Volume 11, Issue 3, March – 2026 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1912

The Impact of Screentime on Children Aged 1-15 Years Leading to ADHD Behaviour: A Survey-Based Study

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Publication Date: 2026/04/10

Abstract: A high raising concern seen in children using gadgets in the modern world leading to adverse children behaviour and cognitive behaviour. In this present study the correlation between the high screen time and behavioural pattern of the children in age group between 1 to 15 were studied. The survey was done using a questionnaire mode where confidentiality was maintained among parents of the children (participants). In the result a high abnormal behavioural pattern was observed in children. The study was done using the descriptive statistical analysis. A further study must be done to understand the behavioural pattern and child psychology with high sample numbers.

Keywords: *Attention Deficit Hyperactivity Disorder (ADHD), Attention Difficulties, Emotional Regulation, Irritability, Sleep Difficulties.*

How to Cite: Sana Mohsin; Dr. Shivam Bhartiya (2026) The Impact of Screentime on Children Aged 1-15 Years Leading to ADHD Behaviour: A Survey-Based Study. *International Journal of Innovative Science and Research Technology*, 11(3), 3817-3822. https://doi.org/10.38124/ijisrt/26mar1912

I. INTRODUCTION

These days, digital media plays a crucial role in our daily lives. Children are exposed to screen-based activities from an early age due to the growing accessibility and availability of smartphones, tablets, gaming consoles, and streaming platforms. According to "Physical activity and exercise guidelines for all Australians," children under the age of two should not use screens, children between the ages of two and five should not use screens for more than an hour each day, and children and young people between the ages of five and seventeen should not use screens for more than two hours each day for recreational purposes. Despite the educational and recreational advantages of digital technology, worries about the possible behavioral and psychological effects of excessive screen time have surfaced. Long-term screen time exposure raises a number of issues for kids, but one significant worry is that it may be linked to symptoms of attention deficit hyperactivity disorder. One of the most prevalent mental illnesses impacting kids today is attention-deficit/hyperactivity disorder (ADHD). ADHD symptoms include impulsivity, which includes being fidgety, hyperactivity, and inattention, which is the inability to focus on a single task. According to recent studies, excessive screen time, especially when it's fast-paced or extremely Children's attention processing and behavioral regulation may be impacted by stimulating digital media. According to some research, kids who spend more time on screens may become more impulsive, have trouble focusing on a single task, and exhibit behavioral dysregulation. Children may find it more challenging to participate in slower-paced activities like reading, homework, or other duties due to the bright colours, fast-paced material, and rapid stimulation found in online content. Furthermore, children's emotional and social development may be impacted by excessive screen time. Children's cognitive and emotional development may be impacted by sleep disturbances caused by screen time near bedtime. The connection between screen time and ADHD-like behavior is still complicated and influenced by a number of variables, including age, material type, parental monitoring, and unique kid features, despite increased concern. Thus, the current study intends to investigate the connection between children's screen time and parent-reported behavioral tendencies. The main goal of this study was to ascertain the relationship between children between the ages of 1 and 15 who use screens for extended periods of time and behavioral changes that may resemble signs of ADHD. The study also sought to determine how parents perceived their children's behavior following extended screen time and what techniques they may use to control screen time.

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II. REVIEW OF LITERATURE

The purpose of the study is to investigate how children's exposure to screens affects ADHD. In this regard, a review of related papers has been examined. Since the late 1970s, researchers have examined the connection between children's and adolescents' usage of screens and behaviors associated with ADHD. The foundation for an increasing body of research that has grown dramatically over the last ten years was established by early studies. Research indicates a link between screen time and issues with focus, impulsivity, and organization all signs of ADHD in school-age children and teenagers.

In the long-term study, Megan Gath (2025) discovered that above-average levels of peer interaction issues at age 4.5 and below-average levels of linguistic and educational skills at age 2 were linked to more than 1.5 hours of daily screen time. They discovered that peer relationship issues at age 8 were more common in those who spent more than 2.5 hours a day in front of a screen. The findings demonstrate that early screen time has detrimental implications on subsequent verbal, social, and academic development. When it comes to early childhood screen availability and use, this knowledge is crucial for public health, policy, and parental practices.

