

ORIGINAL ARTICLE

Cell-phone Addiction amongst Medical students: A cross-sectional study

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ABSTRACT

Background: Cellular phone has become an integral part of our daily lives. Almost all medical students use it to perform various functions, from networking to use of different application.

Aim: To observe the ill effects of problematic cell phone use amongst medical students.

Method: A descriptive cross-sectional study was conducted on 4th year MBBS at Lahore medical and dental college during January to April 2019. A questionnaire was used having a 7 scale Likert and frequencies of result were given in form of pie chart, bar chart and a table.

Results: It was seen that almost half of the class have some tendency towards developing cell phone addiction. 47.2% were males and 52.8% were females who participated in this study. More than half i.e. 51.4% and 59% agreed to have urge to use phone and to frequently check their phone, respectively. A collective 54.9% showed distraction from their studies while being constantly using phone.

Conclusion: Cellphone addiction among medical student is rising, some patterns of this problematic use still needs to be explored further and guidelines need to be provided so as to improve the overall wellbeing of students from the ill effects of their phone use. And developing habits which would improve their lifestyle and do not add to their stresses.

Keywords: Cellphone, Medical students, Addiction

INTRODUCTION

Over the past recent years, as reported by WHO¹ in 2006, the use of cell phones has increased substantially, which has been paralleled by a growing concern about the ill effects on health. The number of cell phone subscriptions in Pakistan too has grown significantly, as people's reliance on this technology has increased. Mostly the people aged between 21 to 30 years, own up to 77% of smartphones. Now with current network providers almost everyone has a 3G/4G at a lesser price and data packages, hence a 24/7 availability of internet, from anywhere².

Furthermore, reliance on communication and social networking is added thereto, particularly among young people. In fact, the influence of social- networking and the need for social belonging are factors that change a cell phone into a potent device that is capable of satisfying these needs^{3,4}. From this perspective, current use of cell phones is no longer necessarily associated with our voice but is focused on applications such as social networks or chatting, e.g., Facebook, WhatsApp and other applications⁵. This phenomenon would also explain the urgency, dependency, and feeling of loneliness when the terminal is unavailable, the compulsive use of applications^{3,4} or the need to overcome boredom by looking for new sensations⁶.

Mobile phone addiction is one of the forms of compulsive use by adolescent globally, that is similar to internet addiction, and problematic use of mobile phone is on the increase and has caused serious concerns in many areas⁷. An increasing dependence on cell phones amongst young adults and college students may sing along the

evolution of cell phone use from a habit to an addiction. In general, technology has a powerful potential for diversion and escapes, henceforth, has a potential of becoming addictive⁸. The popularity of smartphones among college students is ascribable to the numerous features and functionalities they provide, to perform a variety of daily tasks in one device⁹.

Smartphone dependence (SPD) or cell phone dependence is regarded as a behavioural addiction. The amount of time spent with a mobile device is estimated to be about 10 to 18 hours on an average. Depending on the level of addiction to the usage of phone, the health of the user is affected on different scales, i.e. physically, mentally and socially. Therefore, it is essential to recognize students who are at risk of smartphone addiction. Although the risk factors that create addiction still remains unknown¹⁰.

Individuals who are addicted to cell phones are tend to be less physically active and have a general disregard for their health, whilst negative physical signs such as poor posture, backaches, headache, poor personal hygiene, irregular eating, sleep deprivation, eyestrain and many other symptoms that can affect their immune functioning and hormone secretion patterns and their cardiovascular and digestive patterns¹¹, as well as some complains of the sensation of having heard a ring or felt a vibration of a cell phone and pain and weakness in the thumbs and wrists^{12,13}.

