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CORRELATION BETWEEN SCREEN TIME AND BEHAVIORAL PROBLEMS AMONG SCHOOL-GOING CHILDREN: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: The widespread use of smartphones, tablets, televisions, and other digital devices has considerably increased screen exposure among children in recent years. Although digital learning and entertainment provide several benefits, excessive screen time has been associated with adverse behavioral and emotional outcomes in children. Increasing behavioral concerns among school-going children have highlighted the need to evaluate the relationship between screen exposure and behavioral health.

Aim: To assess the correlation between screen time and behavioral problems among school-going children.

Materials and Methods: A school-based cross-sectional study was conducted among 250 children aged 6–15 years. Information regarding demographic characteristics, duration of daily screen exposure, and device usage patterns was collected using a structured questionnaire. Behavioral assessment was performed using the Strengths and Difficulties Questionnaire (SDQ). Statistical analysis was carried out using SPSS version 26.0. Chi-square test, Pearson correlation analysis, and logistic regression were applied. A p-value less than 0.05 was considered statistically significant.

Results: Among the study participants, 58.4% reported screen exposure exceeding 2 hours/day. Behavioral difficulties were observed more frequently among children with prolonged screen exposure. Hyperactivity, emotional symptoms, peer-related problems, and conduct disturbances demonstrated a significant positive association with increasing screen exposure duration ($p < 0.001$). Children exposed to screens for more than 4 hours/day showed markedly higher abnormal SDQ scores compared to children with lower exposure.

Conclusion: Excessive screen time is significantly associated with behavioral problems among school-going children. Early parental supervision, controlled recreational screen use, and promotion of outdoor activities may help reduce negative behavioral outcomes associated with prolonged digital exposure.

Keywords: Screen Time, Behavioral Problems, School-Going Children, Hyperactivity, Emotional Symptoms, SDQ, Digital Exposure.

INTRODUCTION

Digital technology has become an inseparable component of modern childhood. Smartphones, televisions, tablets, computers, and online gaming platforms are now routinely used by children for educational, recreational, and social purposes. Over the past decade, the accessibility of digital media has increased substantially, resulting in prolonged daily screen exposure among school-going children.[1] Although moderate use of digital devices may support learning and communication, excessive screen exposure has emerged as an important public health concern.

Several studies have demonstrated that prolonged screen time may adversely influence psychological well-being, sleep quality, attention span, academic performance, and emotional regulation in children.[2] Increased engagement with digital devices may reduce opportunities for physical activity, family interaction, and peer communication, thereby affecting behavioral development.[3] Behavioral problems during childhood can manifest as hyperactivity, aggression, emotional instability, conduct disturbances, attention deficits, and poor social interaction. Such behavioral disturbances may interfere with academic achievement and psychosocial development if not recognized early.[4] Recent evidence has shown that children with higher screen exposure are more likely to develop emotional and behavioral difficulties compared to children with limited digital media use.[5] The World Health Organization and various pediatric associations



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recommend restricting recreational screen exposure among children because excessive digital engagement may negatively affect cognitive and emotional health.[6] However, despite increasing use of digital devices among Indian children, there remains limited regional data evaluating the relationship between screen time and behavioral problems in school-aged children. Therefore, the present study was undertaken to assess the correlation between screen time and behavioral problems among school-going children.

MATERIALS AND METHODS

This cross-sectional observational study was conducted among school-going children aged 6–15 years in selected urban schools over a period of six months after obtaining institutional ethical approval. A total of 250 participants were included in the study using a convenience sampling technique for participant recruitment.

Inclusion Criteria

- Children aged 6–15 years
- School-going children regularly using digital devices
- Participants whose parents or guardians provided informed consent

Exclusion Criteria

- Children with previously diagnosed psychiatric illness
- Children with neurological or developmental disorders
- Children receiving psychiatric or behavioral therapy

- Participants with incomplete questionnaire responses

Data Collection Procedure

Data collection was performed using a pre-designed and pre-validated questionnaire. Information regarding age, gender, socioeconomic background, type of digital device used, and average daily screen time was recorded.

