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THE ASSOCIATION BETWEEN SMARTPHONE ADDICTION, BODY MASS INDEX AND PERCEIVED STRESS AMONG DENTAL STUDENTS IN CHENGALPAT DISTRICT-ANALYTICAL CROSS SECTIONAL STUDY

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Abstract

Background: In Today's modern world younger generation cannot survive without smart phone. It is a buzzword for them. Besides the limitation of the smart phone usage, it creates a huge impact among youngsters and other people. The aim of the study is to assess the association between smart phone usage, BMI and perceived stress among dental students in Chengalpattu district.

Methods: The present study collected data from the respondents via Google Form based on the smart phone usage, addiction, usage time, sleeping time.

Result: Out of 300 respondents 232 respondents are male and they were highly addicted to the smart phone usage. The BMI value of the respondents obviously influenced by the smart phone addiction and it's verified statistically via Chi Square test. The test showed that the respondents those who are under 25-29 BMI category highly addicted and they have some health issues finally it gives more stress to them.

Conclusion: The present study explores the association between stress, Sleep quality, BMI and smart phone usage to improve the respondents preference towards smart phone usage in their day-to-day life. It is important for the younger generation to know the harm full effects of smart phone addiction and use smart phone accordingly.

INTRODUCTION:

In the present scenario smart phone plays a crucial role in daily life of the human beings. Moreover the revolution in Information and Communication Technology (ICT) is a key driver for the introduction of the Smartphone. The capability of the smart phone offers many user- friendly services and the smart phone gadgets gives combined service like traditional and most importantly it become an big integral part of human–human communication. Smart phones (SPs) are powerful and useful tools as they offer combined services of the mobile phone and the internet. They serve a variety of functions, such as quick information transfer, electronic commerce, cultural interchange, and entertainment. It facilitates the younger people to enhance their knowledge in respective discipline. In case of dentistry, it is used for the dissemination of public health information and virtual learning for dental students. Nevertheless this trend creates huge impact on the daily life of the young generation.

In India the smart phone addiction magnitude ranged from 39 to 44%. The prevalence of smart phone addiction was quite high among students[2].

Smartphone addiction is considered as the inability to limit the usage of Smart phones[3].The increase in smart phone usage among the dental students can cause problems including both physical and mental health, attenuate physical activity, fatigue and sleep disorders[4].

There is lack in physical activity and increase in "Junk Food" snacking habits while using smart phone among the dental students[5].

Good sleep quality is critical to both physical and mental health and well-being. Adverse psychological and physical impacts, including depression, anxiety, heart disease, and psychological discomfort, have been linked to inadequate sleep. One factor found to be affecting sleep quality among young adults is smart phone use[6].

Psychological distress, a term used to characterize negative emotions such as helplessness and an incapacity to cope, has been demonstrated to be a sign of poor mental health and to refer to a combination of undifferentiated symptoms, including anxiety, depression, behavioral problems, and functional disabilities[7].

Smartphone usage among dental students has been documented in the study by Saheer et.al. Where a significant number of students were addicted to smart phone and lack of physical activity is one of the outcomes of smart phone addiction[8]. Hence, this present study is aimed to assess the association between smart phone addiction on perceived stress, sleep quality and BMI among dental students in Chengalpattu district.

MATERIALS AND METHODS

This analytical cross – sectional study was conducted for a period of six months from August 2023 to January 2024. Ethical clearance was obatined from the Karpaga Vinayaga Institute of Dental Sciences ethical committee to conduct the study. This study was carried out at a private Dental institute in Chengalpattu district. A validated Self-Administered questionnaire was used for the data collection which includes 25 questions including Demographic details with height and weight for calculation of Body Mass Index, Smart phone addiction scale short version (Kwon M et al., in2013) questionnaire for assessment of smart phone addiction, and Perceived stress perceived stress scale (Cohen et al., in1983) to assess stress .

Sample size was estimated using G power software (3.1.9.2) according to a study by (Gedam et al., 2017) and minimum sample size required was found to be 300. In order to attain the required sample the questionnaire was given to 500 students randomly and 300 eligible participants were included 150 in each group as addicted and not addicted, the rest were eliminated, by adopting convenience sampling method. The participants were approached randomly after their class hours and free time. Google form Questionnaire along with consent form was circulated to students via E-Mail and WhatsApp. The data were analyzed by percentage analysis and Chi Square test In SPSS software(Version 20).