Consequently, other the cause of concern is in behavioural terms, the following problematic manifestations that have been noted in mobile phone users, are frequently compared to and corroborated by the diagnostic criteria of the DSM-5 criteria. In a study by Walsh, et al¹⁴, it was found that mobile phone addicted participants reported feeling frustrated, angry and concerned at times when they

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were unable to use their phones as much as they want. Other signs and symptoms includes social withdrawal due to over preoccupation with phone, sleep disturbances^{5,15,16} becoming anxious or agitated when the cell phone is out of sight.

Likewise, according to Oulasvirta et al¹⁷ smart phones cause increased frequency of negative “checking” habits in individuals, these are automatic actions whereby the Smartphone is unlocked several times to check the start screen for new messages, notifications, alerts, and application icons.

The purpose of present study is to explore the negative effects of cell phone use and any identifiable addiction patterns amongst the medical students. Currently there are many ongoing researches on cellular phone addictions, including social behaviours and other health related problems.

This study is designed to observe the ill effects and measure the frequency of cell phone usage amongst medical students.

MATERIAL & METHODOLOGY

A descriptive cross-sectional study was conducted in Lahore Medical and Dental College, between January to April 2019. The study was approved by LMDC Ethical Committee. The study participants were from 4th year MBBS class, out of 162 students 144 participated in this study.

A questionnaire was developed that included socio-demographic information taken as: i) Age, ii) Gender and iii) Education. It also included question on duration of mobile phone use, measured in hours (less than 5 hours, 6-8 hours and more than 8 hours) and the type of applications mostly used by the students, e.g. Whatsapp, Facebook and other applications. Other data questions were collected on a Likert scale consisting of 18 questions^{18,19,20}. A 7 point Likert scale was used to analyse the addiction level of mobile phone use, where 1 was “strongly disagree”, 4 was “neutral” and 7 was “strongly agree”. The data set included questions on emotional dependency of using mobile phone, physical effects on health and behavioural changes while using the phone.

Consecutive sampling technique was employed and a verbal consent was taken from the participants. Confidentiality of data was ensured. The data was assessed on SPSS ver. 20. And results were displayed in the form of frequency table, bar charts and pie charts.

RESULTS

Class of 4th year MBBS of Lahore Medical and Dental college, participated in this study. The duration of this study was from January till April 2019. It was a questionnaire based study. Out of 144 students 68 (47.2%) were males and 76 (52.8%) female students, age ranged between 22 – 25 years, with mean age \pm 23.5 years. The duration of cellphone usage by students on hourly basis is 41% for less than 5 hours, 36.8% for 6 to 8 hours while the 22.2% use it for more than 8 hours a day.

Frequency of applications most commonly used by the students were WhatsApp 52(61.1%), Instagram 69(47.9%), Snapchat 55(38.2%), Facebook 88(36.1%),

Gaming 39(27.1%), Youtube 19(13%), Twitter 2(1.4%) and other application 58 (40.3%), respectively.

The majority of the participants were in agreement with the following questions on the Likert scale, 22.9% & 25% strongly agreed to have urge to use phone frequently and constantly, 56.9% felt the need to take their phone with them everywhere they go and a 40.3% agreed upon checking their phones first thing in morning after waking up. A 23.6% also said to have spent too much time on their phones and consumed time checking phone instead of doing their work or studies, and a 31.3% found it difficult to give on their phones emotionally.

Regarding the behavioural and mood pattern related questions there had been some disagreement and somewhat neutral pattern seen in the responses. A 30.6% disagreed being irritable, while 22.9% gave neutral response on been anxious when the phone charge is depleting. Disagreement was also seen in question regarding physical pain in neck, back (24.3%) and feeling phantom vibrations (23.6%). A 30.6% respondents said to have discontinued the use of phone when asked to put it away, and also not getting into trouble while working (43.1%) and nor befalling into accidents (77.1%). Interestingly the sleep pattern was not disturbed in many participants, yet 22.2% agreed to having disturbed sleep due to excessive use. The addiction to cell phone usage was analysed using a 7 point Likert scale. All results of the Likert scale are tabulated in frequencies (n) & percentages (%) (Table 1)

Fig. 1: Duration of mobile phone among students.