Behavioral assessment was conducted using the Strengths and Difficulties Questionnaire (SDQ), which evaluates:

- Emotional symptoms
- Conduct problems
- Hyperactivity/inattention
- Peer relationship problems
- Prosocial behavior

Parents assisted younger children during questionnaire completion.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using SPSS software version 26.0. Quantitative variables were expressed as mean $\pm$ standard deviation, whereas qualitative variables were presented as frequencies and percentages. The Chi-square test was used to assess the association between screen time categories and behavioral problems. Pearson correlation analysis was applied to evaluate the relationship between duration of screen exposure and SDQ behavioral scores. Logistic regression analysis was performed to identify predictors of behavioral abnormalities. A p-value less than 0.05 were considered statistically significant.

RESULTS

Table 1: Demographic Profile of Study Participants

Variable	Frequency (n=250)	Percentage
Age 6–10 years	112	44.8%
Age 11–15 years	138	55.2%
Male	136	54.4%
Female	114	45.6%
Urban residence	198	79.2%
Rural residence	52	20.8%

The majority of participants belonged to the 11–15 years age group. Male children constituted a slightly higher proportion of the study population. (Table 1)

Table 2: Distribution of Participants According to Daily Screen Time

Daily Screen Time	Frequency	Percentage
<2 hours/day	104	41.6%
2–4 hours/day	92	36.8%
>4 hours/day	54	21.6%

More than half of the participants reported daily screen exposure exceeding the recommended duration of two hours. (Table 2)

Table 3: Association between Screen Time and Behavioral Problems

Behavioral Problems	<2 Hrs/Day	2–4 Hrs/Day	>4 Hrs/Day	P-Value
Hyperactivity	18	34	42	<0.001

Emotional symptoms	16	28	37	<0.001
Conduct problems	11	21	29	0.002
Peer problems	10	24	31	0.001

Behavioral disturbances increased progressively with increasing screen exposure. Hyperactivity and

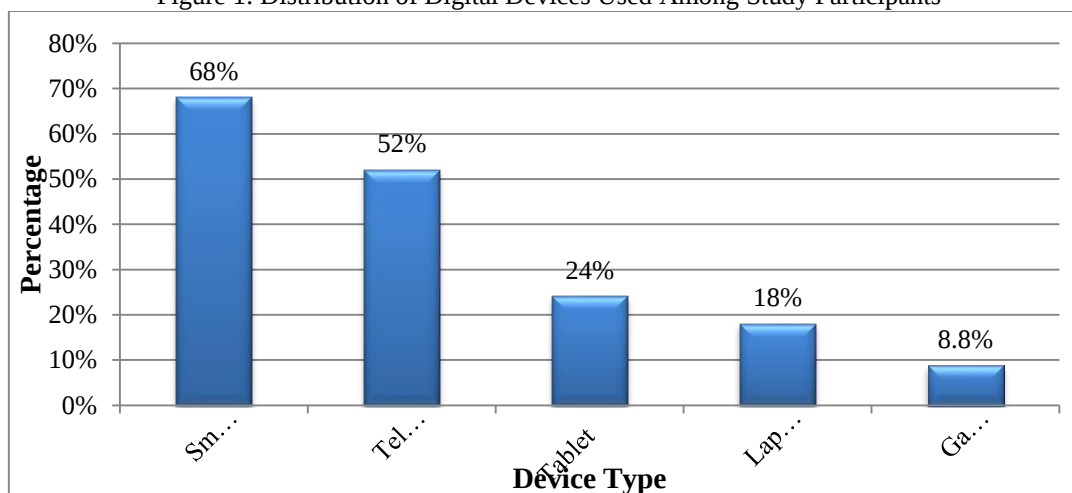
emotional symptoms showed the strongest association with prolonged screen time. (Table 3)

Table 4: Correlation between Screen Time and SDQ Behavioral Scores

Variable	Correlation Coefficient (R)	P-Value
Hyperactivity score	0.61	<0.001
Emotional symptoms score	0.54	<0.001
Conduct problems score	0.49	0.002
Peer problems score	0.46	0.003

