage	Day Time (College hrs)	17	8.1
	Night (before sleep)	24	11.4
	Only during free time	34	16.2
	Day and night both	135	64.3
Frequency of indulging in watching or doing something ethically or morally wrong on mobile	Often	30	14.3
	Sometime	64	30.5
	Rarely	70	33.3
	Never	46	21.9
Eat or drink junk food (cake, pastry, wafers, popcorn, cold drink) while using mobile	Often	73	34.8
	Sometime	21	10
	Rarely	68	32.4
	Never	48	22.9

students 139 (66.2%) were checking mobile phone more than 8 times in an hour followed by 6-7 times by 43 (20.5%), 4-5 times by 19 (9%) and 2-3 times by 9 (4.3%) students in an hour.

- **Monthly expenditure on Mobile phone by Students**-It was observed in the present study that the majority 82 (39%) of the students were spending more than Rs 750 on mobile phone, 79 (37.6%) were spending Rs 501 - Rs 750 on mobile phones, 33 (15.7%) were spending Rs 251 - Rs 500 on, only 16 (7.6%) were spending less than Rs 250 monthly expenditure on mobile phone.
- **Reaction of Students when Mobile phone is not working** -It was observed in the present study that maximum 100 (47.6%) students felt agitated and angry followed by 60 (28.6%) continued checking back repeatedly for network, 39 (18.6%) got engaged in other work and 11 (5.2%) felt lonely and angry when the mobile was not working.
- **Part of the day of maximum Mobile usage by Students**-In the present study 135 (64.3%) students reported that they use mobile phone irrespective of time, 34 (16.2%) students were using mobile mainly during free time, 24 (11.4%) were using mobile phone before going to sleep, only 17 (8.1%) students used mobile during their college hours.
- **Frequency of indulging in watching or doing something ethically or morally wrong**-As per the findings of the present study only 46 (21.9%) students never got indulged in watching or doing something ethically or morally wrong, 30 (14.3%) students often, 64 (30.5%) sometimes, 70 (33.3%) students rarely got indulged in watching or doing something ethically or morally wrong on mobile phones.
- **Eating or drinking junk food while using Mobile phone**-It was observed in the present study that about 73 (34.8%) students were often, 68 (32.4%) rarely, 21 (10%) sometimes, only 48 (22.9%) were never got involved in eating or drinking junk food while using mobile phone.

Section III: Assessment of Problematic Mobile phone usage by using PUMP scale.

- The Problematic Mobile Phone Usage using PUMP scale in students revealed that only 13 (6.2%) students were using mobile phone normally, 124 (59%) students were found

to have Mild problematic use, 70 (33.2%) students were having Moderate problematic use, 3 (1.4%) students were found to have severe problematic use of mobile phone as interpreted by PUMP scale.

- Present study shows Self-perceived effects of problematic mobile phone usage on health of students were quite common, only 30 (14.29%) students had no health effects, 20 (9.52%) students were having severe health effects of problematic mobile phone use, 74 (35.24) students had moderate health effects, majority of students 86 (40.95%) had mild health effects. Present study suggested that almost 84% of students were having some kind of health effects of problematic mobile phone usage.

Table 2: Self-perceived effects of problematic mobile phone usage on health

n=210

Effect on health	No of students	Percentage
	(f)	(%)
Tinnitus	175	83.3
Depression	172	81.9
Earache	168	80
Nomophobia	164	78.1
Textphrenia	160	76.2
Ringxiety	151	71.9
Pain in fingers	149	71
Restlessness	145	69
Neck pain	127	60.5
Textiety	122	58.1
Sleep disturbances	105	50
Headache	99	47.1

Section IV: Assessment of self-perceived effects of problematic mobile phone usage on health

RECOMMENDATIONS

Internet regulatory strategies are required for college students in India, to prevent health effects of problematic mobile phone usage. The findings could prove beneficial to mobile phone developers, universities, parents, and researchers exploring mobile phone adoption and usage pattern. The finding of the study can be utilized for

implementation of “e-Kranti”, under the National Digital Literacy Mission (NDLM) and Skill India initiative of the Government. Planning of teaching programme regarding ill effects of excessive mobile phone usage. Pamphlets, posters and other communication mediums should be used by the government to prevent the new growing problem of mobile addiction among future generations of our country before it engulfs the youth of our country.