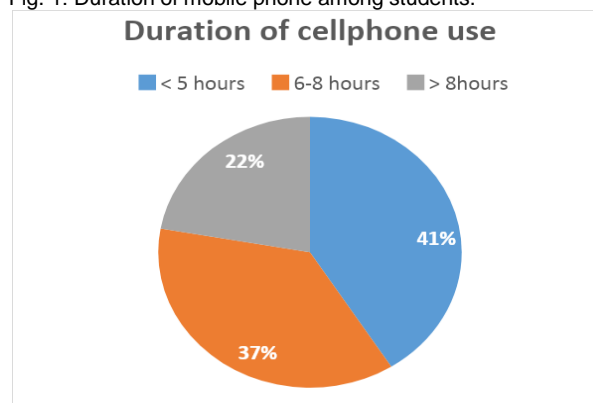


Fig. 2: Frequency of application in use

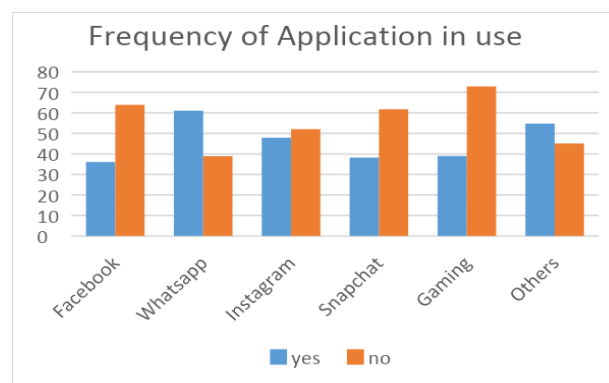


Table 1: Results of cell phone addiction using a 7-point Likert Scale

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
Do you feel the urge to use your phone again right after you stopped using it?	12(8.3%)	9(6.3%)	22(15.3%)	27(18.8%)	23(16%)	18(12.5%)	33(22.9%)
Do you feel the need to constantly check your phone?	13(9%)	13(9%)	13(9%)	20(13.9%)	30(20.8%)	19(13.2%)	36(25%)
Do you feel the need to take your phone everywhere with you?	7(4.9%)	4(2.8%)	8(5.6%)	7(4.9%)	11(7.6%)	25(17.4%)	82(56.9%)
Do you feel the need to check your phone first thing in the morning?	9(6.3%)	12(8.3%)	12(8.3%)	16(11.1%)	16(11.1%)	21(14.6%)	82(40.3%)
Do you feel anxious when your phone charge is depleting?	13(9%)	20(13.9%)	17(11.8%)	33(22.9%)	12(8.3%)	23(16%)	26(18.1%)
Do you feel irritable, when you are not using your phone?	44(30.6%)	36(25%)	28(19.4%)	15(10.4%)	5(3.5%)	9(6.3%)	7(4.9%)
Do you feel distracted or have difficulty concentrating, with your phone nearby?	23(16%)	17(11.8%)	24(16.7%)	20(13.9%)	21(14.6%)	14(9.7%)	25(17.4%)
Do you feel pain/ strain in neck, back and wrist using your phone?	35(24.3%)	29(20.1%)	22(15.3%)	22(15.3%)	10(6.9%)	10(6.9%)	16(11.1%)
Have you ever mistakenly felt if your cell-phone was vibrating even though it wasn't?	34(23.6%)	26(18.1%)	14(9.7%)	18(12.5%)	12(8.3%)	16(11.1%)	24(16.7%)
It would be very difficult, emotionally, to give up my cell phone	19(13.2%)	22(15.3%)	12(8.3%)	20(13.9%)	9(6.3%)	17(11.8%)	45(31.3%)
Do you think you might be spending too much time using your cell phone?	15(10.4%)	12(8.3%)	18(12.5%)	24(16.7%)	22(15.3%)	19(13.2%)	34(23.6%)
Do people often tell you, you spend too much time using your cell phone?	27(18.8%)	22(15.3%)	19(13.2%)	20(13.9%)	24(16.7%)	14(9.7%)	18(12.5%)
At times, I find myself using my cell phone instead of spending time with people who are important to me and want to spend time with me	33(22.9%)	25(17.4%)	10(6.9%)	24(16.7%)	11(7.6%)	18(12.5%)	23(16%)
I have continued to use my cell phone even when someone asked me to stop	44(30.6%)	26(18.1%)	19(13.2%)	13(9%)	17(11.8%)	9(6.3%)	16(11.1%)
Do you think your phone usage is disturbing your sleep time?	25(17.4%)	24(16.7%)	12(8.3%)	13(9%)	13(9%)	25(17.4%)	32(22.2%)
I have used my cell phone when I knew I should be doing work/schoolwork	11(7.6%)	13(9%)	16(11.1%)	25(17.4%)	22(15.3%)	23(16%)	34(23.6%)
I have gotten into trouble at work or school because of my cell phone use	62(43.1%)	32(22.2%)	13(9%)	9(6.3%)	8(5.6%)	10(6.9%)	10(6.9%)
Have you been in an accident because of your cell phone use?	111(77.1%)	13(9%)	2(1.4%)	4(2.8%)	7(4.9%)	2(1.4%)	5(3.5%)

