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Research Article

Mobile Phones Usage and its association with Stress, Anxiety and Depression among Adolescents

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Abstract

Introduction: The usage of smart phones has been so much embedded in our lives that it seems to be nearly impossible at times to avoid them. Over usage of smart phone is a common problem all around the world especially among youngsters which might affect them negatively.

Objective: The objective of the study is to calculate the excessive mobile phone usage and its influence on stress, anxiety and depression among adolescents.

Materials and Methods: The present study is done among students in Khammam and consists of 100 adolescents within the age group 12 - 19 yrs during a period of 6 months. The study is done by the usage of Smart phone addiction scale (33 item scale) and DASS-42 (Depression, Anxiety and Stress Scale).

Results: The generalities and the factors with smart phone addiction and anxiety, depression and stress are correlated with each other. Higher scores indicated higher levels of addiction and its correlation with stress, anxiety and depression.

Conclusion: There should be supervision for the usage of mobile phones for adolescents to prevent mental health problems.

Keywords: *Mobile Phone Usage; Stress; Anxiety; Depression; Adolescents*

Introduction

Smartphone's are well known devices which can be used for processing more information than other phones; which includes many features such as games, access to the Internet and social networks, messaging, videos, multimedia and navigation, along with their use for communication. Ingress to the Internet is increasingly easy due to advancement in mobile technology and the prevalence of smart phones. The use of mobile phones has become so much integrated in our lives and addiction to smart phone usage is a common worldwide problem especially among adolescents, which might negatively affect their welfare.

Hwang KH, Yoo YS and Cho OH conducted a study on Smartphone users and it was found that state anxiety, trait anxiety and depression were higher in the Smartphone overuse group than in the normal use group [1].

Depression and anxiety are recognized as common, serious disorders and debilitating mental health problems in the changing social context and are afflicting adolescents and student population to a large extent [2,3].

Increased use can also lead to increased time on mobile communication, adverse effects on relationships and anxiety if separated from a mobile phone or sufficient signal. Behaviour addictions, including Smartphone addiction, are generally difficult to define because they are related not only to physical, but also to social and psychological factors [4]. The core features of behavioral addiction include the following: sustained engagement in a behavior despite its negative effects, decreased control over participation in the behavior, compulsive participation and appetitive or craving urges that instantly precede engagement in the behavior [5].

Materials and Methodology

Place of study: Study was conducted among school and college going students of adolescent age group within 12 - 19 years of age, In Khammam and Telangana.

Study period: The study undertaken during August 2018 to January 2019.

Study sample: The study sample consists of 100 students.

Study design: Cross sectional study.

Inclusion criteria: Subjects in adolescent age group who gave consent to participate in the study.

Exclusion criteria: Subjects who are not willing to give consent for the study.

Materials

The study is conducted using:

- Smart phone addiction scale (33 item scale).

The SAS is a 33-item, six-point self-rating scale developed by Kwon, Lee., *et al*. (2013) based on the Internet addiction scale and the features of smart phones. The options on this scale range from 1 (definitely not), to 6 (absolutely yes).

The greater the scores indicate a higher the risk of Smartphone addiction. The total score on the scale can be in between 33 and 198. A cut-off point was not reported in the original scale [6]. In a reliability and validity study of the Turkish version of the SAS involving 301 university students [7], the Cronbach's alpha was 0.947.

- DASS-42 (Depression, Anxiety and Stress Scale): The DASS is a 42 item self-report inventory that yields 3 factors: Depression; Anxiety; and Stress. This scale proposes that physical anxiety (fear symptomatology) and mental stress (nervous tension and nervous energy) factor-out as two distinct domains. This screening and outcome measure show the past 7 days. Gamma coefficients that signifies the loading of each scale on the overall factor (total score) are 0.71 for depression, 0.86 for anxiety and 0.88 for stress. One would expect anxiety and stress to be higher than depression on the common factor as they are more highly correlated and, therefore, dominate the definition of this common factor [8]. Reliability of the three scales is considered good enough and test-retest reliability is likewise considered adequate with 0.71 for depression, 0.79 for anxiety and .81 for stress [9]. Exploratory and confirmatory factor analyses have sustained the proposition of the three factors ($p < .05$) [9]. The DASS anxiety scale correlates 0.81 with the Beck Anxiety Inventory (BAI)and the DASS Depression scale correlates 0.74 with the Beck Depression Scale (BDI).

