Original Research

ASSOCIATION BETWEEN DURATION OF SCREEN TIME AND PSYCHOSOCIAL PROBLEMS AMONG ADOLESCENTS (10–19 YEARS): A CROSS-SECTIONAL STUDY

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ABSTRACT
Background: Over the previous decade, adolescents' use of digital devices has expanded rapidly. Excessive recreational screen time has been associated with emotional, behavioral, and social problems. **Objective:** To ascertain the relationship between the amount of time spent on screens each day and psychological issues in teenagers between the ages of 10 and 19. **Methods:** 400 teenagers chosen by multistage random sampling participated in a cross-sectional survey carried out in a school. Screen time was divided into three categories: less than two hours, two to four hours, and more than four hours per day. The Strengths and Difficulties Questionnaire (SDQ) was used to evaluate psychosocial issues. ANOVA, multivariate logistic regression, and the chi-square test were used to examine the data. **Results:** Thirty-eight percent of interviewees said they used screens for more than four hours per day. Adolescents exposed for more than four hours per day had mean total SDQ scores that were considerably higher (21.4 ± 5.2) than those exposed for less than two hours per day (14.8 ± 4.6) ($p<0.001$). Emotional symptoms (AOR 2.29, 95% CI: 1.45–3.60), behavior issues (AOR 1.91, 95% CI: 1.18–3.08), and peer relationship issues (AOR 2.63, 95% CI: 1.59–4.34) were all independently linked to excessive screen usage. **Conclusion:** Adolescent psychological problems are strongly linked to prolonged screen time. There is an urgent need for preventive measures that emphasize parental supervision and digital hygiene.

Keywords: Adolescents, Screen Time, Psychosocial Problems, Emotional Symptoms, SDQ, Behavioral Health.

INTRODUCTION
Adolescence is a delicate period of development marked by quick changes in the brain and psychology. Adolescent lifestyles around the world have changed significantly in the last ten years due to the widespread use of digital technology [1]. With the exception of academic use, recent surveys show that teenagers use screens for recreational purposes for an average of three to seven hours every day [2]. Excessive screen use may have detrimental effects on mental health outcomes, such as melancholy, anxiety, behavioral issues, and diminished social competence, according to mounting research [3, 4]. Adolescents who used screens for more than three hours a day showed increased levels of internalizing symptoms, according to a large population-based study [5]. A dose-response relationship between digital media consumption and depression symptoms has also been shown by long-term studies [6].

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Social comparison, cyberbullying, sleep disturbance, decreased physical activity, and displacement of face-to-face interaction are some of the mechanisms that underlie these correlations [7, 8]. Compliance with the American Academy of Pediatrics' recommendation to restrict recreational screen use to less than two hours per day is still low [9]. Increasing smartphone accessibility and a lack of parental monitoring may make psychological disorders more likely in emerging nations [10]. Indian research on screen time and psychosocial consequences is very scarce, despite growing international literature. Thus, the goal of the current study is to evaluate the relationship between screen time and psychological issues in teenagers between the ages of 10 and 19.

MATERIALS AND METHODS
This cross-sectional school-based study was carried out in selected urban and semi-urban secondary schools between January and June 2025. The study involved 400 teenagers aged 10 to 19 years. The sample size was determined using a 30% predicted prevalence of psychosocial disorders, with a 95% confidence range and 5% absolute precision, providing a minimum required sample of 323; after accounting for potential non-response, the final

sample size was increased to 400. A multistage random sampling procedure was used to achieve adequate representation by selecting schools and participants in proportion.

Inclusion Criteria

- Adolescents aged 10–19 years
- Enrolled in selected schools
- Provided written assent and parental consent

Exclusion Criteria

- Previously diagnosed psychiatric disorder under treatment
- Chronic neurological illness
- Incomplete or inconsistent questionnaire responses

Data Collection Tools

1. **Structured Proforma:** Socio-demographic details and self-reported daily recreational screen time.
2. **Strengths and Difficulties Questionnaire (SDQ):** Standardized validated tool measuring emotional symptoms, conduct problems, hyperactivity, peer problems, and prosocial behavior.

Screen time classification:

- <2 hours/day
- 2–4 hours/day
- >4 hours/day

Statistical Analysis

The data were analyzed with SPSS version 26. Continuous variables were reported as mean ± SD. Categorical variables were evaluated using the chi-square test. A one-way ANOVA was used to compare the mean SDQ scores. The adjusted odds ratios (AOR) were obtained using multivariate logistic regression. Statistical significance was determined at $p < 0.05$.

