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# BEYOND THE SCREEN: EXPLORING ITS IMPACT ON SLEEP AND ANXIETY AMONG SCHOOL-GOING ADOLESCENTS

**Paediatrics**

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|---|---|
| **Ritu Samuel** | Faculty, College of Nursing, Army Hospital (R&R |
| **Anjali** | IV Year B.Sc. (H) Nursing Student, College of Nursing, Army Hospital (R&R) |
| **Jyoti Rana** | IV Year B.Sc. (H) Nursing Student, College of Nursing, Army Hospital (R&R) |
| **Jisha Johnson** | Faculty, College of Nursing, Army Hospital (R&R |
| **Keka Chatterjee** | Principal, College of Nursing, Army Hospital (R&R) |
| **Sreekala P** | Vice Principal, College of Nursing, Army Hospital (R&R) |


## ABSTRACT

Excessive screen time has emerged as a significant public health concern among adolescents, with potential effects on sleep quality and mental health. This study aimed to assess screen time usage and examine its association with sleep quality and anxiety among school-going children in South West Delhi. A quantitative research design was adopted and 300 adolescents aged 13–17 years were selected using systematic random sampling. Data were collected using a semi-structured questionnaire, the Pittsburgh Sleep Quality Index (PSQI) and the Spence Children's Anxiety Scale (SCAS). Descriptive and inferential statistics, including the chi-square test, were used for data analysis. The findings revealed that a majority of participants reported moderate to high screen usage, with smartphones being the most commonly used device. Poor sleep quality was observed in 67% of participants, while 71% exhibited mild anxiety, 26.6% moderate anxiety and 2.3% had severe anxiety. However, no statistically significant association was found between screen time and sleep quality or anxiety levels. A significant association was observed only between perceived screen time and anxiety ($p < 0.05$). The study concludes that although excessive screen time is prevalent, it did not show a direct statistical relationship with sleep quality in this sample. Nonetheless, the high prevalence of poor sleep and anxiety highlights the need for awareness and preventive strategies. The findings emphasize the role of parents, educators and healthcare professionals in promoting healthy screen habits and overall well-being among adolescents.

## KEYWORDS

Screen Time, Sleep Quality, Anxiety, Adolescents, School-Going Children, Digital Exposure, Mental Health

## INTRODUCTION

Children and adolescents are increasingly exposed to digital devices such as smartphones, tablets, laptops and gaming systems, leading to excessive screen time. Although these technologies have educational and recreational benefits, overuse is linked to adverse effects on sleep and mental health. Adolescents require 8–10 hours of sleep daily, but screen exposure beyond recommended limits (less than 2 hours per day) is associated with delayed sleep, reduced duration, and poor sleep quality. Many adolescents exceed 4 hours of daily screen use, which is considered excessive.

In India and globally, screen time among adolescents continues to rise, with studies reporting more than 5–6 hours per day. Excessive screen use has also been associated with anxiety, depression, and behavioural issues. Prolonged exposure, especially before bedtime, disrupts melatonin secretion, leading to sleep deprivation, poor academic performance, obesity and mood disturbances. Overall, excessive digital exposure is a growing public health concern affecting adolescent sleep quality and mental well-being.

### Need of the Study

This study examines the association between screen time, sleep quality and anxiety among school-going children, with findings expected to promote healthier screen habits and improve student well-being.

### Scope of the Study

Healthcare professionals can educate children and parents about the effects of excessive screen time and promote healthy habits such as limited screen use, physical activity, and good sleep hygiene. They can also identify at-risk children and guide families toward healthier routines, while advocating for appropriate screen time guidelines.

### Objectives

1. To assess the screen time profile of school going children.
2. To assess the quality of sleep and level of anxiety among children.
3. To find the association of screen time profile and socio-demographic variables with sleep quality of children.
4. To find the association of screen time profile and socio-demographic variables with anxiety levels among children.