CONCLUSION

This study assessed the pattern of mobile phone usage among the college students of Western Maharashtra. A total of 210 students were assessed by cross sectional descriptive design. The results of the study revealed that the pattern of mobile phone usage was problematic among the students, and there was a significant association between mobile phone usage pattern socio-demographic variables. The investigator felt the study has shown strong need for further extensive researches in the field. Researcher also felt that health professional, and government while making policies should consider the problem of mobile phone addiction and educate the students regarding the same.

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REFERENCES

1. <https://wearesocial.com/blog/2018/01/global-digital-report-2018>
2. Aamna Baig. A study of mobile phone addiction and its disadvantages. JNMA . 2008 Jan- Feb;56(209):522-526
3. <https://www.hindustantimes.com/more-lifestyle/college-students-in-india-check-their-phones-over-150-times-daily/story-l2Sr6h1GbSnnfzOtgVT60I.html>
4. <https://www.statista.com/topics/779/mobile-internet/>
5. <https://www.statista.com/topics/840/smartphones/>
6. <https://www.statista.com/statistics/203734/global-smartphone-penetration-per-capita-sinc2005/>
7. <https://www.thehindubusinessline.com/info-tech/mobile-internet-users-in-india-seen-at-478-million-by-june/article23383790.ece>. Young students turned out to be the ‘most prolific users of most services New Del, MAR 29’
8. https://www.momjunction.com/articles/side-effects-of-mobile-phones-on-teenagers_00352682/#gref
9. [Http://www.smh.com.au](http://www.smh.com.au)
10. <https://www.du.ae/personal/helpandsupport/mobile/besafe/mobile-and-portable-devices-risks-new/cyber-safety-for-students>
11. Manisha B, Sekha K C, Priyanka E P, Kumar UV, Mohan C R, Chandrasekhar V (2017), the title a Study on Usage of Mobile Phones and its Effects on Sleep Disturbances of Students of Professional College at Eluru, A.P. IJAR 2018; 1(9): 898-905.
12. Wien Klin. A study to evaluate mobile phone dependence among students of a medical college and associated hospital of central India. IJCM.35(2):339-41.
13. Matar B J, Jaalouk D. Depression, anxiety, and smart phone addiction in university students- A cross sectional study. PLoS. 2017; 4:12(8) :56-62.
14. Subramani P, Aaseer T S, Steohanie W KY, Bobby L C, Lee Yu Ren. Smartphone usage and increased risk of mobile phone addiction: A concurrent study. Int J Pharm Investig. 2017 Jul-Sep; 7(3): 125-131.
15. Nikita Mary Baby, George Koshy, Anna Mathew. The Effect of Electromagnetic Radiation due to Mobile Phone Use on Thyroid Function in Medical Students Studying in a Medical College in South India . jem. Sept 9, 2018, IP: 42.108.245.53.
16. Subramaniani S. S., Sindhuja M. R. Impact of Smart Phone Usage among College Students – An Analytical Study. IJSR. Sep 2017. Vol 6 (9): 588-90
17. Salman A, Adnan R. Effect of using habits of cell phone on the study of the students: A case study on parents and teachers of Sargodha city. Asian Journal of Empirical Research. Dec 2014. 4(4): 254-263.
18. Bhola, M R, Mahakud. C G A qualitative analysis of social networking usage.IJRDH. March 2014; Vol 2(1): 34-44.
19. Majeed. A. R, Baildam E. Apps and Adolescents: A Systematic Review of Adolescents’ Use of Mobile Phone and Tablet Apps That Support Personal management of their chronic or long-term physical conditions. J Med Internet Res. 2015 Dec; 17(12): e287

