

Do Mobile Addicts have Poor Sleep Quality?

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Article Info

Received: June 1, 2017

Accepted: Jan 7, 2018

Funding Source: Nil

Conflict of Interest: Nil

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ABSTRACT

Background: The dawn of technology in form of smartphones has brought about an epidemic but in addition to the beneficial use of mobile phone its causing the sleep loss and disturbance in the circadian rhythms of the body.

Objective: The objective of this study is to determine the association between the mobile phone addiction with sleep quality among medical students as this association can have long-term consequences on the life of the students.

Materials and methods: It was a descriptive study conducted on students of Wah Medical College. The questionnaires comprising of three parts: the demographic profile, the Pittsburgh sleep quality index for sleep quality and Mobile Phone Use Scale for mobile phone addiction were distributed among all the students after informed consent. The data was analyzed using SPSS version 21. Chi-square test was applied to find the association between Mobile Phone addiction and Sleep quality at α -value of 0.05.

Results: The sleep quality index score showed that 130(38.6%) students had a good quality of sleep and 162(48.1%) were addicted to mobile phone use. A significant association was found between mobile phone addiction and sleep quality among medical students with a p-value of 0.001.

Conclusion: Mobile phone addiction is an important health problem in our medical college and because of this addiction there is poor sleep quality among the students. Health education sessions on a frequent basis should be conducted for all to disseminate the adverse effects of addictive mobile use.

Keywords: Addiction, Sleep, Pittsburgh sleep quality, Mobile phone use.

Introduction

The dawn of technology in form of smartphones has brought about an epidemic in all parts of the world.¹ Now to be called young you must possess the modern methods of communication in form of TV, internet, cell phone and computers.² It has been observed that 4.61 billion adolescent are currently using mobile phone.³ AS the number of the gadget users are increasing so is the exposure to the radiofrequency electromagnetic field (RF-EMF).⁴ This RF-EMF produced by the mobile phones is affecting the sleep electroencephalogram and melatonin production.²

So Mobile phone in conjugation with many biological factors is causing the sleep loss and disturbing the

circadian rhythms of the body.^{1,5} Sleep is an internal body mechanism which is needed for mental and physical health⁶. The center for disease control CDC recommends that an average adult should sleep 8.5-9.25 hours per night. Healthy people, 2020 has signified the adequate sleep for the health of Americans and has set the goal to increase the percentage of individuals with adequate sleep.^{4,5}

The population surveys in European countries have found that most people complaint of sleep disturbance and tiredness by RF-EMF exposure produced by mobile phones and then this Poor quality of sleep reflects in learning difficulties, inadequate performance and

deregulated metabolism, endocrine and immune responses.^{6,7}

A study on mobile phone use and sleep pattern among medical students also showed that evening use of mobile phone is associated negatively with sleep quality (-0.606: $p = 0.042$).⁸

Another research carried out in Sakarya university also evaluated mobile phone addiction level and sleep quality which showed worsening of sleep quality with increasing mobile phone addiction ($p < 0.05$).⁹

The objective of this study is to determine the association between the mobile phone addiction with sleep quality among medical students as this association can have long term consequences on the life of the students.

Methodology

It was a descriptive study conducted in Wah Medical College Wah Cantt Pakistan. All the students of Wah Medical College were included in the study by using purposive sampling technique. The questionnaires were distributed to all the students after giving the information about the objectives of the research and verbal consent was taken from them. The response rate was 62% (340) so this was taken as the final sample size. The study was carried out from January 2015- June 2015. The questionnaire comprised of three parts. The first part comprised of demographic data including age, sex, current residence, smoking habits and personality type. The second part is based on a standard questionnaire "The Pittsburgh sleep quality index" which is used to assess the sleep quality. It is a clinically recognized scale that contains a set of 19 open-ended questions. There are seven components of the index that evaluate sleep efficiency, quality, duration and any disturbances that might be associated with it. The seven components cumulate into a score that ranges from 0 to 12. A total score of "5" or greater is indicative of poor sleep quality. The third part of the questionnaire was based on Problematic Mobile Phone Use Scale by Bianchi and Phillips which is used to assess the Mobile phone addiction level among the students. The scale comprised of 27 questions with a rating scale from strongly agree to strongly disagree. The final scores range from 27 to 135. The score of more than 67 was considered to be mobile phone addict. The data was analyzed using SPSS version

21. Chi square test was applied to find the association between Mobile Phone addiction and Sleep quality at the level of significance i.e. α -value of 0.05.

