

Effect of Smartphone Usage and Quality of Sleep in Physiotherapy Student in Ahmedabad City: An Observational Study

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ABSTRACT

Introduction: Increasing Smartphone use has led to the Smartphone addiction as a behavioral addiction with detrimental effects on health. This phenomenon has not been widely studied in the Indian context. This study aims to assess the correlation between Smartphone addiction and Quality of Sleep-in physiotherapy students in Ahmadabad city.

Methodology: This observational analytical study included 214 physiotherapy students who studied in different physiotherapy colleges in Ahmadabad city. Written informed consent was taken from those willing to participate and fulfilling inclusion and exclusion criteria and was included in the study. Assessment was done according to the proforma. Each student's individual filled Smart phone addiction scale (SAS) and Pittsburgh sleep quality index (PSQI) respectively.

Results: In present study 82% students were addicted with Smartphone whereas 18% students were non-addicted with Smartphone. 72% students have poor sleepers whereas 28% students have good sleepers. The moderate positive correlation between of Smartphone addiction and Quality of Sleep among physiotherapy students in Ahmadabad city.

Conclusion: This study showed that inordinate use of smartphone is prevalent among physiotherapy students and is related to poor sleep quality. Proper sleep is a must for physiotherapy students as acquiring professional-level learning as well as clinical skill is crucial for them. In physiotherapy

students poor sleep quality can have its impact on various areas such as efficacy, mental and physical health.

Keywords: Quality of Sleep, Smartphone, Physiotherapy

INTRODUCTION

The 21st century has witnessed a rapid growth in technology and, with the introduction of the internet, a revolutionization of information access. The legacy of these noteworthy milestones is captured by the innovation and popularization of the "Smartphone".^[1]

Addiction to Smartphone usage is a common problem among adults worldwide which is manifested as excessive usage of phones, while engaged in other activities such as studying, and even sleeping driving, and social gatherings.^[2] However, many people don't realize that addiction to the Smartphone is a serious issue leading to a negative effect on the person's thoughts, behavior, tendencies, feelings, and sense of well-being. In particular, it can be a risk factor for depression, loneliness, anxiety and sleep disturbances. Recent types of research have shown that the use of the mobile phone is associated with headaches, irritability, sleep disorders, fatigue, and dizziness. Mobile phone use (mostly smart phone) in medicine, education, and other

fields, Due to high degree of Internet use leads to addiction and behavioral changes.^[3] Increasing smart phone use has led to the smart phone addiction as a behavioral addiction with detrimental effects on health. This phenomenon has not been widely studied in the Indian context. This study aims to assess the correlation between of smart phone addiction and quality of sleep- in physiotherapy students in Ahmedabad city.

MATERIALS & METHODS

Observational analytical study was conducted at different physiotherapy colleges from Ahmedabad, Gujarat, India with purposive sampling. Data collection from March 2023 to May 2023. A sample size was estimated on the basis of pilot study and the sample size obtained was 214. $N = \frac{Z\alpha + Z\beta}{C^2}$ Where; $C = 0.5 \times \frac{1}{\{(1+r)/(1-r)\}}$, $r = \text{correlation coefficient}$

Inclusion and Exclusion Criteria:

Students who agreed to participate in the study. Minimum use of mobile phone in students have been >1 hour/day. Those who use the smart phone with an active internet connection were included. Incomplete response on following scales: smart phone addiction scale, Pittsburgh sleep quality index, known case of other psychological disorders and sleep disorders in students were excluded.

1. Smart phone addiction scale short version (SAS – SV): SAS-SV is a self-reported measure for assessment of smart phone addiction severity. The scale consists of 10 items. All participants were told that “please indicate to what extent you agree that this is true for you”, and were asked to answer the following question: “Is missing planned work due to smart phone use?” responses were recorded by a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree).^[4]
2. Pittsburgh sleep quality index (PSQI): PSQI I a standardized, self-administered