RESULT:

TABLE 1: DEMOGRAPHIC DATA

Categories		Number of the Respondents	Percent
Gender	Male	232	77.3
	Female	68	22.7
Year of study	Under graduates	279	93.0
	Post graduates	21	7.0
BMI	Under weight	28	9.3
	Normal	182	60.7
	Overweight	73	24.3
	Obesity	17	5.7

Demographical profile of the respondents

Table 1 shows that majority of the participants (77.3%) were male and 93% participants are doing Under Graduate and belonged to normal BMI (60.7%)

TABLE 2: Responses to question

Categories		**Number of the Respondents**	**Percent**
Respondents checking phone at the time of get up from sleep in night	Yes	151	50.3
	No	149	49.7
Respondents feel after forget the mobile	Yes	194	64.7
	No	106	35.3
Main use of smart phone other than calling and text message	Social Networking Service	28	9.3
	Entertainment	90	30.0
	News	11	3.7
	Games	11	3.7
	Research and homework	10	3.3
	All the above	150	50.0
Daily smart phone usage time of the respondents	< 1hour	21	7.0
	1-3	154	51.3
	4-6	101	33.7
	7-9	20	6.7
	More than 9	4	1.3

Smartphone usage of the respondents

Table 2 demonstrates that the 50.3 % of the participants checking their phone at the time of get up from sleep in night. 64.7% participants gets panic if they forget the mobile phone. Main use of smart phone other than calling and text message is to avail Social Networking Service, to get Entertainment , to know about News and Games, for collecting data regarding Research and Homework. Next higher preference given by the respondents to entertainment category i.e.30%. The 51.3 % respondents used the smart phone for 1-3 hours daily is highest preference among other timings.

Gender	**SAS-SV SCORE**		**Chi Square value**	**'p' Value**
	Non-Addiction	Addiction		
Male	54 (18%)	129 (43%)	5.934	0.129
Female	14 (4.6%)	103 (34.3%)		

BMI	SAS SV SCORE		Chi Square Value	'p' Value
	Non-Addiction	Addiction		
UNDER WEIGHT	20 (6.6%)	8(2.6%)	11.293	.001
NORMAL	129 (43%)	53 (17.6%)		
OVERWEIGHT	1(0.3%)	72 (24%)		
OBESITY	0	17(5.6%)		

BMI value association with SAS SV score

Table 4 shows that association between BMI value and SAS SV of the respondents.21%respondents are addicted to smart phone usage. The Chi square value (11.293) absolutely proved that the BMI value affected usage of the s mart phone

HOURS OF SLEEP	SAS SV SCORE		Chi Square Value	'p' Value
	Non-Addiction	Addiction		
Less than 4hrs	15 (5%)	95 (31.6%)	1.79	.003
4 - 6 hrs	84 (28%)	35 (11.6%)		
6 – 8 hrs	51 (17%)	20 (6.6%)		

Table 5 that the 28.3% of the respondents is sleeping for less than 4 hrs it indicates that their sleep quality and they were addicted to smart phone usage.

DISCUSSION

Smartphone addiction has been identified as a behavioral addiction in the recent decade but has not yet been established as a real problem, especially in India. [9]The objective of this present cross-sectional study was to investigate the relationship between smart phone addiction on psychological distress, sleep quality and BMI .The findings of this study indicate that higher smart phone addiction leads to poor sleep quality, which may impact the overall health of the user. Similar findings was reported in a study by kumar et al.[10]where the smart phone addiction was associated with poor sleep quality among dental students. From the result, smart phone addiction exhibited a relationship with sleep quality. [11]

However, nowadays, people stay up late for several reasons, affecting sleep quality. There are several reasons which cause poor sleep quality. Smartphone addiction is one of the important factors which cause people to stay up late and affect sleep quality. Numerous studies have concluded that smart phones have associated with sleep quality. The use of smart devices such as smart phones and smart portable television for an extended period of time have been associated with sleeping and waking time, deteriorating health and disturbing daily life [12–14]. Several studies reported that the blue light of smart phones is associated with sleep quality. [15]. When the body is exposed to blue light at night time, the body's biological clock is affected. This is because the blue

light from the smart phone inhibits the brain to produce melatonin which helps us fall asleep. Importantly, a small number of students were identified as suffering from smart phone addiction. The present study concluded that all the dentistry students included in the study are using mobile technology in their private life, but a real addiction to mobile technology has not been found.

Smart phone addiction showed a significant association with depression, anxiety, and stress in our study subjects. This is in agreement with various studies in this area which have found a similar association.[16]

The results supported our hypothesis that higher smart phone use was adversely associated with stress and sleep quality in a dose-dependent manner, such that greater smart phone use resulted in more severe symptoms of stress and poor sleeping quality. People with stress may want to avoid face-to-face communications and rely on their smart phones to cope with their negative mood[17], or they may use video games on their smart phones to cope with their stress[18].

In the present study, majority of the students (43%) belonged to normal BMI in non addicted group when compared to addicted group which was quiet high when compared to the study conducted by Radhika et al (19), where only 32.9% of the study subject had normal BMI and 24% of the participants were in overweight category in addicted group.

There is a significant association between the SAS–SV and BMI among the study population, due to the fact that most of the participants had high stress levels, low physical activity, higher BMI and it reveals that over usage of smart phone might have ill effects on several measures of mental and physical health.

CONCLUSION

The present study concludes that most of the dental students are addicted to smart phone usage, which in turn affects the sleep quality, induce stress and affects BMI. It is essential to enhance our knowledge but health is also more prominent. Smartphone addiction is a growing public health problem across the world particularly in developing countries like India where youth population is high. Smartphone addiction causes a significant effect on physical and psychological health. Hence there is definite need to identify students with Smartphone addiction and plan intervention strategies.

CONFLICTS OF INTEREST

There are no conflicts of interest

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