

ORIGINAL ARTICLE**PREVALENCE OF SMARTPHONE ADDICTION
AMONG STUDENTS OF COLLEGES OF
REHABILITATION SCIENCES****ABSTRACT****BACKGROUND AND AIMS**

Smartphones have become an essential tool now days that impact psychologically as well as physically to the user. This study rules out smartphone excess usage and its addiction amongst pupil from Colleges of Rehabilitation Sciences

METHODOLOGY

A cross-sectional study was conducted on 260 medical students out of which 50 dropped out later. Smartphone Addiction Scale (SAS) was used to assess the level of smartphone addiction amongst these individuals.

RESULTS

The statistical value of mean is 1.48 for both the genders whereas the statistical value of mean for age ranging from 20-25 years is 21.7 and the standard deviation is 0.50 for gender and 1.38 for the included age group. Only 7 participants (3.3%) were found to have low smartphone addiction level, 108 participants (51.4%) to be moderately addicted and 95 participants (45.2%) to have higher addiction.

CONCLUSION

The excessive use of smartphone was significant among the individuals aged 22 years and more specifically the more males than the females were found to be more addicted by smartphone. Our findings may help in the development of policies and guidelines which should be followed by the students to improve their quality of life and mental health issues such as depression and anxiety.

KEY WORDS

Smartphone Overuse, Smartphone Addiction Scale, Medical students, musculoskeletal problems, Depression, Anxiety

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INTRODUCTION

In today's world, the use of a smartphone has now become necessary for most of the population. In the late 2000s, smartphones were introduced, since then there is a rapid increase in its usage. Globally, greater than 3.1 billion individuals were active users of smartphone in 2019 and the number of users is estimated to reach 3.8 billion by 2021.¹⁻³ Smartphone addiction can be taken as one type of technological addictions. Technological addiction is a behavioral addiction that requires the interaction between human and machine hence it is not chemical.⁴ Both males and females have a high risk of addiction being 7.53% and 17.12% respectively.⁵

Recent studies show high rate of smartphone addiction in middle aged school going and medical students. Particularly, the students of physiotherapy were assessed through Smartphone Addiction Scale-Short Version (SAS-SV) scale and revealed high usage of smartphones among them and the rate was much higher in males than the females.⁶⁻⁹

With the overuse of smartphone, there is an increase in poor mental health which leads to depression, anxiety, stress, poor sleep quality and decreased educational interest.¹⁰

Lunge et al assured through questionnaires, that the use of gadgets takes a common role in medical students' daily life. The use of the gadget helps them in their academics and social life. It was analyzed that with the use of gadgets there is a connection which exists between neck/shoulder pain and headache due to the continuous pressure on neck because of excessive musculoskeletal use.¹⁰ Sehar et al concluded that thumb pain was concluded to be common among users of mobile phones due to the frequent use of mobile phone for long period of time, increased musculoskeletal problems of thumb and hand were reported.¹¹ Alhazmi et al concluded that the usage of mobile phone is more significant in male population than the females.⁷ Kalirathinam et al analyzed that the preventive measures need to be taken to prevent the consequences of smartphone addiction. The participants were ought to be instructed to embrace a decent stance on cellphone utilization for example; sitting on a seat with back help with the expansion of cushion to be put on the lap to help the arms or maintain a safe distance with the gadget. A few activities ought to likewise be done, for example, jaw fold which balances the poor stance, firmness to expand blood course inside the muscle.¹²

Kibona et al revealed that smartphone brings negative results on progression of students' performance academically and personally. About almost 48% of the users are found to use smartphones and other gadgets for about 5-7 hours per day.¹³ Darcin et al revealed that youngsters who use smartphone mainly to access social networking sites were at higher risk for smartphone addiction compared to their mates who

