



Cover Page



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CORRELATION OF SMARTPHONE ADDICTION WITH BEHAVIOR, SLEEP AND SOCIAL ANXIETY IN ADOLESCENTS

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ABSTRACT

Background

Smartphone addiction has become a public health concern especially among Adolescents which might affect their interpersonal relationships, psychological well-being and physical health. This study correlates the smartphone addiction with behavior, sleep and social anxiety among adolescents.

Aims

The study aims to identify adolescents with smartphone addiction and find its correlation with behavior, sleep and social anxiety.

Study setting and design

A correlational study was carried forward by convenience sampling of 110 students, aged between 12-19 years at two schools of Delhi, India.

Methods and materials

Smart phone addiction scale short version (SAS-SV) cut-offs, used to select and assess smartphone addiction in the subjects and for further study the selected subjects were assessed for social anxiety by using Interaction Anxiousness Scale (IAS), Sleep quality using Pitts Berg Sleep Quality Index (PQSI), Behavior using Strength and Difficulty Questionnaire (SDQ).

Results

Among 110 students, the correlation coefficient of smartphone addiction and Sleep quality, Social anxiety was relatively 0.0931 and 0.247 indicating no significant correlation and that of smartphone addiction and Behavior as in Hyperactivity score, emotional score, conduct problems, peer relationship problems, prosocial behavior, and total score was 0.913, 0.221, 0.030, 0.144, 0.071, 0.004 respectively indicating a weak positive correlation in conduct problem score and total behavior score with smartphone addiction ($P \leq 0.05$) and Correlation is significant at 0.05 level (two-tailed).

Conclusion

Smartphone addiction was associated with behavior but not with sleep quality and social anxiety. The findings hence supported screening for Smartphone addiction which was helpful in early identification.

Keywords: Smartphone Addiction, Social Anxiety, Behavior, Disturbed Sleep.

INTRODUCTION

The usage of Smartphone in society today increases, and this is highly significant amongst the adolescents (Bianchi and Phillips, 2005)³ A number of adolescent's experience leisure boredom and dissatisfaction, which further implicates in drug use and delinquency². Past researches consistently report that, in comparison to other-to-other life stages, teenagers are on heightened potential of modern syndrome, for whom the mobile phone had come to dominate their lives and interests⁵. Various investigation aims to examine whether certain factors could be isolated as in the development of such a syndrome⁶. Due to a lack of researches and theoretical constructs in this area, psychological domains such as leisure boredom, sensation seeking, and self-esteem, are to explain addiction symptoms and problem mobile phone use⁴. Despite of increased attention to adolescent leisure domain over the past two decades, researchers have generally overlooked leisure-related factors as correlates and causes of problematic use and other behaviors, with the smart phone⁹. This probably occurs most often during leisure time and in leisure settings. (Lee, Yu-Kang, 2014)⁴.

The dramatic growth in broadband and internet service providers over the past few years, providing huge benefits to society e.g., business and social purposes¹⁶. And this becomes one of the most predominant reasons for the expanding usage of smartphones. Many applications are user friendly, inexpensive and downloadable in majority of the smartphones¹⁹. The smartphone can provide remarkable benefits to society, as for physician to send electronic prescriptions and providing online therapies and other clinical support. (Hebden, 2012) Other benefits are online shopping, working from home, free video calling family or friends from the other side of the world¹⁵ (D. Grant 2015).



Cover Page



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In Hong Kong, Choi et al, (2016) investigated the impacts of using these applications rather than the old-fashioned websites those are at higher risk in of engaging in unsafe sexual behavior⁶. Smartphone addiction can even cause physical health issues such as wrist and neck pain, blurred vision (Kwon 2013) along with headaches, forgetfulness, and a clicking sound in the ears¹ (Balikce, 2005).

In 2015, A survey which took place across 1,013 Irish nation-wide showed that proportion of smartphone users had almost doubled since 2012, and reported that almost one in every five admitted to accessing the internet almost every hour of the day, mostly among 16 to 24 years old²⁰. (Gordon, 2015)

Smartphone addiction involves compulsive overuse of the mobile devices, that is more than 4 hour/day⁴. Excessive use of smart phones interferes with other activities of daily life, alters the rules for interpersonal relationships, and can even affect the user's well-being². (Coliz M, 2012)

Smartphone users complain of discomfort in at least one area of the upper extremities, upper back, or neck¹.