Results

The study consisted of 337 students of which 229 (67.95%) were in the age group 21-35 years while 105 (31.2%) students were in the age group 15-20 years. 138 (40.9 %) were males while 199 (59.1%) were females. The mean age at which most of the students had their 1st mobile phone was 16.36 with a standard deviation of 2.341.

Table No. 1: Descriptive statistics of categorical variables

Variable	Categories	Number (Percentage)
Place of residence	Boarders	160 (47.5%)
	Day scholars	177 (52.5%)
Smoking status	Smokers	47 (13.9 percent)
	Nonsmokers	290 (86.1 percent)
Personality type	Type I	168 (49.9%)
	Type II	169 (50.1%)

The sleep quality index score showed that 130 (38.6%) students had good quality of sleep, while 207 (61.4%) of the students had poor sleep.

The mobile phone addiction score indicated that 162 (48.1%) were addicted to mobile phone use while rest of the students i.e. 175 (51.9%) were not addicted to it.

A significant association was found between mobile phone addiction and sleep quality among medical students with a p value of 0.001.

Sleep quality	Mobile phone addiction			Pearson Chi-square
	Not addicted	Addicted	Total	
Poor sleep quality	83	47	130	0.001
Good sleep quality	92	115	207	
Total	175	162	337	

Discussion

The exposure to the electromagnetic radiation has been getting significance because of the numerous proposed adverse effects of them on the human health. Our study focused on this issue and tried to find out the extent of use of one such technology i.e. mobile phone and its

effects on sleep quality. our study found out that 130(38.6%) students had a good quality of sleep, while 207(61.4%) of the students had poor sleep. A study on mobile phones and sleep disturbances also showed that about 40% of the subjects had poor sleep quality.¹⁰ These finding may be giving a clue that the EMR emitted by these new gadgets is disturbing the normal circadian rhythms and sleep cycle.

The mobile phone addiction score indicated that 162(48.1%) were addicted to mobile phone use while rest of the students i.e.175 (51.9%) were not addicted to it. In a study on mobile phone usage and sleep pattern, a bit higher number i.e. 57% of the medical students were using mobile phones for more than 2 hours a day⁸ and in another study on student cell phone addiction and their opinion 56.9% committed themselves that they are mobile phone addicted.¹¹ Our study and studies by Tessa Jones and Saxena Yogesh et al. indicated that the youth of the nations is getting addicted to the cell phones and they themselves know about this bad habit. They feel disconnected and agitated if kept away from the internet but actually these newer technologies are making them lonely and affecting their psychology negatively.

A Significant association was found in our study of mobile phone addiction and sleep quality among medical students with a p-value of 0.001. Logistic regression analysis in another study also revealed that use of mobile phone is associated significantly with lack of sleep¹⁰. Saxena et al, Amal Ahmed et al and Sevil Sahin and its colleagues also found out a significant association between mobile phone addiction and sleep quality.^{8, 9, 12} The studies on sleep and use of electronic devices and technology use and sleep quality in pre-adolescence and adolescence found out a dose-response relationship between sleep duration and quality with the use of electronic devices that supported our research too.^{13, 14} The studies carried out in Norway, Sweden, Sydney and America all suggested and supported the finding of high mobile phone usages and its effect on sleep either in form of difficulty in falling asleep or waking lag representing poor sleep quality.¹⁵⁻¹⁸

Conclusion

Mobile phone addiction is an important health problem in our medical college and because of this addiction, there is

poor sleep quality among the students. And in turn this lack of sleep can reflect in the poor academic performance. So it is concluded that the students who were found to be addicted must be referred to the psychiatrist and health education sessions on a frequent basis should be conducted for all to disseminate the adverse effects of addictive mobile use. Finally, age-specific guidelines should be devised by authorities and updated regularly.

Acknowledgment: Thanks to Allah Almighty for giving us the wisdom to do this work, apart from it we would like to thank our parents and family for their encouragement and finally the students of Wah Medical College for their support in collection of the data.