use smartphones primarily for browsing or making phone calls. In individuals with exaggerated social anxiety symptoms, excessive smartphone was found to be associated with both social anxiety and loneliness. Although smartphones, the demands of which has risen very high and the usage may cause problems in their social lives. Moreover, smartphone addiction is a real threat especially for the younger population battling with social anxiety/phobia.¹⁴ Aljomaa et al revealed 48% of the participants were smartphone addicts with males taken the lead, results also revealed that the most important signs of smartphone addiction were over use of smartphone, technology, with reference to psychosocial majors, and health aspects. Students have become dependent on smartphones to do even the simplest of tasks. This results in negative physical, psychological, social, personal, familial and educational effects. Smartphone addiction is expected to increase in the future and become one of the most common types of addiction. Individuals with smartphone addiction feel discomfort and uneasiness when deprived of their smartphone for sometimes regardless of the reason of their deprivation.¹⁵ Gezgin et al reported that there is an affirmative correlation between smartphone addiction and age of high school going students at statistical significance of 0.05 and that smartphones are most frequently used by the individuals with 18 years. Smartphone addiction causes sleep problems (duration and quality), loss of self-control, depression, anxiety and day time dysfunctions. Almost half of the students confessed that they used their smartphones for more than 4 hours a day. Social media applications like Viber, Tango, Skype, Whatsapp, Facebook, Twitter and games like candy crush are more intensely used. As seen in the study, FOMO (fear of missing out) has the highest correlation with smart phone dependency.¹⁶

This research was carried out to investigate the prevalence of smartphone addiction among medical students.

The purpose of this research was to investigate the prevalence of smartphone addiction among the students of ZCRS by Smartphone Addiction Scale questionnaire. The investigation covered gender based addiction and impact of age on excessive use of smartphone.

METHODOLOGY

Study Setting

Colleges of Rehabilitation Sciences.

Targeted Population

The study is conducted on the students of Colleges of Rehabilitation Sciences to determine the prevalence of smartphone addiction among them. Both males and females with the age group of 20-25 years were targeted.

Study Design

Observational study.

Duration of Study

One month.

Sample Size

210 students were approached for this research, with a frequent smart phone usage in their daily routine at a confidence interval of 95%. Convenient sampling technique was used.

Sampling Technique

Convenient sampling.

Inclusion Criteria

20-25 years of age individuals with smartphone usage duration of more than 1 hour per day.

Exclusion Criteria

Individuals with the history of any systemic disease, musculoskeletal trauma or any spinal cord injury which can cause pain and discomfort in upper limb, smartphone usage duration of < 1 hour per day were excluded.

DATA COLLECTION TOOL**Smartphone Addiction Scale (SAS)**

The data collection tool used to assess smartphone addiction was SMARTPHONE ADDICTION SCALE (SAS) as its validity and reliability helps to analyze the dependency of mobile phone on frequent uses. The SAS is a self-diagnostic scale to distinguish smartphone addiction users consisting of 33 questions and 6 subscales. The validity of the SAS scale was found using the comparison with the similar scale K scale and Y scale. SAS was proven to be more accurately reliable and provides validation than any other similar tests. The SAS was based on Likert scale. In the instrument, 6 indicates strongly agree and 1 strongly disagree. The reliability and validity of the instrument was established by the earlier literature and the researchers Min Kwon et al but it will be re-established in the light of the current research and demographics.¹⁷ The instrument is divided into several parts smart phone usage, lifestyle, demographics, influence, use of pattern etc. The research tool includes google document, excel sheet and SPSS software.

This scale contains 33 factors to evaluate smartphone addiction that includes six point Likert scale (1: strongly disagree to 6: strongly agree) SAS factors describes different characteristics that help in assessing the cause of smartphone addiction. The interpretation will be made on the scores that will be achieved. A response to each question on likert scale is given a numeric value score of 1-6 accordingly. Afterwards, each score values are added to find out total score for all questions. The score ranges from 33-198 are interpreted on percentile

basis. Lower quartile suggest lower level of addiction, middle quartile suggests moderate level of addiction while higher quartile range of score suggest higher level of addiction.

Data Collection Procedure

Participants with age group ranging between 20-25 years were chosen for this particular research whose smartphone usage was more than 1 hour a day. Consent was taken prior to the participant's entry into the research and questionnaire were filled and collected on the spot. Smartphone Addiction Scale (SAS) was used to collect the data.

Data Analysis

SPSS software was used to interpret the data for smartphone addiction among medical students. The data analysis was comprehensive of different demographics including age and gender. SPSS software was used to analyze the data to find out the prevalence, reliability, authenticity and correlation between usages of smart phone among medical students. Interpretations towards smartphone addiction were made on percentile basis. Subsequently, standard deviation and mean were conducted to identify the addiction of smartphone. Statistical value of mean for gender including both male and female is 1.48 while the statistical value of mean for age ranging from 20 to 25 is 21.7 and the value of standard deviation obtained is 0.50 for the gender and 1.83 for the age. The values of statistical analyses were performed using SPSS 22.0.

Ethical Consideration

None of the participants' privacy was compromised and all the responses were kept confidential, making sure that no answers were manipulated and no objections were raised by any of the participants. The consent forms were attached with the questionnaires.