Rather than concentrating on problematic behaviour related to Smartphone technology, explore the evidence regarding the consequences of typical everyday Smartphone use³¹. Finally, the impacts in the three domains that are most widely discussed are attention, memory, and delay of gratification (reward processing)³². Giving brief consideration to some emerging work, exploring links between smart phone habits executive functioning and academic performance⁵. (Henry H. Willmar, 2017)

However, the majority of research with phone usage would suggest that females show higher dependency on smart phones than males¹⁴. (Weiser, E.B, 2000)

With the increase in the innovative social media applications in the last decades, selfies have become an essential part of life and has multiple influences as social media phenomena or a syndrome of crazy behaviour, particularly among adolescents³. Selfie-related behaviour and smartphone addiction also result in selfie-related traumatic risks and may cause injuries and deaths, usually in teenagers and young adults who take selfie in every moment of their daily lives. The number of selfie-related events and accidents is still on rise³.

Social anxiety is one of the many forms of anxiety, defined as anxiety resulting from the potential or presence of personal evaluation or judgement in real or imagined situations¹¹ (Schlenker & Leary, 1982). Those who experience severe social anxiety tend to withdraw themselves from social situations into isolation²³ (Leary, 1983). Social anxiety provides preference for online social interaction, leading to problematic use of internet¹⁹. Furthermore, individuals experiencing social anxiety would use texting as their intimate form of contact over phone calls or face-to-face communication. As a result, social anxiety would encourage higher and possibly problematic smartphone use and higher internet use²⁹. (Reid & Reid, 2007)

Adolescence is at growing susceptibility for poor mental health, including depression⁷. Sleep disturbances is an imperative hazard for the development of depression during teenage years³⁰. This consequence of sleep deprivation during the school week and sleeping in on weekends, has been due to biological maturation and environmental factors due to which teenagers often go to sleep often quite late. Excessive use of electronic gadgets has been considered as environmental factors for delayed time to retire¹⁸. Physically, lack of sleep can disrupt circadian rhythms resulting in dysregulated sleep patterns, as well as dysregulated metabolic, endocrine, and immune responses¹³.

With smartphone it is possible for the user to stay connected with people, places and any interest, due to the advanced features that they contain. However, with these advancements in smartphone, it could be said that now it is actually the user disconnecting from the device that its users are having issues with⁶.

There is also growing perception that habitual involvement with these devices may have negative and long-lasting impact on user's ability to think, remember, pay attention, and regular emotion. Therefore, the health concerns associated with mobile phone use have shifted to addictive use, psychological impacts, safety issues⁴.



Cover Page



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MATERIALS AND METHOD

This correlational study was conducted in two schools of Delhi, India. Those were Kendriya Vidyalaya and Shahi public school. A total of 110 students were enrolled for the study by convenience sampling using the cut-off values of SAS-SV scale, (i.e., more than 31 for boys and more than 33 for girls). Ethical clearance for the study was obtained from the Institutional Ethical Committee of Jamia Hamdard. One week prior to the study, the students were informed about the study to be conducted, through written inform consent form. Both girls and boys of age 12-19 who were using smartphones were included. Each participant was given the questionnaires to fill up, with the examiner providing assistance as needed and the results were formed according to the analysis of data.

• Outcome Measures

Reliable and valid questionnaires were used as outcome measures.

The Smart Phone Addiction Scale (SAS-SV)

The SAS short version, validated scale originally established in South Korea, but published in English (Kwon, Kim, et al., 2013). This scale is a short version with 40 itemed scale. It has 10 itemed questionnaires to assess levels of smartphone addiction. Participants are to rate on a dimensional scale how much each statement relates to them, (1 “strongly disagree” to 6 “strongly agree”). The total score ranges from 10 to 60, and with the highest score being the maximum presence of “Smartphone 4-20 addiction” in the past year.

The Interaction Anxiousness Scale (IAS) [LEARY]

The IAS Scale, 15 item scale that measures global interaction anxiousness. Participants are to rate themselves on how characteristic each of the items are to them. Each of the 15 items are rated on a 5-point scale (1= ‘Not at all characteristic of me’ and 5= ‘Extremely characteristic of me’). When scoring this scale, items 4-21 2, 3, 6, 10, and 15 are reverse scored.

The Strength and Difficulty Questionnaire (SDQ)

The SDQ is behavioral screening scale for children and adolescents ages 12 to 17 years old, developed by a child psychiatrist Robert N. Goodman. The SDQ is freely available online and has been translated into more than 80 languages. It has 25 items, those are further divided in 5 scales: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items), prosocial behavior (5 items).

The Pitt’s Burg Sleep Quality Index (PSQI)

The PSQI is a self-report questionnaire to assesses sleep quality over a period of 1 month. The measure consists of 19 individual items, further 7 components that produce one global score. Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the Likert Scale. A global sum of “5” or greater indicates a “poor” sleeper.

