

Evaluation of Smartphone Addiction and Quality of Sleep among School Children

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Smartphone are devices that have the capability to process information, store information and enable communication. They include a variety of features such as access to internet, social media, videos, multimedia, navigations and many more. Internet addiction and smartphone addiction can most often be confused and the purpose of the study was to identify children with smart phone addiction and non- addiction and their sleep quality. The study involved 100 students from private schools and colleges around Kancheepuram. Convenient sampling method was used to enroll the participants. The students were in age range from 13-17 years. SPAI- Smart phone addictive inventory is a valid and reliable mean to identify and measure smart-phone addictions and in the current study we used SPAI to identify children with smart-phone addiction and non- addiction and the PSQI Scale was used to identify sleep quality in students and the study concludes that there is a significant correlation in poor sleep quality among students with smart-phone addiction

Keywords: Anxiety; Depression; Smartphone Addiction; Sleep Quality; Stress.

Smartphone are devices that have the capability to process information, store information and enable communication. They include a variety of features such as access to internet, social media, videos, multimedia, navigations and many more. Given the variety of features to use in a smartphone the estimated global users were more than 1.08 billion in the year of 2012, and around the world, smart-phones were used by 1.85 billion people in 2014 which is expected to be 2.32 billion in 2017 and 2.87 billion in 2020. Access to smart-phone and the internet have increasingly improved with the day to day development in technology. This increase in smartphone usage has led to smart-phone addiction¹. Internet

addiction and smartphone addiction can most often be confused, but it is to be known that there are certain differences, such as easy portability, real internet access and direct communication features. Smartphone addiction can lead to not only physical, but social and psychological problems as well. There is no official diagnostic criteria for smart-phone addiction, however it can be defined as overuse of smartphone to a certain level such that it creates a negative impact which alters and disturbs the day to day patterns and activities of life. In addition, research has found a relationship between smartphone addiction and mental health such as sleep deprivation and attention deficits.²

It has also been noted that frequent checking of smartphone for its dynamic content increases the addiction level in an individual. Smartphones are widely used among college students as they are considered vulnerable to technology use due to their dynamics development, independence from social roles and expectations.³ In a Korean study, it was reported that 87% of smartphone users are college students, beginning their usage from the year of 2011. The rate was 56% in the year of 2013 at United States and 79% in Switzerland. In the first half of 2012, in UK the addiction rates varied from 72% to 86% among college students. Smartphone addiction is common among those individuals who have a surging urge to keep in contact or touch with others at all times. Addiction is most often seen as a wall of protection for those who fail or feel shy to engage in a didactic communication.⁴

There can be consequences where addiction can lead to depression, anxiety and destroy social relationships. Smartphone addicts tend to neglect their work, isolate themselves from friends and family and depend on the smartphone in order to communicate with others. 40% of adolescents and adults use their smartphone to a minimum of 5 hours every day to make calls, receive and send messages, games and internet surfing. These individuals tend to get upset and anxious if they do not get a response or do not respond to any calls or messages.⁵

In a study conducted, it was reported that traits of anxiety and depression were higher in smartphone users. Sleep patterns are also noticed to be creating a negative impact among smartphone addiction users. Poor sleep quality has emerged as problematic area among smartphone users such as sleep problems, subjective insomnia and poor sleep quality. Stress is another factor that can be seen due to smartphone usage. Symptoms such as addiction, dependence, withdrawal and tolerance can be seen in most students.

Depression severity have demonstrated moderate and small links to smartphone addiction with sizes of 0.30-0.50 for severity in depression. Research has also indicated that students who tend to use their smartphones for a long duration, eventually leading to addiction often have a fear of being missed out, need for touch which has largely been subjected to lead to depression. Depression

and emotional regulation can occur when students begin to overuse smartphones, leading to a large scale addiction.⁵

The availability of games, internet and social media is intriguing for the youth and they zone out the reality.⁶ Social communication is disrupted and when they do not find satisfaction or their needs are not met while using the smartphone, they get dejected and often fall prey to depression. Sleep disorders may trigger serious physical and mental issues. Sleep disorders is prevalent not only among adolescents but juveniles too. Sleep quality disturbances can be one of the consequences of smartphone excessive usage. Another research among Japanese adolescents who used smartphone everyday showed that they woke up late, their sleep time was shorter and they were dissatisfied compared to those who did not use mobiles during the night. Research has revealed that smartphone addiction is a risk factor for poor sleep.⁷

Adolescents spend quality time over their mobile phones both during day time and night. However, many studies have reported that students often use their phones late into the night for various purposes such as education, social and personal. Studies have also stated that sleep disorders is not majorly due to smartphone addiction but due to the complains raised in this area, we were at schools to examine the smart phone addiction and quality of sleep.

Subjects and Methods Subjects

Sample Size

The sample size for this current study was calculated to assess of the effects of smart phone over the sleep quality in Indian children. The sample size was analyzed based on a confidence interval of 95%.

