



A STUDY OF SLEEP QUALITY IN ADOLESCENTS: THE IMPACT OF OVER USE OF MOBILE CELL PHONE IN URBAN SETTING: A CROSS SECTIONAL STUDY

Psychiatry

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ABSTRACT

Background: The increase in the number of mobile phone users has increased worldwide. Excessive use of the mobile phone among adolescents often led to later poor sleep quality, which is important for the development for the psychophysiological capabilities. The study assessed the relationship between mobile phone addiction and sleep quality among adolescents. **Aim:** To study the prevalence of mobile phone addiction and sleep quality. **Objective of the study:** To know the role of socio-demographic factors on mobile phone over use and sleep quality among adolescents. **Methodology: Study design:** A cross sectional study using convenient sampling method, with a study sample consisting of 110 adolescents recruited from under graduate students and people who residing in area of Andhra medical college. Bivariable and multivariable logistic regression analyses were used for the study. **Study tools:** (1) Semi structured Performa for sociodemographic data, (2) Pittsburgh Sleep Quality Index (PSQI), (3) Mobile Phone Addiction Scale (MAPS) – 37 items. **Results:** High Mobile Phone Addiction Scale (MAPS) were associated with a high prevalence of sleep disturbance in both boys and girls. These findings persisted after controlling for other factors in the multiple regression model. **Conclusion:** Adolescents with mobile phone addiction were more prone to suffer from poor sleep quality. It is recommended that aware the adolescents on adverse effects of excessive use including poor sleep quality. These findings are implications for adolescents, parents, authorities and researchers.

KEYWORDS

Mobile phone addiction, sleep disturbance, adolescents, Pittsburgh sleep quality index, Mobile Phone Addiction Scale. Prevalence

INTRODUCTION

Sleep is a basic necessity that constitutes almost one-third of the hour in a human's lifetime. It is a state of reversible unconsciousness, where the body and mind are renewed, repaired, and developed. Average sleep duration is 8-10 hours per night is sufficient for adolescents. Electronic media has a negative effect on the sleep of children and adolescents.¹

The media has begun to form an important part of the daily life of young people, the increasing frequency of use of media such as mobile phones, television (TV), computer games, Internet, threatens healthy sleep.²

Usage of mobile phones, tablets or computers - and even watching TV - when we go to bed can interfere with our normal sleep processes. Poor sleep can affect our intellectual performance, our emotional control and behavior, and our ability to cope with stress. Literature search showed that there's an association between mobile phone usage and symptoms like headache, dizziness and sleep disturbance.³ Some studies also have reported that a mobile phone use of more than 2 hours is related to poor sleep and decreased sleep time in medical students in India.⁴ Depression was also one of the health effect among young adults whose mobile phone usage was high.⁵ Tired children and teenagers can have anger and impulse control issues and can have difficulty getting along with others.⁶

Mobile phones being widely used among young people, and the effect of this habit on their sleep quality is not well-known. This study was conducted to study the effect of mobile phone usage on adolescents' sleep quality.

METHODOLOGY:

It is a cross-sectional study conducted for a period of 1 month among 110 adolescents of Visakhapatnam city with age ranging from 15-19 yrs. Subjects with no psychiatry illness were included.

Subjects with major psychiatric disorders and those with sleep related breathing disorders, narcolepsy, sleep walking and sleep related movement disorders or mental retardation were excluded. A self administered questionnaire was designed consisting of Pittsburgh Sleep Quality Index (PSQI) and Mobile phone addictions scale.

The study variables are Sociodemographic details, questions relating to sleep pattern and usage of mobile phones. Pittsburgh Sleep Quality Index consisting of 18 questions that has 7 rated

components: 1) sleep quality, 2) sleep latency, 3) habitual sleep efficiency, 4) sleep duration, 5) use of sleeping medication, 6) sleep disturbances, and 7) daytime dysfunction.

To calculate the score of the questionnaire, each question is assigned a score from 0 to 3. The item scores are used in calculating the 7 component scores, which are then added to produce a total score which can range from 0 to 21. If the total score obtained is 5 or greater, it suggests a poor sleep quality. Moreover, if it was less than 5, then this is considered to be good sleep quality.

Mobile phone addiction was assessed using the previously validated Mobile Phone Addiction Scale (MPAS) consisting of 37 items with each measured on a six-point likert scale. The 37 items covered six domains of substance dependence which are intense desire, impaired control, harmful use, withdrawal, tolerance, and decreased interest in alternate pleasures as per the International Classification of Diseases (ICD)-10 classification of mental and behavioral disorders: Mobile phone addiction scale was a 37 item scale with each item measured on 5 point likert scale. Score range is low – 37 to 98, moderate – 99 to 127 and severe – 128 to 185.

Data collection method was after explaining the purpose of the study to the study participants consent was obtained. Data was collected from the self administered questionnaire. Data was entered into MS Excel and analyzed using SPSS software version 25.

RESULTS

The study was conducted on 110 adolescents constituting undergraduate medical students and also adolescents residing in and around the area of Andhra Medical College.