DISCUSSION

The purpose of present study was to observe the problematic use of cellular phone among the medical students and to understand the ill effects of excessive usage, that can lead to addictions to cellular phones. The variables that were broadly assessed in our study were based on hours of use of mobile phones, most common application in use, the behavioural patterns seen to attachment to mobile phones, the physical stressors on health and other risk factors that can associate with developing ill habits with overuse of mobile phones.

The duration of a smartphone use on daily basis is one of the most significant indicators of smartphone addiction⁷. Our study showed similarities with other studies by Cha et al., Alijomaa et al and Torrecillas^{7,8,9}, it was seen in their study that the risk group for smartphone addiction spent more time on the smartphone, mobile messenger, and other social networking services than the normal user group did. Similarly, in our study more than half of our respondents used mobile phone for a significantly longer duration i.e more than 5 hours on daily basis. Specifically, it was noted in the risk groups in those studies spent 5.2 hours, while the normal user group spent 4.6 hours. Alijomaa et al.⁸ also reported that 40 percent of adolescents and adults use smartphones for more than 4 hours a day to make calls and send messages and tend to exhibit more preoccupation with smartphones. But yet another interesting finding was seen in a study by Oulasvirta et al.¹⁰ they reported that smartphone addicts used a smartphone

more frequently and for a shorter duration as compared with non-addicts.

In addition to the duration of use, the application also plays a very significant role in forming habits to frequently check the phones, Boehmer et al¹¹ reported in their study that the duration of mobile phone use varies with the differences in application on the phone. It was seen that News apps were accessed most frequently in the morning, whereas communication apps were used throughout the day. In our study the most common and excessively used application were WhatsApp, Instagram and Facebook, respectively. A study by Liu et al¹², reported that Smartphone gaming is a potential risk factor that can lead to addiction, our study found very few participants interested in gaming application, this factor need to be explored more. However, Rai et al¹³ showed similarity with our study, Medical students trend towards more usage of social networking applications.

The applications used by the participants showed a majority, i.e. 61.1% used Whatsapp to communicate and socialize, followed by Instagram, Snapchat and so on. More than 50% students said to check their phones constantly and frequently, whether to look up for the notifications or to replying to text messages. A 39% use gaming applications either in free time or during classes and more than half the student admit that their phone use has increased overtime. These applications when used during some lecture hours results in difficulty in concentration and 19% claim to have gotten into trouble due to excess use of it during classes, and another 9.8%

reported to have fallen into accidents while using their phones. The overuse of mobile phones has become a mean of distraction and some of these results from our study show similarity with study on behaviour patterns conducted by Basu et.al²¹.