Zhou's (2023) study, which examined the connection between screen time and symptoms of Attention-Deficit/Hyperactivity Disorder in preschoolers, brought attention to the growing public health concern over excessive screen time. The Conners Child Behavior Scale was used to measure ADHD symptoms, and a questionnaire was used to interview 2,452 participants. The data were analyzed by gender separately to take into consideration possible variations in ADHD symptoms between boys and girls. The relationship between screen time and ADHD symptoms was investigated using a logistic regression model, and a sensitivity analysis was carried out to account for variables like obesity levels and multichild household structure. The results showed that screen time and ADHD symptoms in preschoolers were significantly correlated (OR = 1.826, 95% CI: 1.032–3.232). Nevertheless, the association was no longer statistically significant when the data were stratified by gender. The study also discovered that youngsters from homes with several children had a correlation between screen time and indications of ADHD. On the other hand, the relationship between screen time and symptoms of ADHD was no longer statistically significant when overweight and obese children were removed from the research. Overall, the study emphasized that preschoolers' screen usage needs to be carefully monitored because extended exposure may be connected to behavioral issues like indications of ADHD. However, the authors pointed out that before policymakers can be given firm recommendations on screen time guidelines for young children, more robust and precise evidence is required.

Excessive screen usage is positively correlated with behavioral and developmental problems, such as ADHD, conduct issues, and speech disorders, in children aged 0–17 (Qu et al., 2023). The effects are more pronounced in preschoolers. According to their research, worsening ADHD symptoms are correlated with increased daily screen time, especially above 1-2 hours.

A study by Shih (2023) emphasized the impact of early childhood screen usage on the occurrence of Attention-Deficit/Hyperactivity Disorder in children. The results point to a possible intergenerational effect, suggesting that parents' media habits as well as their own screen time may influence children's likelihood of acquiring ADHD-like behaviors. This study highlights the need for more research to examine familial and environmental impacts on ADHD risk and adds a significant dimension to our understanding of the association between screen usage and ADHD.

The association between screen usage and children's risk of Attention-Deficit/Hyperactivity Disorder was investigated in a study by Jian-Bo Wu (2022). The results showed that more screen usage was linked to an increased risk of ADHD, especially when kids watched instructional and entertaining films. Interactive videos, on the other hand, did not significantly increase the risk of ADHD. The study also revealed that 6.7% of participants spent more than 60 minutes a day in front of a screen, with educational films being the most popular category (63.4%). Furthermore, 16.5% of the participants were found to be at risk for ADHD, indicating a possible connection between specific screen content types and the chance of experiencing symptoms associated with ADHD.

Vishwapriya et al.'s (2021) study looked at how preschoolers with attention-deficit/hyperactivity disorder used screens. With a median daily screen usage of 140 minutes, the study discovered that 80.4% of preschoolers with ADHD surpassed the recommended daily screen exposure limits. The results also showed a favorable relationship between increased screen usage and both higher levels of parental stress and more severe ADHD symptoms. Based on these results, the study emphasized the significance of early interventions to help reduce excessive screen time among children with ADHD. These interventions include structured parent training, establishing consistent screen time limits, and promoting alternative activities like play and physical exercise.

The scope and methodology of the meta-analyses conducted by Ferguson and Nikkelen et al. (2018) are different. Ferguson's analysis was restricted to violent and nonviolent video games. Nikkelen et al., on the other hand, included a wider range of screen media, including 17 studies on video games and 38 on television. Ferguson employed these background factors as statistical controls, such as age and sex. Conversely, Nikkelen et al. identified group-specific susceptibilities by treating these variables as moderators. They discovered that boys are more influential than girls.

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III. METHODOLOGY

A. Aim

The aim of the present study to understand and examine the behavioural pattern in children aged 1-to-15-year age group with high screen time and with different content consumption that might lead to ADHD.

B. Objectives

- To find out and determine the average daily screen time among children age 1 to 15 year.
- To find out the correlation of total screen time duration and the level of the ADHD symptoms among children aged 1 – 15 years.
- To find out how different types of screen activities (e.g., television viewing, video gaming, educational apps, social media use) impact differently with the ADHD symptoms.
- To find out whether excessive exposure of screen time leads to higher levels of attention difficulties and behavioural dysregulations.