References

1. Nathan N, Zeitzer J. A survey study of the association between mobile phone use and daytime sleepiness in California high school students. *BMC Public Health*, 2013;13:840. doi: 10.1186/1471-2458-13-840.
2. Bluck JVD. Adolescent Use of Mobile Phones for Calling and for Sending Text Messages After Lights Out: Results from a Prospective Cohort Study with a One-Year Follow-Up. *Sleep*. 2007; 30(9): 1220–3.
3. <http://www.statista.com/statistics/274774/forecast-of-mobile-phone-users-worldwide/>
4. Redmayne M, Smith E, Abramson MJ. The relationship between adolescents' well-being and their wireless phone use: a cross-sectional study. *Environmental Health*.2013;12:90. doi: 10.1186/1476-069X-12-90.
5. Adams SK, Daly JF, Williford DN. Adolescent Sleep and Cellular Phone Use: Recent Trends and Implications for Research. *Health Serv. Insights*. 2013; 6: 99–103.doi: 10.4137/HSI.S11083.
6. Nuutinen T, Ray C, Roos E. Do computer use, TV viewing, and the presence of the media in the bedroom predict school-aged children's sleep habits in a longitudinal study?.*BMC Public Health*. 2013; 26;13:684. doi: 10.1186/1471-2458-13-684.
7. Mohler E, Frei P, Fröhlich J, Braun-Fahrländer C, Rössli M; QUALIFEX-team. Exposure to radiofrequency electromagnetic fields and sleep quality: a prospective cohort study. *PLoS One*. 2012;7(5):e37455. doi: 10.1371/journal.pone.0037455. Epub 2012 May 18.
8. Yogesh S, Abha S, Priyanka S. Mobile usage and sleep patterns among medical students.*Indian J Physiol Pharmacol*. 2014 ;58(1):100-3.
9. Sahin S, Ozdemir K, Unsal A, Terniz N. Evaluation of mobile phone addiction level and sleep quality in university students. *Pak J Med Sci*. 2013; 29(4): 913–8.
10. Munezawa T, Kaneita Y, Osaki Y, Kanda H, Minowa M, Suzuki K et al.The association between use of mobile phones after lights out and sleep disturbances among Japanese adolescents: a nationwide cross-sectional survey. *SLEEP* 2011;34(8):1013-20.
11. T Jonnes. Students' Cell Phone Addiction and their Opinions. *The Elon Journal of Undergraduate Research in communication*. 2014;5:74-80.

12. Morsy AAK, Shalaby NS. The use of technology by university and its relation to attention, sleep, and academic achievement. *Journal of American Science*.2012;8(1);264-70.
13. Hysing M , Pallesen S, Stormark KM, JakobsenR,1 Lundervold A J, Sivertsen B. Sleep and use of electronic devices in adolescence: results from a large population-based study. *BMJ Open* 2015;5:e006748. doi:10.1136/bmjopen-2014-006748.
14. Bruni O, Sette S, Fontanesi L, Baiocco R, Laghi F, Baumgartner E. Technology use and sleep quality in pre adolescent and adolescent. *Journal of Clinical Sleep Medicine*. 2015; 11(12); 1433-41.
15. Fossum IN, Nordnes LT, Storemark SS, Bjorvatn B, Pallesen S.The Association Between Use of Electronic Media in Bed Before Going to Sleep and Insomnia Symptoms, Daytime Sleepiness, Morningness, and Chronotype. *Behavioral Sleep Medicine*.2014;12(5):343-57
16. Thomée S, Härenstam A, Hagberg M. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults - a prospective cohort study.*BMC Public Health*2011;11:66. doi: 10.1186/1471-2458-11-66
17. Gamble AL, D'Rozario AL, Bartlett DJ, Williams S, Bin YS, Grunstein RR, et al. Adolescent Sleep Patterns and Night-Time Technology Use: Results of the Australian Broadcasting Corporation's Big Sleep Survey. *PLoS ONE*.2014; 9(11): e111700. doi:10.1371/journal.pone.0111700.
18. Gradisar M, Wolfson AR, Harvey AG, Hale L, Rosenberg R, Czeisler CA. The sleep and technology use of Americans: findings from the National Sleep Foundation's 2011 Sleep in America Poll. *J Clin Sleep Med*.2013; 15;9:1291-9. doi: 10.5664/jcsm.3272.