## MATERIALS AND METHODS

The study used a quantitative, non-experimental design in a selected school in South West Delhi among students aged 13–17 years. A total of 300 participants were selected through systematic random sampling from 1200 eligible children, where every 4th student was chosen. Students who were willing and present were included, while those with developmental disorders or on anti-epileptic medication were excluded. Ethical approval and informed consent were obtained, ensuring confidentiality and voluntary participation.

A semi-structured questionnaire was developed and validated by experts from Nursing and Paediatrics for face and content validity. Standardized tools (PSQI and SCAS) with established validity and reliability were used. The tool included socio-demographic variables such as age, gender, family type, parental education and occupation, number of siblings and access to electronic devices, along with sleep quality (PSQI) and anxiety levels (SCAS).

The questionnaire was administered uniformly to all participants to ensure consistency and reduce response bias. Data were organized, entered into Excel, and analysed using descriptive and inferential statistics. Frequency and percentage described socio-demographic variables, while mean and standard deviation summarized scores. The Chi-square test was used to assess associations and statistical significance.

## RESULTS

### Sociodemographic- Variables of Adolescents

Majority respondents were aged 13–14 years (41%), with a nearly equal gender distribution (54% males, 46% females). The majority belonged to nuclear families (67%) with 2–4 members (57%). Most had one working parent (84%) and one sibling (60%). Smartphones were the most commonly used device (48%), followed by multiple device use (32%), while other devices were less frequently used.

### Screen Time Profile

**Table 2 : Screen Time Profile of the Subjects** **n=300**

| Sr. No. | Variables | Frequency (f) | Percentage (%) |
|---|---|---|---|
| 1. | How many hours a day (at a stretch) do you spend on screen? | | |
| | Less than 1 hour | 69 | 23% |
| | 1-2 hours | 109 | 36% |
| | 2-3 hours | 51 | 17% |
| | More than 3 hours | 71 | 24% |

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| | | | |
|---|---|---|---|
| 2. | How do you feel about the amount of screen time you have ? | | |
| | I think I have too much screen time | 91 | 30% |
| | I feel it's just the right amount | 155 | 52% |
| | I wish I had more screen time | 15 | 5% |
| | I wish I could get rid of the screen time | 39 | 13% |
| 3. | What is the main activity you use screen for ? | | |
| | Social media | 64 | 21% |
| | Watching TV or streaming shows / movies | 54<br>44 | 18%<br>15% |
| | Playing video games | 115 | 38% |
| | School work and educational purpose | 23 | 8% |
| | Others | | |
| 4. | Do you use screen before going to bed? | | |
| | Yes, for 30 min or less | 78 | 26% |
| | Yes, > 30 min | 51 | 17% |
| | No, I avoid screen before bed | 101 | 34% |
| | I don't have a set routine for screen use before bed | 70 | 23% |
| 5. | Do you often eat your food in front of a computer/ TV/Phone/Tablet? | | |
| | Yes | 193 | 64% |
| | No | 107 | 36% |
| 6. | Does the idea of spending time without Phone, Laptop, Tablet, TV scares/put you under stress/ makes you anxious? | | |
| | Yes | 83 | 28% |
| | No | 217 | 72% |
| 7. | Do you feel that time spent on screen is decreasing your productivity ? | | |
| | Always | 48 | 16% |
| | Often | 44 | 15% |
| | Sometimes | 147 | 49% |
| | Never | 61 | 20% |
| 8. | Do you feel that screen time affects your physical health ? | | |
| | Yes, it affects regularly | 64 | 21% |
| | Yes, but only occasionally | 103 | 34% |
| | No, I don't experience any discomfort | 123 | 41% |
| | If yes ( Please specify what physical ailments do you experience) | 10 | 3% |
| 9. | Do you feel that screen time affects your mental health or mood ? | | |
| | Yes, it makes me feel more anxious , stressed | 46 | 15% |
| | Yes, it makes me feel more relaxed and happy | 99 | 33% |
| | No, It does not affect my mood | 140 | 47% |
| | Any other affect | 15 | 5% |
| 10. | During your leisure time, which activity do you prefer the most? | | |
| | Engaging in outdoor activities | 105 | 35% |
| | Spending time with family members | 96 | 32% |
| | Spending time on screen | 43 | 14% |
| | Any other | 56 | 19% |

Most adolescents used screens for 1–2 hours (36%), mainly for educational purposes (38%). Over half (52%) considered their screen time appropriate, while 30% felt it was excessive. A majority (64%) reported eating meals while using screens, and 28% felt anxious without screen access. Outdoor activities (35%) and family time (32%) were preferred over screen-based leisure (14%), while most reported minimal or occasional physical and mental health effects.

