

# Parental Play and Screen Time in Children with Autism Spectrum Disorder (ASD): A Comparative Study in the Indian Context

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## Abstract

**Background :** In recent years, a noticeable decline in parental play has coincided with a significant rise in screen exposure among young children. These evolving trends may have profound implications for social and communication development, particularly in children with Autism Spectrum Disorder (ASD).

**Objective:** To assess the impact of screen time and parental play on children diagnosed with autism spectrum disorder, and to compare these factors with typically developing children.

**Methodology:** This comparative cross-sectional study involved a sample of 70 children aged 2 to 8 years. Thirty- five children diagnosed with ASD, according to the DSM-5 (Diagnostic and Statistical Manual) criteria and attending the Postgraduate Department of Pediatrics, ASCOMS & Hospital were included and 35 children in the same age group without autism were taken as controls. Data was collected from the primary caregivers of both the groups and was analyzed using appropriate statistical tests and  $p < 0.05$  was considered statistically significant.

**Results:** Children with ASD had significantly higher screen time and lower frequency of parental play compared to typically developing peers ( $p = 0.001$ ). Only 14.29% of ASD parents reported daily play, versus 40% in the control group. Screen exposure was notably higher in the ASD group, with none reporting zero screen time. A significant negative correlation was found between screen time and parental play in the ASD group ( $r = -0.561$ ,  $p = 0.001$ ). Socio-demographic factors showed no significant influence ( $p > 0.05$ ).

**Conclusion:** The study highlights a significant association between increased screen time and reduced parental play in children with ASD. These findings underscore the need for greater awareness and interventions to promote parent-child interaction, increase human engagement and regulate screen exposure in this population.

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## Keywords:

- Autism Spectrum Disorder
- Human engagement
- Screen Time
- Parental Play

## Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by persistent challenges in social communication and interaction, coupled with restricted, repetitive behaviors. According to the International Classification of Diseases (ICD-11), ASD involves early-onset impairments in reciprocal social interaction and communication, along with a range of atypical, inflexible behaviors, interests, or activities, relative to expected developmental and cultural norms <sup>[1]</sup>. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) similarly defines ASD by two core domains: (a) deficits in social-emotional reciprocity, nonverbal communicative behaviors, and relationships, and (b) restricted or repetitive patterns of behavior, interests, or activities <sup>[2]</sup>. In recent years, there has been a noticeable rise in the reported cases of autism spectrum disorder across the globe, with India being no exception. According to various epidemiological studies and clinical observations, the prevalence of autism in India has seen a marked increase, likely due to improved awareness, better diagnostic tools, and changing environmental and societal factors. Despite this upward trend, autism in India remains an under-researched and often misunderstood condition. Social stigma, limited access to specialized healthcare, and a lack of comprehensive national data continue to hinder early diagnosis and effective intervention. Epidemiological data in India suggest that ASD prevalence ranges between approximately 0.1% and 1.4% <sup>[3]</sup>. Research suggests that autism may be caused by a combination of genetic and environmental factors and various other factors such as viral infections, medicines, complications during pregnancy or air pollutants. Researchers are exploring about the impact of screen time, parental play and family type on ASD.

Screen time refers to the amount of time an individual spends using devices with screens such as smartphones, tablets, computers, televisions, and gaming. The global growth of electronic media usage among children has caused concerns regarding screen time impact on child development. In India also, rising screen exposure among very young children has emerged as a pressing public health concern. A study conducted in Tamil Nadu, India reported a mean screen time of 2.39 hours per day, with 73% of children under five exceeding recommended limits, and excessive usage strongly

linked to developmental delays, particularly in language and communication domains <sup>[4]</sup>. Clinicians have raised red flags as they have noted an increasing number of preschoolers showing symptoms resembling “virtual autism spectrum disorder” (VASD) attributing this trend to screen use of 4-6 hours daily, especially when introduced before six months of age. Many studies suggest that screens have a major impact on children’s neurodevelopment and may increase their risk of developing ASD <sup>[5]</sup>.

Parental play is defined as interactive, reciprocal play sessions between caregivers and their children and is a cornerstone of healthy development, especially in children with ASD. This dynamic interplay fosters joint attention, language acquisition, socio-emotional bonding, and cognitive growth <sup>[6]</sup>. A comparative cross-sectional study at a government mental-health clinic in Visakhapatnam revealed that children with ASD averaged over two hours of daily screen exposure and engaged in active parent-child play fewer than twice per week while typically developing peers received daily play and minimal screen time <sup>[7]</sup>. In recent decades, India has witnessed significant socio-cultural shifts, including a transition from joint to nuclear family structures, increased workforce participation among both parents, rapid urbanization, and a declining presence of extended family members such as grandparents. These changes, coupled with the widespread digitalization of everyday life, have profoundly altered traditional caregiving dynamics. As parental availability decreases and screen-based entertainment becomes more common, opportunities for meaningful play interactions between parents and children are often diminished, especially among children with developmental conditions like ASD.