Another important finding in our study is on disturbance of sleep time, a 48.6% reported to have worsening of sleep quality causing waking time tiredness, that has been observed with mobile phone overuse tending toward addiction which is in agreement with studies by Gupta et.al²² and Sahin S. et. al.²³ and also a 66% have a habit of checking their phones first thing in morning. Nomophobia⁹ was seen in a staggering 81.9% of students who need to take their phone everywhere with them and nearly a fifty percent who find it emotionally overbearing and are unable to give up on their cellphone when asked. Unlike studies by Aggarwal et.al., Lin et.al., and Ali et al^{12,24,25} the physical stressors like pain in upper extremities, neck and back are felt by less number of students in our study.

Conflict of interest: None

CONCLUSION

Regardless, addiction or no addiction to cellular phones, this technology has a huge impact on our daily lifestyle. All genders and ages are prone to become addicted at some stage, some symptoms can be subtle or variable from individual to individual. It has been noted from various studies²⁶ that use from an early ages leads to tendency towards addiction later in life. Various application from social networking to gaming and in some cases the addiction to take "selfies" and related application also leads toward dangerous habits. Cellphone addiction need further exploration into psychological, physical and emotional tendencies in the users in medical students and medical professionals.

Limitations: Not all areas of problem/ addiction were assessed in-depth. A better scale need to be developed over time to have an in-depth analysis of the problem. The data was collected from only one section of one college.

Recommendations and Suggestions: It is need of time to conduct more studies and develop better scale to understand the addictions of a non-substance use. Currently cell phone addiction is assessed with a DSM- IV and DSM- V criteria. Other predictors of addiction to be added to questionnaires.

REFERENCES

1. Sánchez E (2006). What effects do mobile phones have on people's health? Copenhagen, WHO Regional Office for Europe (Health Evidence Network report; <http://www.euro.who.int/document/e89486>).
2. Radicati S. (2014) Mobile statistic report 2014-2018. <https://www.radicati.com/wp-content/uploads/2014/01/Mobile-Statistics-Report-2014-2018-Executive-Summary.pdf>
3. Park B-W, Lee KC. (2011) The effect of users' characteristics and experiential factors on the compulsive usage of the smartphone. In: Kim TH, Adeli H, Robles RJ, Balitanas M, editors. Ubiquitous computing and multimedia applications. Berlin, Heidelberg: Springer Berlin Heidelberg; pp. 438-446
4. Salehan M, Negahban A (2013) Social networking on smartphones: when mobile phones become addictive. *Comput Hum Behav*. 29: 2632-2639
5. Davey S, Davey A. (2014) Assessment of smartphone addiction in Indian adolescents: a mixed method study by systematic review and meta-analysis approach. *Intern J Prevent Med*. 2014;5(12):150011.