Ethical Considerations

Institutional Ethics Committee approval was obtained. Confidentiality and anonymity were maintained.

RESULTS

Table 1: Distribution of Participants According to Screen Time (n=400)

Screen Time	Frequency	Percentage
<2 hours/day	92	23%
2–4 hours/day	156	39%
>4 hours/day	152	38%

Table 2: Mean SDQ Total Difficulty Scores by Screen Time

Screen Time	Mean ± SD
<2 hours/day	14.8 ± 4.6
2–4 hours/day	18.2 ± 4.9
>4 hours/day	21.4 ± 5.2

ANOVA: F=32.4, p<0.001

Table 3: Association between High Screen Time (>4h) and Psychosocial Domains

Domain	Adjusted Odds Ratio (95% CI)	p-value
Emotional Symptoms	2.29 (1.45–3.60)	<0.001
Conduct Problems	1.91 (1.18–3.08)	0.006
Hyperactivity	1.65 (1.01–2.70)	0.04
Peer Problems	2.63 (1.59–4.34)	<0.001

Table 4: Gender Distribution of High Screen Exposure

Gender	>4 hours/day n (%)	χ^2	p-value
Male (n=210)	92 (43.8%)	5.41	0.02
Female (n=190)	60 (31.5%)		

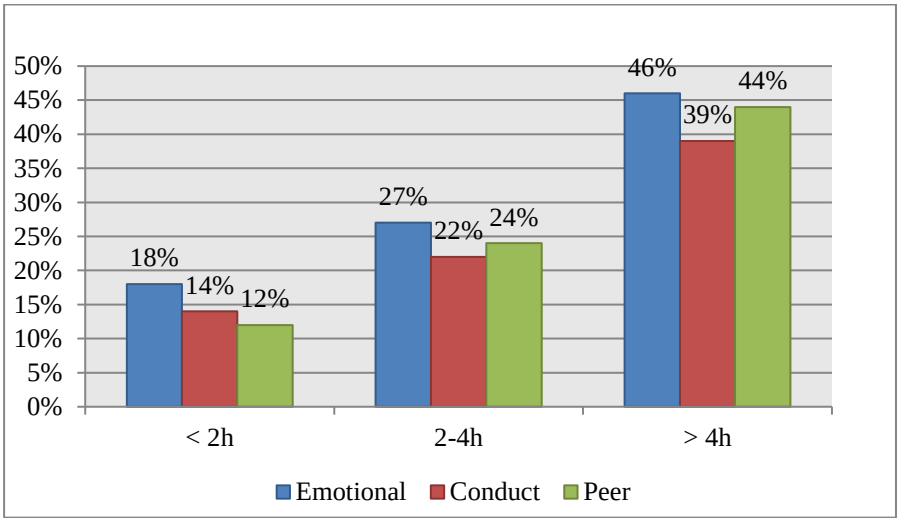

Figure 1: Prevalence of Emotional, Conduct, And Peer-Related Problems across Different Categories of Daily Screen Time Among Adolescents

Figure 1 illustrates a progressive increase in the prevalence of emotional (46%), conduct (39%), and peer-related problems (44%) among adolescents reporting >4 hours/day of screen exposure compared to those with <2 hours/day.

DISCUSSION

The current study found a statistically significant link between prolonged screen use and psychosocial issues in teenagers. A longitudinal investigation found that higher levels of digital media use were associated with increased depressed symptoms [11]. A nationally representative survey found that adolescents who exceeded recommended screen time had a higher risk of anxiety and behavioral difficulties [12]. The dose-response relationship shown in our investigation is consistent with previous epidemiological findings [13,14]. Peer relationship troubles may arise as a result of the displacement of in-person contacts and exposure to cyberbullying [15]. In addition, blue-light exposure and delayed sleep initiation may contribute to emotional instability [16]. The observed gender disparities are consistent with previous findings demonstrating that males spend more time on gaming-related screens [17]. The current study's cross-sectional design limits causal inference, and the use of self-reported screen time may introduce recollection bias. Nonetheless, the intensity and consistency of the relationships support the growing worry about excessive screen exposure in adolescents [18].

CONCLUSION

This study found a robust and statistically significant link between longer daily screen usage and psychosocial difficulties in teenagers aged 10 to 19 years. A definite dose-dependent pattern was detected.

Public health initiatives should include digital hygiene education, parental supervision frameworks, school-based mental health screening, and policy-level restrictions on recreational screen time. Early intervention could significantly minimize long-term psychosocial morbidity in this sensitive age group.

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