## Aim and Objectives :

1. To assess the impact of screen time and parental play on children diagnosed with Autism Spectrum Disorder (ASD) and to compare these factors with typically developing children.
2. To find the association if any, between screen time and parental play in children with ASD.

## Materials And Methods :

This research was designed as a comparative cross-sectional study conducted among Indian children

after getting approval from the Institutional Independent Ethical Committee with reference no. ASCOMS/IEC/2024/Meeting-II/FM/24 dated 18/05/24, in the Post-graduate Department of Pediatrics from 01/10/2024 to 31/05/2025, at Acharya Shri Chander College of Medical Sciences and Hospital (ASCOMS & H) in Jammu & Kashmir, India. This comparative cross-sectional study included 70 children aged 2–8 years. The case group comprised 35 children with a prior diagnosis of ASD or newly diagnosed in the outpatient department (OPD) based on DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) criteria. The control group included 35 typically developing children visiting the OPD for reasons unrelated to ASD. Inclusion and exclusion criteria were applied to both groups to ensure appropriate participant selection. Data were collected from the primary caregivers of both groups using a structured questionnaire. Written informed consent was obtained from the parents or legal guardians of all participating children prior to inclusion in the study.

### Inclusion Criteria :

- Children aged 2 to 8 years.
- For the cases group: Children diagnosed with autism spectrum disorder as per the DSM-5 (Diagnostic and Statistical Manual of Mental

Disorders, Fifth Edition) criteria, with no co-morbid neurodevelopmental disorders.

- For the control group: Children without any clinical signs or diagnosis of neurodevelopmental disorders, as verified by the treating pediatrician or psychiatrist, attending the Pediatrics or Psychiatry Outpatient Departments of ASCOMS & H.

### Exclusion Criteria

- Both groups: Children with co-morbid neurological or sensory impairments (e.g., epilepsy, visual or hearing deficits).
- Both groups: Children whose parents or guardians did not provide consent.

**Statistical analysis** was performed by using IBM SPSS 21, descriptive data was expressed in terms of percentages and proportions, while continuous data was expressed in terms of mean and standard deviation and was compared with the help of appropriate statistical tests (chi-square & t-test). Pearson correlation coefficient was calculated to find the correlation between screen time and parental play time in children with ASD. P-value less than 0.05 was considered as statistically significant otherwise non-significant.

## RESULTS

**Table 1.** Comparison of socio demographic profile of children with ASD and without ASD

Socio demographic	ASD (n=35)		Control (n=35)		p-value
Mean age of children ±SD	3.45 ± 1.23		3.81 ± 1.38		0.253 (N.S)
<b>Gender</b>					
Boy	24	68.57	25	71.43	0.794 (N.S)
Girl	11	31.43	10	28.57	
<b>Parental status (main caregiver)</b>					
Father	12	34.29	08	22.86	0.289 (N.S)
Mother	23	65.71	27	77.14	
<b>Education status of parents</b>					
Post-graduation	8	22.86	11	31.43	0.722 (N.S)
Graduation	17	48.57	15	42.86	
High school	10	28.57	09	25.71	

<b>Economic status of parents</b>					
Lower class	09	25.71	8	22.86	0.932 (N.S)
Lower-middle class	13	37.14	11	31.43	
Middle class	06	17.14	06	17.14	
Upper-middle class	06	17.14	08	22.86	
Upper class	01	2.86	02	5.71	
<b>Residence</b>					
Rural	17	48.57	15	42.86	0.631(N.S)
Urban	18	51.43	20	57.14	

N.S indicates statistically non-significant

**Table 1** shows the comparison of socio demographic profile of children with ASD and without ASD. Among the thirty-five samples of ASD children (cases) aged 2-8 years, 24 were male, and 11 were female. Among the normal (control) children aged 2-8 years, 25 were male, and 10 were female. In both groups, the mother was the primary caregiver. In our study 22.86% parents of ASD children were post graduates whereas 31.43% parents of neurotypical children were post graduates. In both groups, majority of parents had completed their graduation while 28.57 % and 25.71% parents of children with and without ASD had studied till high

school. In both the cases and controls, majority of the families belonged to lower middle-income socioeconomic status with 37.14% in the ASD group and 31.43% in non- ASD group respectively. In cases, only 2.86% families belonged to the upper class whereas in the control group 5.71% families were from upper class. About 51.43% families of ASD children belonged to urban area while 57.14% families of typically developing (neurotypical) children belonged to urban areas. The influence of socioeconomic variables on the study population was insignificant in the present study  $p > 0.05$ .

