Original Article

Impact Of Screen Time Exposure On Sleeping Habits Amongst Young Adults

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Abstract: Background: Lack of adequate sleep affects the mental health, emotional balance, immune function and reaction times. The alarming sedentary habit which would affect the sleep quality in the recent time is screen media exposure or increased screen time. Moderate use of ST (4hours/day) associated with lower psychological well-being. Objective: To study the association between ST usage and sleep quality amongst young adults. Material And Methods: The study was conducted among medical students at Physiology department, Government medical college, Vadodara. Google form was created, which consisted of basic information. Self-reported ST usage per day. PSQI scale assessed 7 components of sleep scaling from 0 to 3, and higher global score (>5) means lower sleep quality. The Google form was sent to participants who were given informed consent and the results were computed. Result: Among 204 participants, 78 males and 126 females, the median age was 19 years, the mean duration of screen time was 5.3 Hrs. (SD=2.7). ST > 5 Hrs. in 57.8% and PSQI ≥5 in 52.9% was seen. Chi Square test analysis for ST & PSQI, the p-value came out to be 0.094(p-value > 0.005), and was not statistically significant. Conclusion: This study shows more than half of participants had poor sleep quality and increased screen time usage. Though the results came out statistically insignificant we cannot exclude the association without further research. However, exposure to high screen time may negatively impact sleep outcome. [D S Natl J Integr Res Med, 2022; 13(2): 67-70, Published on Dated: 10/02/2022]

Key Words: ST- Screen Time, PSQI- Pittsburg Sleep Quality Index

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Introduction: Inadequate sleep leads to health problems varying from mental depression to obesity. Raising trends of technology in daily activities have resulted in increased screen time usage. This increased ST can result in dry eyes, physical inactivity, obesity, neurological effects, and improper posture and also has direct effect on the sleep duration and quality. Several studies[1,2,3,4] showed moderate evidence for an association between increased screen time and poor sleep outcomes including delayed bedtimes, shortened total sleep time, sleep-onset-latency and daytime tiredness. To be particular delayed bed time due to screen novelty and light sensitive melanopsin pigment regeneration (blue light effect) that regulates the sleep causes difficulty in initiation of sleep. Lack of proper sleep leads to disruption of internal biological clock.

Material & Methods: After getting permission from the Institutional Ethics Committee for Human Research-PG Research (IECHR-PG) the study was carried out at Post-Graduate Research Laboratory, Department of Physiology, Baroda Medical College, and Vadodara.

Google form based questionnaire was used in this study. The questionnaire consisted of basic information, screen time usage per day (in hours) and "Pittsburg Sleep Quality Index' components. Informed consent was taken before answering the questions. My study population was First year medical students of Govt. medical college, Baroda of age group (17-20 years) and participants with sleep disorders, psychiatric illness were excluded from the study. It was a cross sectional, non-interventional, quantitative study. Convenience sampling method based on a previous survey, the prevalence of smartphone addiction (8.4%), and the sample size was calculated.

Scales Used: The PSQI scale assesses various components of sleep such as subjective sleep quality, duration, latency, sleep efficiency, sleep disturbances, daytime dysfunction and use of medications for sleep.

Each component measures from 0 to 3, and a global score of equal or greater than 5 indicates poor sleep quality.

Statistical Analyses: Median screen time was computed and then two groups PSQI ≥ & < 5 were found. Chi square test was applied for the analysis.

Results: Among the 204 participants, there were 80 males and 124 females (Figure: 1). The mean ± SD of the age was found to be 18.94 (1.08) years.

The mean ± SD duration of screen time came to be 5.3 (2.7) hours with a range from maximum of 15 hours and minimum of 1 hour. Table 1 and 2 shows the age distribution with ST > 5 hours and PSQI ≥ 5.
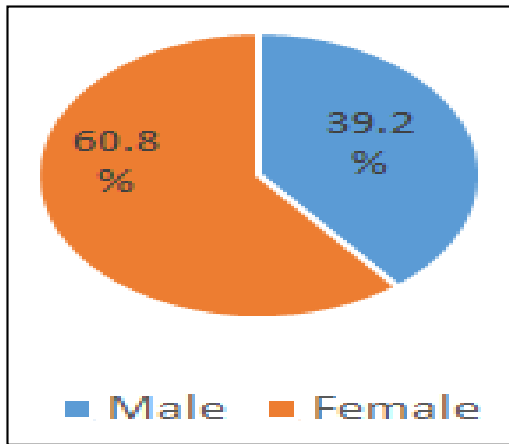
Figure 1: Gender Distribution