RESULTS

A total of 110 young adults, 59 boys and 51 girls were included in the study. The descriptive statistics of age, SAS-SV, PSQI, SDQ and IAS scores are given in Tables below.

Table 1: Correlation between SAS-SV with IAS, PSQI

		PSQI	IAS
SAS_SV	Pearson Correlation	.161	.111
	Sig. (2-tailed)	.0931	.247
	N	110	110

Interpretation: There is no correlation between PSQI, IAS and SAS-SV.

Table-2: Demonstration of correlation between SAS-SV and SDQ scores

	SDQ	SDQC	SDQE	SDQPP	SDQPS	TOTAL
SAS-SV	0.11	0.207*	0.118	0.140	-0.173	0.269**
	0.913	0.030	0.221	0.144	0.071	0.004
	110	110	110	110	110	110

Interpretation: There is weak positive correlation between SDQ (total score), SDQ (conduct problem) and SAS-SV.



Cover Page



DISCUSSION

The purpose of this study was to evaluate Correlation of Smartphone Addiction with Behavior, Sleep, And Social Anxiety in Adolescents. The approval was obtained from the ethical committee of the university.

The smartphone addiction scale (SAS-SV) cut-offs (i.e., more than 31 for boys and more than 33 for girls) was chosen to assess the addiction of subject and accordingly of subjects were selected for further research procedure. The selected list of smartphones addicted subjects were given other questionnaires like Interaction anxiousness scale (IAS), Strength and difficulty questionnaire (SDQ), Pitt's berg sleep quality index (PSQI), to answer.

110 participants were selected for the study (59 males and 51 females) from a 150 random sample of school students from two different schools, aged between 12-16, those scored addicted cut-offs in SAS-SV questionnaire.

The parents and children were informed about the study and they gave their informed consent. Assessment was done using the above various Questionnaire and the parents of all the participants were sent inform consent and declaration forms respectively. The idea behind was to obtain Convenient sample. The questionnaire was anonymous and confidential, and the participants were given the opportunity to consent to taking part prior to completing them. No incentives were offered to take part.

A total of 59 males and 51 females took part in the study, ranging in age from 12-18. The questionnaires were distributed among all these students to find the smart phone addicted group of 110 students, studying in 7th and 8th standards. On analysis, findings of our study indicate:

There was no relationship between Smartphone addiction and social anxiety, quality of sleep.

This was supported by the findings of Sinead Pugh (2017). The study investigated the relationships between smartphone addiction with self-esteem, social anxiety and also age and gender influence on those relationships/variables. The study had a sample of total 126 participants. The result indicated no relationship was found between these variables in this study but there was significant difference within males and females, females scored higher in smartphone addiction and social anxiety.

Another study by Demi et al. (2015) aimed to relate the Smartphone use severity, with sleep Quality, Depression, and Anxiety in 319 university students. The study concluded with positive correlation between smartphone addiction score and depression level, anxiety level, subjective sleep quality, sleep disturbances, daytime dysfunction. The positive correlation in Demi et. al study may be attributed to a larger sample size of the study.

Analysis of our data also indicated that there was a weak positive correlation between smart phone addiction and SDQC (conduct score), SDQ total scores. There was no relationship between smart phone addiction and hyperactivity, emotional symptoms, peer problems. prosocial behavior.

A study by Meita D. et al (2019) with a sample size of 178, aged 11-12 years old, analyzed the correlation between smartphone addition and mental emotional disorder (behavior). The study indicated weak positive relationship between these variables.

And Yu-Kang et.al (2014) also aimed to study, the negative aspect of the smartphone trend and examined the link between psychological traits and the compulsive behaviors of smartphone users, with 325 participants. The author concluded, Compulsive usage of smartphone and technostress are positively related to psychological traits including locus of control, social interaction anxiety, materialism and the need for touch.

LIMITATIONS

These limitations of the present study should be considered. Firstly, the sample size was small. Therefore, the result cannot be generalized. Secondly, the sample was only adolescents, hence no evidence for other age group and other limitation of this study was that it relied on the honesty and integrity of the participants, some can be less open when providing personal information.



Cover Page



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CONCLUSION

The study aimed to evaluate Correlation of Smartphone Addiction with Behavior, Sleep, And Social Anxiety in Adolescents. From the results it can be concluded that there is no relationship between Smartphone addiction, and social anxiety, quality of sleep; but there is a possible relationship between Smart phone addiction and behavior in adolescents.

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