**Table 2.** Comparison of Parental play of children with ASD and without ASD

Parental play of children	ASD (n=35)		Control (n=35)	
	Frequency	Percentage	Frequency	Percentage
Never	0	0	0	0
Less than once a week	14	40	02	5.71
One or two times a week	09	25.71	03	8.57
Several times a week	07	20	16	45.71
Once or twice a day	04	11.43	10	28.57
Several time a day	01	2.86	04	11.43
p-value	0.001*			

\* indicates statistically highly significant

**Table 2** shows comparison of the frequency of parental play between children with autism spectrum disorder (ASD) and those without ASD. Among the parents of children with ASD (n=35), 40% reported playing with their child less than once a week, whereas only 5.71% of parents in the control group (n=35) reported the same. In contrast, more frequent play interactions (i.e.,

once or more per day) were reported by 40% of the parents in control group compared to only 14.29% of parents in the ASD group. The difference in play frequency between the two groups was statistically significant ( $p = 0.001$ ), indicating that **parents of children with ASD engage in play less frequently than parents of typically developing children.**

**Table 3.** Comparison of screen time of children with ASD and without ASD

Screen time of children	ASD (n=35)		Control (n=35)	
	Frequency	Percentage	Frequency	Percentage
Never	0	0	05	14.29
Rarely	09	25.71	16	45.71
Seldom	08	22.86	08	22.86
Sometimes	10	28.57	04	11.43
Often	18	51.43	02	5.71
p-value	0.001*			

\* indicates statistically highly significant

**Table 3** shows comparison of screen time of children with ASD and without ASD. A significant difference was observed in the screen time exposure between children with autism spectrum disorder (ASD) and those without ASD. Among children with ASD (n = 35), a larger proportion were reported to use screens frequently, with 28.57% using screens “sometimes” and 51.43% “often.” In contrast, only 11.43% and 5.71% of children in the control group (n = 35) fell

into these respective categories. Conversely, 14.29% of typically developing children reportedly never used screens, while none of the children with ASD were reported to have zero screen exposure. The observed difference in screen time distribution between the two groups was statistically significant ( $p = 0.001$ ), indicating that **children with ASD tend to have higher screen time compared to their typically developing peers.**

**Table 4.** Correlation coefficient between screen time and parental play in children with ASD (n=35)

Correlation	Correlation coefficient 'r'	p-value
Screen time of ASD children	r= -0.561	0.001*
Parental play		

\* indicates statistically highly significant

In **Table 4** Pearson correlation analysis was conducted to examine the relationship between screen time and parental play among children with autism spectrum disorder (ASD). The results revealed a statistically significant **negative correlation** between the two variables ( $r = -0.561$ ,  $p = 0.001$ ), indicating that **increased screen time in children with ASD was associated with decreased frequency of parental play.**

## DISCUSSION :

This study aimed to compare the socio-demographic profiles, parental play frequency, and screen time exposure between children with autism spectrum disorder (ASD) and typically developing children, and to examine the correlation between screen

time and parental play in children with ASD. The socio-demographic characteristics in this study revealed no statistically significant differences between children with ASD and those without ASD, indicating well-matched groups. The present study observed a higher prevalence of ASD among boys (68.57%) compared to girls (31.43%), which is consistent with findings from multiple global and Indian meta-analyses. Internationally, ASD is more commonly diagnosed in males, with global male-to-female ratios estimated to range from 3:1 to 4:1 [8]. This trend has also been consistently observed in the Indian context. A meta-analysis by Raina et al. [9], which examined the prevalence of autism in Indian children, reported a similar gender bias, with males being significantly more affected. Biologically,

genetic susceptibility and neurodevelopmental differences have been proposed as contributors. Socio-culturally, underdiagnosis in females, due to subtler symptom presentations and gender-based expectations may also skew the observed ratio. The finding that mothers were the primary caregivers across both groups aligns with Indian cultural norms where caregiving responsibilities are typically undertaken by mothers<sup>[10]</sup>. In terms of parental education and socioeconomic status, most families in both groups belonged to the lower-middle or middle-income brackets, and the majority of parents were educated up to graduation level. This reflects patterns observed in other Indian studies, where children with ASD are not necessarily concentrated in low socioeconomic groups, but diagnosis and access to services are often better among more educated families<sup>[11]</sup>.