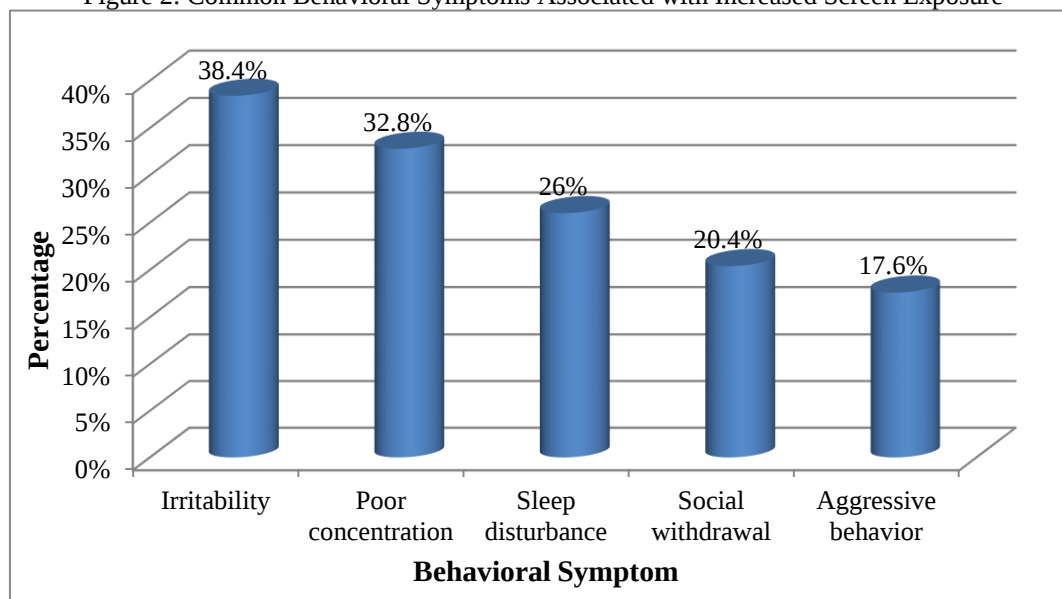
A statistically significant positive correlation was observed between prolonged screen exposure and abnormal behavioral scores. (Table 4)

Figure 1: Distribution of Digital Devices Used Among Study Participants



Smartphones were the most commonly used digital devices among school-going children, followed by television usage. (Figure 1)

Figure 2: Common Behavioral Symptoms Associated with Increased Screen Exposure



Irritability and poor concentration were the most frequently observed behavioral symptoms among children with prolonged screen exposure. (Figure 2)

DISCUSSION

The present study revealed a clear relationship between prolonged screen exposure and behavioral problems among school-going children. Children with prolonged daily screen exposure were more likely to develop behavioral disturbances. Hyperactivity, emotional symptoms, and peer-related difficulties were commonly observed among these participants. These findings are consistent with recent pediatric behavioral studies that have highlighted the negative psychological impact of excessive digital media exposure.[7] In the current study, hyperactivity showed the strongest positive correlation with screen time duration. Similar observations were reported by previous investigators who found that excessive exposure to digital media may impair attention regulation and increase impulsive behavior among children.[8] Constant stimulation from video content, online gaming, and rapid media transitions may contribute to reduced attention span and increased behavioral restlessness. The study also observed a higher prevalence of emotional symptoms among children with prolonged screen exposure. Emotional instability, irritability, mood fluctuations, and anxiety-related behaviors were significantly more common among children spending more than four hours daily on digital devices. Comparable findings have been reported in recent literature evaluating the psychological effects of excessive smartphone and internet use in children.[9] The increasing accessibility of smartphones and internet services among children may be contributing to rising behavioral concerns in recent years. Another important observation in the present study was the association between increased screen time and peer relationship problems. Children spending excessive time on electronic devices may engage less frequently in outdoor activities and direct social interaction, which can adversely affect interpersonal communication skills and emotional bonding.[10] Furthermore, prolonged sedentary behavior associated with excessive screen exposure may indirectly contribute to poor sleep quality, reduced physical activity, and impaired psychosocial development. These factors together may further aggravate behavioral disturbances in children.[11] The findings of the present study emphasize the importance of parental supervision, healthy screen-use habits, and promotion of recreational outdoor activities. Schools and healthcare professionals should actively educate parents regarding balanced digital media use and early recognition of behavioral changes associated with excessive screen exposure.

CONCLUSION

The present study identified a strong correlation between prolonged screen time and behavioral problems among school-going children. Increased screen exposure was linked with higher rates of hyperactivity, emotional symptoms, conduct disturbances, and peer-related difficulties. Appropriate parental supervision, balanced screen use, and encouragement of outdoor activities may help minimize adverse behavioral outcomes in children.

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