Table 1: Age Distribution With St >5 Hrs

Age (Years)	Number Of Individuals With St >5 Hrs
18	34
19	69
20	15
Total	118

Table 2: Age Distribution with PSQI ≥5

Age (Years)	Number Of Individuals With PSQI ≥ 5
18	29
19	69
20	10
Total	108

Table: 3 Gender Wise Distribution Of Screen Time

	St ≤ 5hrs	St > 5hrs	Total	
Female	89	35 (46.1%)	124	P-Value = 0.001
Male	39	41 (53.9%)	80	
Total	128	76	204	

76 individuals had screen time above the 5 hour limit and among those 46.1 % were females and 53.9% were males, and found to be statistically significant (p-value >0.005).

108 individuals had PSQI score of 5 and above, of which 60.2% were females and 39.8% were males, but there was no statistically significant difference (p-value >0.005).

Table: 4 Gender Wise Distribution Of PSQI

	PSQI <5	PSQI ≥5	Total	
Female	59	65 (60.2%)	124	P-Value = 0.853
Male	37	43 (39.8%)	80	
Total	96	108	204	

Table: 5 Screen Time Vs. PSQI

	PSQI <5	PSQI ≥5	TOTAL	
ST ≤ 5HRS	66 (51.6%)	62 (48.4%)	128	P-Value = 0.094
ST > 5HRS	30 (39.5%)	46 (60.5%)	76	

60.5% Individuals with screen time more than 5 hours had poor sleep quality, and 48.4% individuals with screen time of 5 hours or less per day had poor sleep quality, and this difference wasn't found to be statistically significant (p-value >0.005)

Discussion: Among the participants, females pre-dominated the males in numbers and it was done on a selected group were the limitations. The integration of smart phone in daily activities has increased the screen time usage of more than 5 hours per day and its 105 hours per week.

Significant number of participants especially males had ST more than 5 hours. Self-reported ST and sleeping hours not highly reliable with the actual usage of smart phone. Self-assessed PSQI score more than 5 indicative of poor sleep quality. 108 out of 204 participants had poor sleep quality. Direct measurement of ST via application can gives more useful information and actual ST usage. As reduced sleep can affect academic performance, day time sleepiness among adolescents is a serious social issue.

Increased ST not only affects the sleep, reduced physical inactivity, obesity[5] depression[6]. At-home screen-time obtained by self-report has been associated with poor sleep[7,] but a study that used an app to measure smart phone screen-time in a small group of Taiwanese university students

found that participants underestimated their screen-time by approximately 9 hours per week (equivalent to an average of 3.2 minutes/hour)8[4].

Longer average screen-time was associated with shorter sleep duration and worse sleep-efficiency.

Longer average ST during bedtime and the sleeping period were associated with poor sleep quality, decreased sleep efficiency, and longer sleep onset latency.

Total screen-time over 30 days was a median 38.4 hours (IQR 21.4 to 61.3) and average ST over 30 days was a median 3.7 minutes per hour (IQR 2.2 to 5.5).

In my study, 108 individuals had PSQI score of 5 and above, of which 60.2% were females and 39.8% were males, but there was no statistically significant difference (p-value >0.005).

Total 108 individuals had PSQI score of 5 and above, which shows major changes in the sleeping habits (Table: 4).

Screen time and poor sleep, converging both habits into many health issues. In my study, 108 individuals has PSQ1 more than 5 and ST more than 5 (Table: 5), a large number in a small study.

Delayed bed time due to routine usage of smart phones, appears to be distinct, but it's important to remember that they may be interconnected at levels.

Conclusion: This study shows more than half of participants has poor sleep quality and increased ST usage. Though the results came out statistically insignificant we cannot exclude the association without further research.

However, exposure to high screen time may negatively impact sleep. To mentor the amount of ST spend without drawbacks especially sleep.

To encourage sleep friendly screen behaviour. Recommendations for children/ adolescents/ school administration about the screen time usage. Prevention of childhood obesity.

Limitations: The study was done in selected group of participants. Further scope of research on a large scale/different age groups to confirm the findings.

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