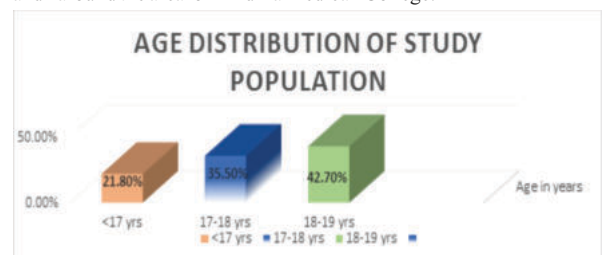


Figure -1 The mean age of the study population observed was 17.98 ± 1.24 yrs

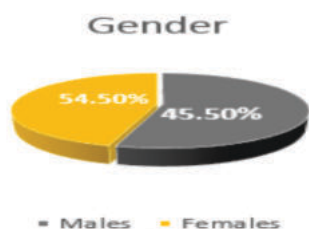


Figure-2 Gender distribution among study population

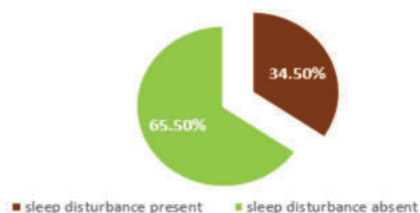


Figure-3 Sleep disturbance among study population

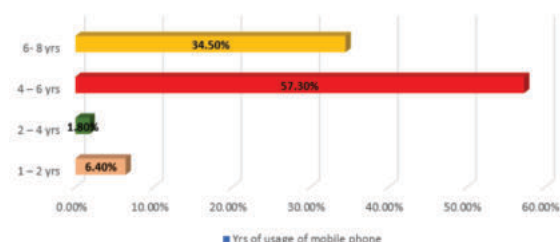


Figure-4 Distribution of study population based on Usage of cell phones:

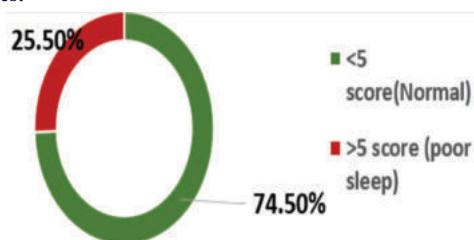


Figure-5 Distribution of study population based on PSQI score

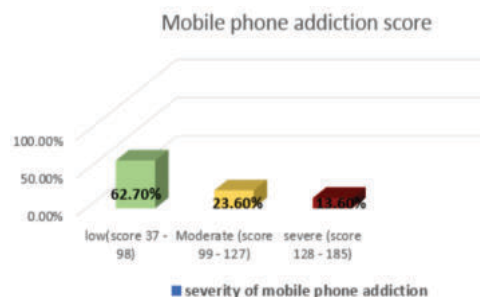


Figure-6 Distribution of study population based on Mobile phone addiction score:

Table-1 Distribution of Study Populations PSQI based on gender

	PSQI(score<5)	PSQI(score >5)	Total
Males	40 (48.7%)	20 (71.4%)	60
Females	42(51.2%)	8 (28.6%)	50
Total	82	28	110
Chisquare= 4.318, P value= 0.038			

Among 25% of study population having poor sleep quality, majority (71.4%) were males inferring that males were predominantly having poor sleep quality index compared to females which was also found to be statistically significant.

Table-2 Distribution of Study Populations PQLI score based on no. of years of mobile phone usage:

	PQLI(score<5)	PQLI(score >5)	Total
<4yrs	3 (3.7%)	6 (21.4%)	9
>4 yrs	79 (96.3%)	22 (78.6%)	101
Total	82	28	110
Chisqua re= 8.774, P value=0.003			

Among study population who were using mobile phones for more than 4 hours were also having poor sleep quality index score. This difference was also found to be statistically significant.

Table-3 Distribution of Study Populations mobile phone addiction score based on no. of years of mobile phone usage:

	Low	Moderate	Severe	Total
<4yrs	3	2	4	9
>4yrs	66	24	11	101
Total	69	26	15	110
Chisquare= 8.18, P value= 0.017				

The mobile phone addiction score was severe among the population who were using mobile phones for more than 4 yrs. This difference was also found to be statistically significant.

Table-4 Distribution of Study Populations based on mobile phone addiction score and sleep disturbance:

	Low	Moderate	Severe	Total
Sleep Disturbance present	11(15.9%)	14 (53.8%)	13(86.7%)	38
Sleep Disturbance absent	58 (84%)	12 (46.1%)	2 (13.3%)	72
Total	69	26	15	110
Chisquare= 32.86 , P value=0.000				

In the study population having severe mobile addiction score, 86% of them have sleep disturbance. This difference was also found to be statistically significant.

Table-5 Distribution of Study Populations based on PSQI score and sleep disturbance:

	PSQI(score<5)	PSQI(score >5)	
Sleep Disturbance present	22 (26.8%)	16 (57.1%)	38
Sleep Disturbance absent	60 (73.1%)	12(42.8%)	72
Total	82	28	110
Chisquare= 5.54, P value= 0.018			

Sleep disturbance was significantly present in study population whose PSQI score is poor(>5).

DISCUSSION

The study was conducted on 110 adolescents. The mean age of the study population observed was 17.98 ± 1.24 years with most of the study population contributed by males (54.5%). Similar findings were observed in study done by Lin Pin-Hsuan et. al⁷ and Alshobaili FA et al⁸. Sleep disturbance was observed in 34.5% of study population and majority of them were using mobile phones for more than 4 years. The prevalence of poor PSQI score (<5) in the study was 25.4%. In a study done in China by Huang Qiuping et al.⁹

The prevalence of poor sleep quality was found to be less i.e 9.8% compared to our study. However in a study done in Iran the prevalence was 61.7% which was found to be high. As the present study was conducted on small sample in a single area, the results may not be generalized and further research on large population size needs to be conducted to develop more insight to the problem and to come up with strategies.

CONCLUSION

Over use of internet and social networks via mobile phones is related to poor sleep quality and quantity. In this growing competitive world smartphone addiction is one of the main issues among the young college students so it cannot be ignored. It is seen in the study that excessive mobile phone use is related with the poor sleep quality among the college students. As, college students are the future of the country so it must be taken into account and something should be done to enhance their lifestyle rather than letting them carry their same unhealthy lifestyle. Redefined sport programs, educational, cultural, and interesting entertainment are the essential needs for students.

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