**Sleep Quality and Level of Anxiety among adolescents**

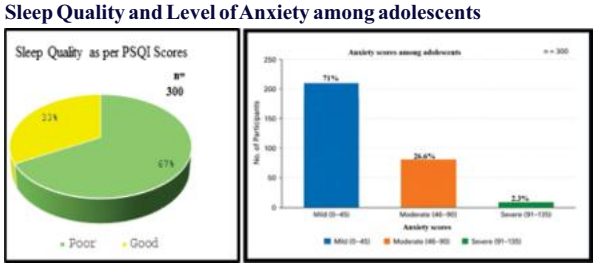


**Fig 1: Distribution of Sleep Quality and Level of Anxiety Among Adolescents**

Most participants (67%) had poor sleep quality, while 33% had good sleep. The mean PSQI score was (6.63±3.1), indicating overall poor to moderate sleep quality among school-going children.

Most participants (71%) had mild anxiety, 26.6% had moderate anxiety, and 2.3% cases of severe anxiety were found. The mean score (38.01±2.59) indicate mild anxiety overall, with moderate variation in scores.

No significant association was found between sleep quality and demographic or screen time variables. Similarly, anxiety levels showed no association with demographic factors.

**Table 2: Association Between Anxiety Scores and Sleep Time Variables n=300**

| Variables | Knowledge | | | Chi-square ($\chi^2$) | p-value |
|---|---|---|---|---|---|
| | Mild | Moderate | Severe | | |
| How do you feel about the amount of screen time you have ? | | | | 12.775 | 0.047 |
| I think I have too much screen time | 56 | 32 | 3 | | |
| I feel it's just the right amount | 117 | 36 | 2 | | |
| I wish I had more screen time | 11 | 3 | 1 | | |
| I wish I could get rid of the screen time | 29 | 9 | 1 | | |

(df= 6)

However, a significant association was observed between perceived screen time and anxiety ( $\chi^2$= 12.775; p = 0.047), while other screen time variables showed no significant relationship with anxiety.

## DISCUSSION

The present study revealed that there is no significant association between screen time and sleep quality and anxiety among school-going children. These findings are consistent with a cross-sectional study conducted by Saat and Hanwai (2024) on 353 secondary school students, which also reported that screen time had a low effect on sleep quality.

Similarly, a cross-sectional study by Leung and Torres (2021) involving 10,907 adolescents aged 13–17 years in the United States found that sleep duration did not mediate the association between screen time and depression or anxiety.

In addition, a study conducted by Santos and Prado (2023) on 1,010 adolescents aged 13–24 years in Brazil reported no association between screen time and sleep parameters among physically active adolescents.

Overall, these findings are congruent with the present study, which also demonstrates no significant association between screen time and sleep quality.

***Strengths-*** Stratified Random Sampling; Use of validated tools
***Limitations-*** Single- institution study

### Implications for Practice and Recommendations

The study shows high levels of poor sleep and anxiety among adolescents, highlighting the need for early prevention. Education on healthy screen use and sleep habits, along with balanced routines and limited screen exposure, is essential. Further research and promotion of healthy lifestyles are needed to improve adolescent well-being.

## CONCLUSION

Excessive screen use in children can negatively affect sleep, emotional wellbeing, social development and may contribute to issues like anxiety, depression, obesity and reduced social skills.

Parents play a key role in controlling screen time by setting limits, avoiding screen use in bedrooms, and modelling healthy habits. Caregivers, educators and healthcare professionals should work together to raise awareness and promote healthier alternatives that support overall child development.

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