Parental play is widely recognized as a cornerstone for social, emotional, and cognitive development in early childhood. It facilitates language acquisition, emotional bonding, and the development of critical social skills, especially in children with developmental delays such as ASD. A significant finding of this study was the reduced frequency of parental play in the ASD group compared to controls ( $p = 0.001$ ). While 40% of ASD parents played with their child less than once a week, only 5.71% of control parents did so. On the other hand, daily play was far more common in the control group. This mirrors findings from Indian studies such as Desai et al.<sup>[12]</sup>, which reported that parents of children with ASD often face challenges engaging in play due to behavioral difficulties and communication barriers in the child. Additionally, time constraints due to occupational and household responsibilities, particularly for mothers who often serve as the primary caregivers can further restrict the frequency and quality of such interactions<sup>[13]</sup>. Traditionally, Indian joint families have provided a socially rich and interactive environment for children. In such settings, children typically engage with multiple caregivers that is parents, grandparents, siblings, and extended relatives which may foster better social stimulation, early language development, and emotional bonding. This type of human engagement is especially valuable in early childhood, a critical period for the development of social and communication skills. Presence of multiple caregivers can help in early identification of developmental delays and may reduce the

severity of social deprivation often experienced by children with ASD. However, the rising trend of nuclear families in urban India, driven by migration, urbanization, and economic demands, has led to a reduction in such naturalistic social support systems<sup>[14]</sup>. This transition may contribute to delayed detection of ASD symptoms and reduced day-to-day human interaction, potentially exacerbating developmental challenges in affected children. Furthermore, in nuclear families, the caregiving burden typically falls on a single parent, most often the mother leading to stress and reduced time for engaging in developmental activities such as parental play<sup>[15]</sup>.

Screen time among children with ASD is a complex issue. On one hand, caregivers often use digital media as a coping mechanism to manage challenging behaviors or to provide temporary engagement, especially in settings where support services are limited. This practice is particularly common in India, where awareness about ASD-specific interventions remains limited and where socio-economic constraints often make screen-based devices the most accessible and affordable option for keeping a child occupied. The present study highlights a significant association between increased screen time and autism spectrum disorder (ASD), with children diagnosed with ASD exhibiting considerably higher screen exposure compared to their neurotypical peers. Our findings showed that more than half (51%) of the ASD group used screens “often,” and no child in this group had zero exposure. This aligns with the growing body of literature, including Indian studies such as Sidiq M et al.<sup>[16-18]</sup>, which emphasize the increasing reliance on digital screens among children with developmental disorders. Research conducted in Andhra Pradesh; India concluded that toddlers with more than 4 hours of screen time per day were at high risk for developing Autism and a statistically significant correlation was established between the duration of screen use and the score of the Modified Checklist for Autism in Toddlers-Revised scale, with increased screen time showing greater autistic-traits. Yaakov Ophir et al.<sup>[19]</sup> suggest that high screen time is associated with delayed language development, reduced eye contact, impaired attention span, and diminished social reciprocity, all of which are core concerns in ASD.

The present study revealed a significant moderate

negative correlation ( $r = -0.561$ ,  $p = 0.001$ ) between screen time and parental play among children with ASD. Although less studies have been conducted to study this correlation yet the present study aligns with recent Indian evidence which suggests a correlation between increased screen time and a higher likelihood of autistic-like symptoms in young children, particularly when combined with reduced parental play. Another study suggests that increase in parental play and reducing screen time is effective in improving social functioning in children with ASD<sup>[20]</sup>. Reduced parental engagement not only limits play-based learning opportunities but may also reinforce the child's preference for passive digital content over reciprocal social activities.

## Conclusion :

This study underscores the critical interplay between screen time and parental play in children with autism spectrum disorder (ASD) within the

Indian context. While socio-demographic variables were similar across groups, children with ASD exhibited significantly higher screen exposure and reduced frequency of parental play compared to their typically developing peers. The observed moderate negative correlation between screen time and parental play highlights a concerning trend that is greater screen use may be displacing meaningful parent and child interactions that are vital for social and cognitive development. These findings reinforce the need for increased parental awareness, increased human engagement culturally sensitive intervention strategies, and systemic support to promote screen-free, play-based engagement in families of children with ASD. As nuclear families become the norm and digital devices more accessible, it is imperative to guide caregivers in balancing technological use with active, developmental play.

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