C. Sample Design and Size

The study was conducted which included sample of 50 participants (parents of the children 1-15 years) The source to get the survey was based on questionaries based on the questions regarding the time, type of content consumption etc. The answer was divided based on the never, rarely, sometimes, often, always etc. The behaviour pattern of the children like irritation restlessness and emotion outburst observed by the parents and answered in the questionaries.

➢ *Inclusion Criteria:*

- Parents or primary caregivers of children aged 1–15 years.
- Willingness to participate and provide informed consent.
- Children who have regular exposure to screen media (television, smartphones, tablets, computers, or gaming devices).

➢ *Exclusion Criteria:*

- Parents of children with diagnosed severe neurological or psychiatric disorders that could confound results (e.g., autism spectrum disorder, severe intellectual disability).
- Children who do not have any exposure to screen media.
- Parents unwilling or unable to complete the survey
- Parents of children not among the age range 1-15 years

D. Ethical Considerations

Prior to the participation of the participants consent of the parents of children of age group 1- 15 years were taken through written confirmation and confidentiality was kept and freedom to leave was given to parents at any time they feel like during the survey was given. The name details of the participants were kept anonymous and confidential.

E. Statistical Analysis

The records /data from the questionnaire were assessed with descriptive statistical techniques. The survey data was summarized using frequency distributions and percentages whereas the correlation analysis was done to understand the relation of the children's screen usage and behavioural pattern.

IV. RESULTS

Table 1 Weekday Screen Time

Screen Time	Frequency	Percentage
Less than 1 hour	5	23.80%
1–2 hours	7	33.30%
3–4 hours	7	33.30%
More than 4 hours	2	9.50%
Total	**21**	**100%**

Table 2 Weekend Screen Time

Screen Time	Frequency	Percentage
Less than 1 hour	3	14.30%
1–2 hours	6	28.60%
3–4 hours	7	33.30%
More than 4 hours	5	23.80%
Total	**21**	**100%**

Table 1 and Table 2 demonstrates that there is a discernible difference between children's screen time on weekends and throughout the week. In contrast to weekdays, when 66.6% of children spent 1-4 hours on screens and a smaller fraction exceeded 4 hours of daily screen exposure (9.5%), the results indicate that most children's screen time rose on weekends, with almost 57% of children spending three hours or more on screens. This implies that kids spend more time on screens on the weekends, probably because they have more free time and less obligations related to school or daily life. On the other hand, most individuals had comparatively less screen time during the week.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1912

Table 3 Types of Screen Activity

Activity	Frequency	Percentage
Video games	6	28.60%
Streaming shows/movies	4	19.00%
Social media	3	14.30%
Educational apps/videos	6	28.60%
Homework/school tasks	2	9.50%
Total	**21**	**100%**

Table 3 According to the results, the most contents watched among students were educational apps and videogames (28.6%) followed by social media use, streaming media and homework related activities. Many parents mentioned that kids occasionally had trouble focusing on screen tasks like reading or homework similarly many parents observed high screen time causes fidgety and restlessness in the children.