Procedure

The corresponding author has obtained approval from HOD to conduct the research from private schools in and around Kancheepuram and the research proposal and methodology was presented and explained to the school correspondence in person and informed consent was signed by parents of children, to confirm their willingness to participate in the study. It is a correlational design and a cross sectional study and hundred students from various private schools in and around Kancheepuram is selected. Students were participated and enrolled through

convenience sampling. The current study assessed both gender of age group of 13 years to 17 years and students with any psychiatric illness were excluded out from the study.

RESULTS

Data was analyzed using SPSS (version 22.0) for windows. Pearson correlation analysis was used to analyze the smart phone addiction and sleep quality among school children with smart-phone addiction and Non- addiction. Pearson correlation analysis was used to assess the results. The results revealed that smart phone addiction correlated with poor sleep quality. In spite of having innumerable benefits of smartphone, the convergence of internet addiction and young age of the school children probably ends into smartphone addiction and simultaneously the use of smartphones has increased rapidly in recent years.

DISCUSSION

The ratio of smart-phone addiction population for male and female is 1:2 Both Undergraduates and Postgraduates students participated in this study. The Smartphone addiction percentage for undergraduate students were higher. But the current study doesn't explore it in detail. The P-value is less than 0.05 indicating a significance for Sleep quality in Smartphone addiction population. The results were evidently similar to various previous studies that were systemically reviewed by Jon, Robert *et al.*, (2017).

Table 1. Demographic distributions of variables

Gender	No. of students- Addicted	%
Male	40	55.4%
Female	60	68.9%

Hence, it is evidently proved that Smartphone Addiction has higher chances with depression and stress. even out of ten United States adults claim to experience stress or depression at least at a moderate level on a daily basis, while stress is an inevitable part of life, it is very present (Blanco *et al.*, 2008) and becoming more prevalent among university students (Mackenzie *et al.*, 2011). In the USA, almost 10% of university students have been diagnosed with, or treated for, depression over the past 12 months (Wolfram, 2010). However, only about half of the people in America suffering from a diagnosed case of depression are treated for the disorder (NIH, 2010). Smart-phones today have played an important role in our community technoculture especially among the youth. 8-10 Despite the advantaged and need of a smartphone, excessive use can lead to addiction. The phenomena of smartphone addiction has been a global concern as it affects the mental health of the students.

A study conducted by Sara and Matt shows that the association between high usages of smart-phone is associated with stress and depression symptoms Public Health prevention strategies focusing on information and advice, helping young adults to set limits for their own and other's accessibility of smartphone. in this research. Smartphone and its use will have an impact over the physical and psychological state of the children at primary and secondary schools. Few researchers have evaluated the relation between smartphones, mobile phones, and the Internet with depression, anxiety, and sleep quality in adolescents (Hwang *et al.*, 2012).

Majority of the researchers confirmed that there is a significant association found between Internet addiction and impaired sleep. There is a clear fact that the purpose of internet use and the duration of use will be the major predictors of sleep duration. In addition, it has been surveyed that adolescents' smart phone usage was enhanced at night time and that is the reason to be stated for sleep disturbances. When the quality of sleep

Table 2. Correlation analysis

S. No	Variable	Co-Variable	R-Value	Level of Significance
1	Smart phone addiction	Sleep quality	-0.021	0.125

is impaired, the associated functions like work performance will be affected and adults were found to have signs of depression at the earlier stage and if left unaltered they might end up with substance abuse and when school children were found to have addiction with smartphone usage, they found to have poor performance in academics and sports and tends to be isolated and binds with their smartphone.

Parents and teachers have a predominant role to be performed to resolve the issues with smart phone addiction. Teachers at primary and secondary schools need to identify children with smart phone usage and tries to educate them the importance of smart phone and its healthy usage with internet connectivity and parents at home need to be observant of their child's activities and if they left isolated with smartphone and internet connectivity, these children should use it properly and they should be educated to the maximum extent to not fall into the trap of internet addiction and smart phone addiction. Children nowadays were engaged with smart-phone play store apps and tend to avoid playing in green land with peer group children and they experience in later stages of life with a poor physical fitness and tends to have obesity and associated problems in cardiovascular and respiratory systems.

A lot of researchers identified the effects of smartphone addiction but still poor awareness is left with parents and they were not aware of the negative consequences of sleep deprivation and poor physical activity with peer group children. Thus there is a need to educate parents and teachers to interact with primary and secondary school children to know their needs and desires. If these children were engaged in positive reinforcement with electronic devices, they can perform well in academics. As well as these children can perform well in physical activity and they participate well in sports and other extracurricular activities.

CONCLUSION

This study shows that there is a correlation between Smart-phone Addiction and sleep quality among students. Relaxation techniques and counselling can be recommended for such students with high levels of addiction that impacts their mental health. Health education programs about the

demerits of Smartphone addiction can be educated at schools and colleges to avoid an effect on mental health.

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