6. Billieux J. (2012) Problematic use of the mobile phone: a literature review and a pathways model. *Current Psychiatry Reviews*. 8(4): 299.
7. Billieux J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports*, 2, 156-162. <http://dx.doi.org/10.1007/s40429-015-0054-y>
8. Alavi, S. S., Maracy, M. R., Jannatfard, F., Ojaghi, R., & Rezapour, H. (2014). The psychometric properties of cellular phone dependency questionnaire in students of Isfahan: A pilot study. *Journal of education and health promotion*, 3, 71. doi:10.4103/2277-9531.134822
9. Yildirim, Caglar. (2014) "Exploring the dimensions of nomophobia: Developing and validating a questionnaire using mixed methods research". Graduate Theses and Dissertations. 14005. <https://lib.dr.iastate.edu/etd/14005>
10. Bolle C (2014) Who is a Smartphone addict? The impact of personal factors and type of usage on Smartphone addiction in a Dutch population. Un published Master's Thesis. University of Twente, Enschede
11. AlBarashdi HS, Bouazza A, Jabur NH, Al-Zubaidi AS (2016) Smartphone Addiction Reasons and Solutions from the Perspective of Sultan Qaboos University Undergraduates: A Qualitative Study. *Int J Psychol Behav Anal* 2: 113. doi: <http://dx.doi.org/10.15344/2455-3867/2016/113>
12. Aggarwal KK. (2013): Twenty-six percent doctors suffer from severe mobile phone-induced anxiety: excessive use of mobile phone can be injurious to your health. *Indian J Clin Pract* 24:7-9.
13. Billieux J, Van Der Linden M, Rochat L. (2018) The role of impulsivity in actual and problematic use of the mobile phone. *Appl Cogn Psychol* 22:1195-210.10.1002/acp.1429
14. Walsh SP, White KM, Young RM (2007) Young and connected: Psychological influences of mobile phone use amongst Australian youth. In Goggin, Gerard and Hjorth, Larissa (Eds.). *Proceed Mob Media* 125-134
15. Demirci, K., Orhan, H., Demirdas, A., Akpınar, A., & Sert, H. (2014). Validity and reliability of the Turkish version of the Smartphone Addiction Scale in a younger population. *Bulletin of Clinical Psychopharmacology*, 24, 226-234. <http://dx.doi.org/10.5455/bcp.20140710040824>
16. Lemola S., Perkinson-Gloor, N., Brand, S., Dewald-Kaufmann, J.F., & Grob, A. (2015). Adolescents' electronic media use at night, sleep disturbance, and depressive symptoms in the smartphone age. *Journal of Youth and Adolescence*, 44(2), 405Y418. doi:10.1007/s10964-014-0176-x
17. Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2011). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing*, 16(1), 105-114.
18. Rozgonjuk, D., Rosenvald, V., Janno, S., & Täht, K. (2016). Developing a shorter version of the Estonian Smartphone Addiction Proneness Scale (E-SAPS18). *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 10(4), article 4, doi: 10.5817/CP2016-4-4
19. Kwon, M., Kim, D., Choi, J., Gu, X., Hahn, C., Min, J., et al. (2013). Development and validation of a smartphone addiction scale (SAS). *PLoS ONE*, 8(2), e56936
20. Merlo L, Stone A, and Bibbey A, (2013) "Measuring Problematic Mobile Phone Use: Development and Preliminary Psychometric Properties of the PUMP Scale," *Journal of Addiction*, vol. 2013, Article ID 912807, 7 pages. <https://doi.org/10.1155/2013/912807>
21. Basu, S., Garg, S., Singh, M. M., & Kohli, C. (2018). Addiction-like Behavior Associated with Mobile Phone Usage among Medical Students in Delhi. *Indian journal of psychological medicine*, 40(5), 446-451. doi:10.4103/IJPSYM.IJPSYM_59_18
22. Gupta N, Garg S, Arora K. Patterns of mobile phone usage and its effects on psychological health, sleep and academic performance in students of a medical university. *Nat J Physiology, Pharmacy and Pharmacology Online*.
23. Sahin S, Ozdemir K, Unsal A, Temiz N. Evaluation of mobile phone addiction level and sleep quality in university students. *Pak J Med Sci*. 2013;29:913-8.
24. Lin YH, Lin SH, Li P, Huang WL, Chen CY. (2013) Prevalent hallucinations during medical internships: phantom vibration and ringing syndromes. *PLoS One* 8(6): e65152.10.1371/journal.pone.0065152
25. Ali M, Asim M, Danish SH, Ahmad F, Iqbal A, Hasan SD. Frequency of de Quervain's tenosynovitis and its association with SMS texting muscle. *Ligaments Tendons J* (2014) 4:74-8.
26. De-Sola Gutiérrez, J., Rodríguez de Fonseca, F., & Rubio, G. (2016). Cell-Phone Addiction: A Review. *Frontiers in psychiatry*, 7, 175. doi:10.3389/fpsy.2016.00175.