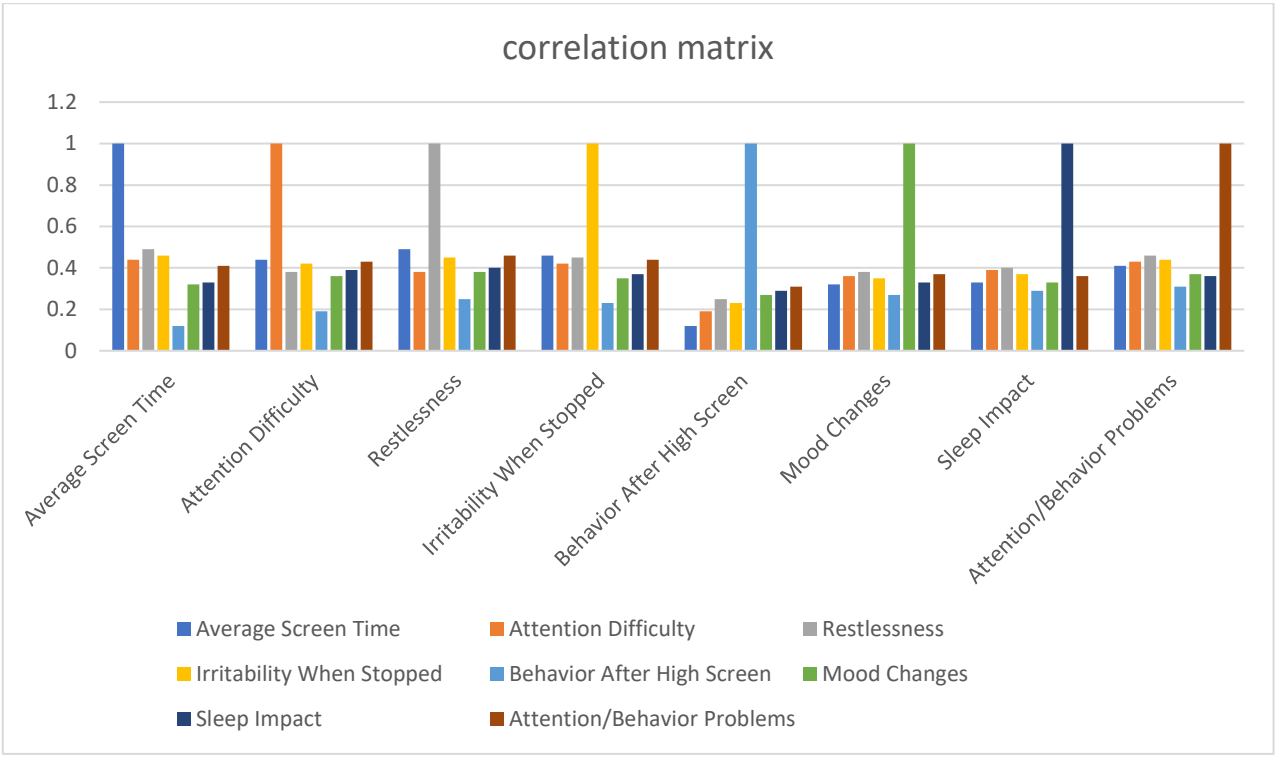

Fig 1 Correlational Matrix

Figure 1 Shows the relation between childrens average screen usage and bahvioural marks link to ADHD in children. The strongest correaltions are seen between attention difficulty, restlessness, irritability, and attention/behavior problesms, indication these behaviors tend to increase with higher screen time. The correlations are moderate (~0.4 to 0.5), suggesting a positive association but not necessarily causation.

V. DISCUSSION

The present study was done to understand the impact of the screen usage and behavioural pattern that is linked with the ADHD in children ages 1 to 15 years.

The symptoms mostly seen are the emotional dysregulation, restlessness, impatience and trouble maintaining concentration among children aged 1 to 15 years. So, in result also the children showed behavioural pattern change as similar to ADHD signs.

In result is similar as a study done by Jennifer Peterson and Angeline S. Lillard in year 2011 who mentioned in their study that children / preschoolers who watched fast paced cartoon have lower concentration and able to focus. This behaviour is basically seen when children switch from fast paced visual stimulation for continuous focus. The reason behind this behavioural pattern change is a children tolerance for slower activities needs continuous attention and self-control and which is disturbed by the as that consume fast paced contents. Another important problem seen in the current investigation was sleep disturbance. the main reason behind this poor sleep cycles and disturbance is because of screen time screen time before sleep / bedtime. So, the emotional control in children is disturbed that eventually damage the general wellbeing of the child. Though some result also showed detrimental effects on the child. The

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1912

supervised screen time as well as educational apps seemed to be linked to less behavioural issues. However, the ADHD Behaviour in children is because of parenting practices, the kind of contents they watch and unique qualities of each child as not all the children showed detrimental behavioural effects. This is another crucial finding from the study and as no discernible behaviour effects are seen in children with restricted screen usage. In conclusion children's behaviour is most importantly influenced by the type, length and content of the screen time.

VI. CONCLUSION

The present study was done to investigate the correlation of the screen time with children behavioural pattern (linked with ADHD). The result in the children aged 1 -15 years showed that the high screen time in children linked with emotional shifted irritation and focus problems. Therefore, the healthy development of children in society requires balances screen use, parental monitoring and set screen time. With some of the limitations in the study further understanding of the study needs more studies are need to be done on larger sample sizes and longitudinal designs are advised.

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