Statistical analysis

The statistical analysis of data was performed using statistical package for social sciences [10] for Windows (version 21) and Microsoft Excel 2010. Correlation in categorical variables is calculated by pearson's correlation. Statistical significance levels for all analyses were set at the $P < 0.05$.

Results

The range of the age in the given sample is 12 to 19 years. And the mean ist14.3 for males and 14.2 for females.

	SAS	
	r value	p value
Expression	0.222	0.02*
Anxiety	0.198	0.02*
Stress	0.231	0.04*

Table 1: *The correlations between the scores of SAS and DAS.*

Significance of p value: < 0.05.*

The results indicate a positive correlation of smart phone addiction with stress, anxiety and depression.

A significantly higher proportion of smartphone users had higher rate of depression, anxiety and stress.

	Mean	SD	P Value
Males (n = 57)	143.8	21.1	0.0001*
Females (n = 43)	99.7	14.4	

Table 2: *Smart phone addiction among males and females.*

** p < 0.05.*

Significance of p value suggests that smart phone addiction is more in males than in females.

It was found that SAS scores were significantly higher in males than in females, which indicates that smart phone addiction is more among males than in females.

Discussion

In a study by Choi SW, Kim DJ, Choi JS, Ahn H, Choi EJ, Song WY, Kim S, Youn H, 2015 Dec 21;4(4):308-14. higher levels of smartphone addiction were positively associated with female gender.

In contrary our study proves that male have wider addiction to smart phones compared to females.

University students tend to adapt early on electronic devices and, they can be categorized as early adopters [11]. For them, smartphone is something interesting, entertainment objects, can connect with friends and giving them a sense of autonomy, identity and credibility [12]. This is the whole reason why smart phone addiction is the major concern of interest in our study

Kuss DJ and Griffiths, M. D. conducted a study in 2011and concluded that excessive use of smart phone may cause maladaptive behavioural difficulties, interfere with school or work, reduce real-life social interaction and lead to relationship disorders [13]. I concede with these findings as my study also is specifically focused on depression anxiety and stress and their positive correlation with smart phone addiction.

According to Thomée S, Härenstam A and Hagberg M (2011) as sleep is an important biological mechanism related to mood regulation [14], Adams SK and Kisler TS (2013) concluded that students whose sleep is disrupted because of technology use may be more likely to experience markers of depression such as loss of energy, concentration problems and daytime sleepiness [15].

A study by Demirci K, Orhan H, Demirdas A, Akpınar A and Sert H [16] found that excessive use of smartphone may lead to anxiety and/or depression which can lead to sleep problems.

Data from the current study showed that the excessive smart phone usage was associated with Depression, Anxiety and Stress related psychological problems. The high Smartphone users exhibited higher levels of depression, anxiety and stress according to the DASS scores and there is a significant positive correlation with SAS scores. Consistent with our findings, our scores of smart phone addiction is associated with higher levels depression, anxiety and stress.

In 2015, Park., *et al*. [17] has done a study to compare depression problems among 20 students who had been divided into two groups, Heavy Smartphone User Groups and Control Groups; results inferred that heavy users who use excessive smartphones tend to suffer depression. In addition, the finding of this study was supported by Thomee., *et al*. [12] which conduct a year-long follow-up analysis reported that excessive use of smartphone may be a risk factor for depression symptoms. In addition to finding a relationship between smartphone addiction and anxiety, this study also reported significant correlation between smartphone addiction and depression. It was supported by previous studies that found individuals with smartphone addiction problems tend to have depression problems [17-19].

Hence, it can be inferred that this study supports other studies concerning the correlation between smartphone addiction with anxiety and depression among university students and shows that this phenomenon also happens among university students in Malaysia.

Conclusion

- Findings in the current study population suggest that higher scores in SAS indicated higher levels of addiction and its relation with stress, anxiety and depression.
- Hence, Adolescents should use mobile phones appropriately to avoid further impairment of mental health. Hence, the reasonable mobile phone usage is advised.

Limitations

- Small sample size is the major limitation of the study.
- Assessment was cross sectional and not blind.

Conflicts of Interest

There are no conflicts of interest.

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