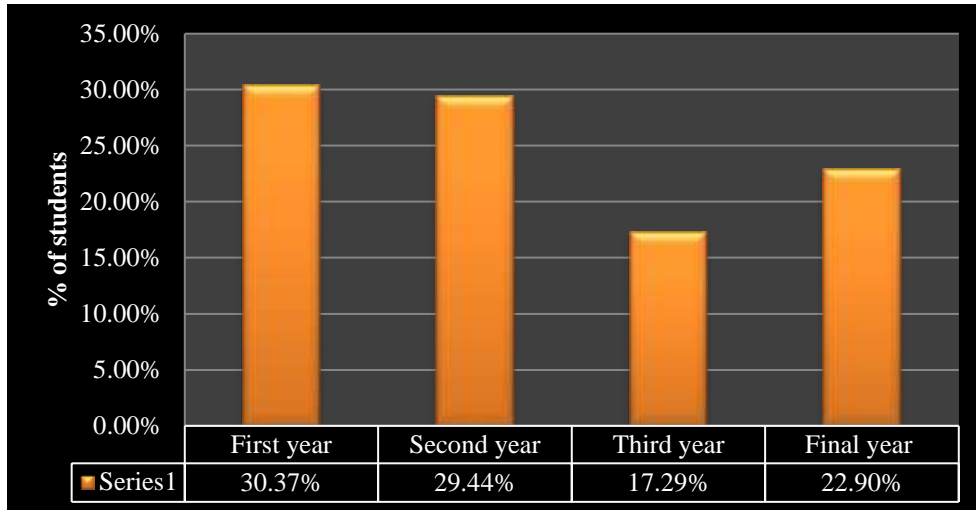
questionnaire sleep quality and items as the original instrument; it comprises 19 items forming seven subscales: (1) sleep quality (1 item), (2) sleep latency (2 item), (3) sleep duration (1 item), (4) sleep efficiency (3 item), (5) sleep disturbance (9 items), (6) sleep medication (1 item), and (7) daily dysfunction (2 items). The PSQI was evaluated following the original scoring system. Each component has a score that ranges from 0 to 3. The scores of seven components will be summed to yield a PSQI global score ranging from 0 to 21. Respondents with a global score of greater than 5 are classified as ‘poor sleepers’, while those with a score of 5 or less are classified as ‘good sleepers.’^[5,6]

STATISTICAL ANALYSIS

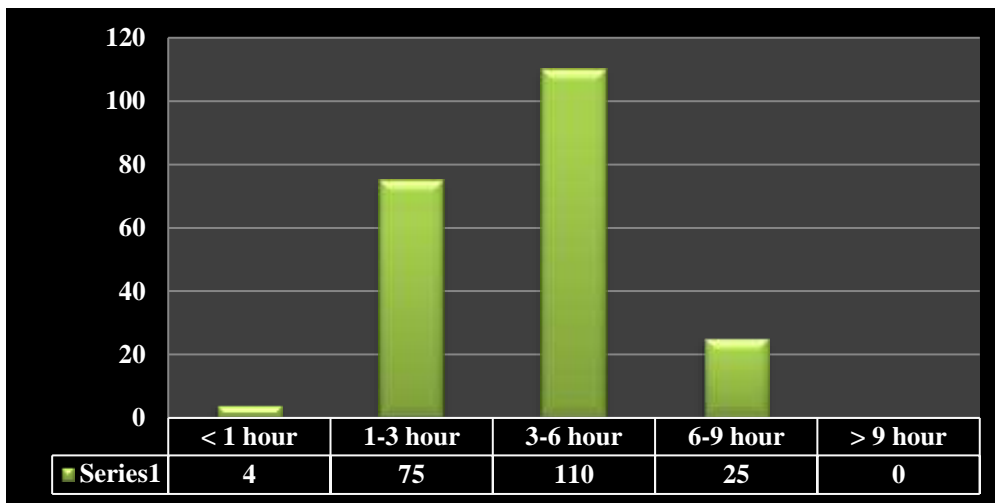
Data analysis was done using SPSS version 20 and Microsoft excel 2007. Prior to statistical tests, the data was screened for normality. As the sample size was more than 50 in Kolmogorov – test (KS test) used to check normality. Prevalence for smart phone addiction using smart phone addiction scale short version and for sleep quality using Pittsburgh sleep quality index was done by Microsoft excel. Data of all the outcomes were not normally distributed. Correlation between smart phone addiction scale short version and Pittsburgh sleep quality index was done by non - parametric test – spearman’s correlation. Level of significance was kept at 5% ($p < 0.05$).