RESULTS

In this research, total no of participants were 260 between the age group 20-25 (mean age 22 years) were enrolled in the study. Males were 109 (51.9%) whereas the female were 101 (48.1%) shown in figure 1.1. Out of 260 students, 50 dropped out from the research due to global COVID pandemic. Regarding the distribution of students on the basis of age group 48 (22.9%) from 20 years, 43 (20.5%) from 21 years, 56 (26.7%) from 22 years, 36 (17.1%) from 23 years, 21 (105) from 24 years, 6 (2.95) from 25 years, 22 years of age group has highest frequency rate which is 26.7%, shown in figure 1.2 the statistical value of mean is 1.48 for genders including both male and females, whereas the statistical value of mean for age ranging from 20-25 years is 21.7 however, the value of standard deviation obtain is 0.50 for gender and 1.38 for the included age group. The results of this study revealed that there is moderate addiction in 108 participants (51.4%).

Moreover, 95 participants (45.2%) lies in the category of higher addiction and only 7 participants 3.3% were in the category of low smartphone addiction. Furthermore, the present research stated that there is more addiction regarding smartphone usage found in male population as compare to females also the study reveals that the individuals of age 22 spend significant time on their smartphones.

DISCUSSION

Our research concluded that male participants are prone to the usage of smart phones and females are less addicted to smart phones in medical college. Chen B et al favors the study and states the results that the males are more addicted to smartphones than the females.¹⁸ Whereas, Sethuraman et al concluded that the students are prone to have addiction.¹⁹ In contrast, Alkhateeb et al stated that females and non-medical college students were more addicted to smartphones.²⁰

Females were 53.5% and the rest were males in this study conducted by Hasandost et al²¹ whereas, our study there were 48.1% females and the rest were males.

This research study showed greater SAS score for males than females. Males were found to be more agitated, anxious, dull and unproductive due to excessive smartphone usage. In the favor, Liu et al disclosed the result that the individuals who used excessive gadgets scored higher in Global PSQI and DASS 21 for depression, stress and other mental related problems and there were significant changes in behavior and sleep patterns in youth population.²² In contrast, Duke et al stated that mean SAS score for females were higher than males in this study. Decreased productivity was observed and over checking had a negative effect on the productiveness.²³

The results of our study interpreted that the students of 22 years of age showed the highest percentage of smartphone addiction compared to the other age groups. One literature which supports the results of our study with reference to the age group, evaluated the problematic use of smartphone among the various age groups described by Armstrong's age group classification on problematic smartphone usage scale. In this study, the results stated that the individuals aged 20 to 34 years showed the highest scores on the assessment scale as compared to the other age groups.²⁴

One study assessed the addiction of cities of Pakistan. With reference to the level of education which includes middle, matric, intermediate, and graduate levels, the results of this study concluded that the students of matric level education were more addicted than the students of any other level of education.²⁵ Whereas, our study assessed the prevalence of smart-

phone addiction among the undergraduate students, and the results concluded that there was moderate addiction level among them.

Strength

The main strength of this study is that an international scale was used to assess the psychological and physical aspects of smartphone usage and addiction amongst the respective candidates.

Limitations

This study has potential limitations. First, many participants dropped out due to current pandemic. Secondly there were more male participants than females. Thirdly, the time duration set for this study was limited to one month only.

Future Directions

In this research, there are few gaps in our knowledge that can lead to have our future research which can be beneficial to do more evaluation in this study.

According to our research, males were found to be more addicted to smartphone than females. There should be significant awareness regarding the hazards of excessive use of smartphone. A research can be done on the problems being faced to the people getting addicted to smartphone/ gadgets.

In this study, the targeted population age groups were 20 to 25 years. However, these could be further evaluated and studied on different age group for example teenage and older adults as they are also the one being the excessive user of smartphone these days. Our research can be used by mobile companies to launch a feature in the form of application to remind the smartphone user to control their use. Our research could also be beneficial to create the awareness on the addiction to smartphone use by arranging and developing strategies in the form of public messages or disclaimer or reminder by World Health Organization (WHO) to avoid musculoskeletal problem.

CONCLUSION

The study concluded that every participant is addicted either mildly/ moderately or extremely addicted to their smartphones and the males found to spend more time on their smartphones as compared to the females. With reference to the age, 22 years old individuals were the most addicted amongst the people with age group of 20-25 years.

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