RESULT

The present study was conducted Smartphone addiction and quality of sleep- in physiotherapy student in Ahmadabad city. Total 214 participants, completed the study. The mean age of participants was 20.63 ± 1.59 years with 80% female and 20% male. Year of students shows in graph 3. Graph 4 shows duration of Smartphone usage /day.



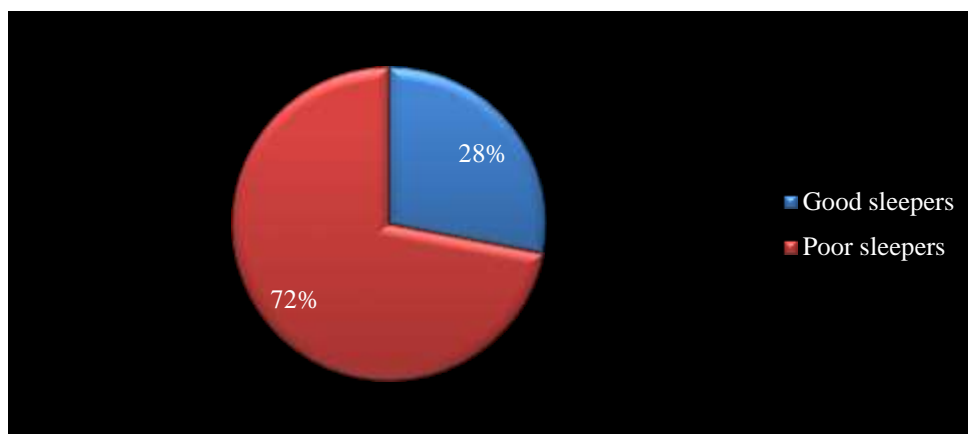
Graph 3: Year of students



Graph 4: Duration of smart phone usage/day

Variable of SAS-SV	Percentage
Non-addicts	18%
Addicts	82%

Table 1: Prevalence of Smart phone addiction



Graph 5: Sleep quality in physiotherapy students

Variable	r - value	p - value
SAS-SV & PSQI	0.758	<0.001

Table 2: Association between SAS-SV & PSQ

DISCUSSION

The objectives of the present study were to find prevalence of smartphone addiction using Smart phone addiction scale short version, Quality of Sleep using Pittsburgh sleep Quality index and to find correlation between Smart phone addiction using Smart phone addiction scale short version and Quality of Sleep using Pittsburgh sleep quality index among physiotherapy students in Ahmedabad city.

In present study 82% students were addicted with Smart phone whereas 18% students were non-addicted with Smart phone. Matar Boumosleh J et al found that prevalence rates of Smart phone-related compulsive behavior, functional impairment, tolerance and withdrawal symptoms were substantial. Tired during daytime due to late-night Smart phone use, acknowledged decreased sleep quality, and slept less than four hours due to Smart phone use more than once.^[7]

Contrast to present study a slightly lower prevalence of Smart phone addiction (29.8%) was found among medical students in South Korea.^[8]

In present study 72% students have poor sleepers whereas 28% students have good sleepers. Similar study found that Cheng SH et al found that poor sleep quality is prevalent among incoming university students in Taiwan city.^[9] Mohammad Beigi A et al concluded that high usage of internet and social networks via smart cell-phones is related to poor sleep quality and quantity.^[10]

In present study moderate positive association between Smart phone addiction and sleep quality in physiotherapy students. Alosaimi FD et al found that positive relationships with smart phone use (negative lifestyle, poor academic achievement), number of hours per day spent using smart phone, years of study, and number of applications used.^[11] Choksi ST et al found that moderate correlation was between smart phone uses and sleep quality as well as between smart phone use and depression. Chen YL et al found that relationship of early and middle insomnia predicting

internet addiction, which subsequently predicts disturbed circadian rhythm.^[12] The study is limited to Ahmedabad city only. Data was collected only from Physiotherapy College; Multivariate analysis was not done.

CONCLUSION

In conclusion, this study showed that inordinate use of smartphone is prevalent among physiotherapy students and is related to poor sleep quality. Proper sleep is a must for physiotherapy students as acquiring professional-level learning as well as clinical skill is crucial for them. In physiotherapy students poor sleep quality can have its impact on various areas such as efficacy, mental and physical health. This study further brings out the importance of the availability of counseling services to physiotherapy students, so that those already addicted can be helped and provided with remedial measures.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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