

# Rising Trend in Screen Time and Associated Autism-like Symptoms in the Digital Age of COVID-19 Pandemic

Sherina Moktan<sup>1</sup>, Utkarsh Karki<sup>2\*</sup>

1. Psychiatrist, Child and Adolescent Psychiatry Unit, Kanti Children's Hospital, Kathmandu, Nepal

2. Child and Adolescent Psychiatrist, Child and Adolescent Psychiatry Unit, Kanti Children's Hospital, Kathmandu, Nepal

## Abstract

The COVID-19 pandemic came with stay-at-home orders, virtual classrooms, online family and social interactions, with consequential rise in preference of spending time on digital devices rather than in social interaction and outdoor play activities. This trend has brought challenges to today's parenting with repercussions on social communication development of children resulting in an increase in the number of children presenting with symptoms of autism. The postulated mechanism could be the screen-based developed neuroplasticity adversely affecting social salience neuronal pathways. Other contributing factors could be the hindrance of screen overuse on social learning, parent-child interaction and child's interests on off-screen activities. Positive parenting with structured routine of setting screen-free time and zones, behavioral modeling and substitution along with virtual access to child psychiatry services and interventions can mitigate the surging risk of associated autism-like features in today's children.

**KEYWORDS:** Autism; COVID-19; development; parenting; screen time

## \*Corresponding Author

**Dr Utkarsh Karki**

Child and Adolescent Psychiatrist,

Child and Adolescent Psychiatry Unit

Kanti Children's Hospital, Kathmandu, Nepal

karkiutkarsh@gmail.com

## INTRODUCTION

The transition during the COVID-19 pandemic with lockdowns and restrictions displayed a marked upsurge in screen time in both children and adults. With an upward trend in early screen exposure, there has been an unprecedented rise in the rates of developmental disorders especially autism. This impairment in social communication development could be explained by the deleterious impact of screens on parent-child interaction.<sup>1</sup> Given the paramount impact of digital technology on social, emotional and cognitive development of children, there is a need to understand its association with autism and to learn to foster parent-child interaction in the age of screens.

## SCREEN TIME AND AUTISM-LIKE FEATURES

Screen time, referred to as the measure of the time spent on a device with a screen such as smartphones, television, computers and gaming consoles,<sup>2</sup> is associated with a range of consequences on physical and mental health. These effects are determined by the amount and content of the exposure. Though the duration of sedentary screen exposure recommendation varies in accordance with the guidelines, all of the guidelines are similar in respect to limiting screen time in children. The World Health Organization (WHO) guidelines are focused on the length of screen time recommending no screen exposure to children of ages less than 2-year old and not more than 1 hour of screen time for children of 2-4 years of age.<sup>3</sup> Likewise, the American Academy of Child and Adolescent Psychiatry (AACAP) specifies about both the amount and content of screen exposure recommending less than 1 hour of screen time for 2-5 years old children and

limiting the screen contents to video chatting in ages below 18 months old and educational programming in ages of 18 months and older.<sup>4</sup>

Today's children are born into this digital world, while the world is still facing the dire straits of digitalization regulation. Consequently there is a growing concern of the effects of technologies on children with studies reporting adverse impact on child development including speech delay, communication difficulties to autism-like features.<sup>5-6</sup> In particular, autism-like symptoms are reported to be associated with excessive screen exposure early in life.<sup>7-8</sup> Screens may contribute to these socio-communication deficits by hindering social learning including non-verbal cues, attention and parent-child interaction. Other postulated rationale could be the preference for screens over social interaction in children predisposed to autism spectrum disorder (ASD). As a result, extensive one-way involvement with virtual world on screens limits a child's interests and opportunities to learn from off-screen activities such as reciprocal communication with parents and socialization.

#### **CHALLENGES OF SCREEN MEDIA AND ASSOCIATED AUTISM UPSURGE DURING THE PANDEMIC**

The COVID-19 pandemic has initiated an extensive digital transformation of everyday life of both parents and children with a survey reporting doubling of the average screen time (6 hours) in children as compared to pre-pandemic (3 hours).<sup>9</sup> Closure of schools, lockdown and social distancing during the pandemic has resulted in restrictions on outdoor play activities, limitations on social contacts leading to skyrocketing of unhealthy use of technology in young children. Other contributing factors of the growing screen exposure could be the modeling of screen use of parents, educational transition to virtual classroom and unstructured routine leading to boredom with inevitable consequences of dependency on digital devices for entertainment. An unprecedented amalgam of all these factors has led to the world being overtaken by the digital pandemic.

The challenging time of pandemic has highlighted the rise in number of mental health services' referrals, including those for autism, which were higher than pre-pandemic numbers.<sup>10</sup> The rise in prevalence of autism-like presentations is also observed in the only exclusive Child and Adolescent Psychiatry Unit, Kanti Children's Hospital, in Nepal. As the digital technology provides a repetitive and predictable structure that is easily customized to their specific interests, children predisposed to ASD may be typically highly attracted to screens leading to rise of screen time in these vulnerable children. Overexposure to screens can additionally replace the amount of time spent on social interaction, including bonding, eye contact, face-to-face verbal interactions, and free play, making them vulnerable to develop socio-communication deficits. The shifting of academic learning to online classes has further added to decrease in socialization opportunities for these neurodevelopmentally vulnerable children. The postulated neurobiological mechanism could be the screen-based developed neuronal pathways (through a process of neuroplasticity) directly competing with social

salience processing resulting in a negative impact on the social brain pathways.<sup>11</sup>

Additionally, from our experience in clinical settings, screen withdrawal, affective engagement by parents and increase in quality of parent-child interaction has led to an improvement in social and communication skills in children with autism-like presentations. This improvement in developmental trajectory mainly social and communication skills can further explain the link between the surge in autistic symptoms risk and screen time in children during the period of COVID-19 pandemic. However, this is only a small group of children in which it has been observed. Thus, there is a need for studies involving larger cohorts of these children conducted in scientific and methodological manner to come to a robust result about 'pseudo' or 'techno' autism.

On the other hand, Nepal along with other nations saw a transition from outpatient consultation to virtual teleconsultation. Similarly, the child and adolescent psychiatry unit also offered virtual home-based intervention inputs to parents of autism-like symptoms children, which was followed up on a regular basis. However, the rise in caregiver burden was also observed due to limitation in access to direct one-to-one socio-communication interventions by trained professionals, further impeding the impact of interventions.

#### **PARENTING INTERVENTIONS TO NAVIGATE THE CHALLENGES**

The key to regulating the use of digital technology for ensuring optimal development in children is to maintain a balance between screen use and real-life human interaction. It is normal for parents to have difficulties in balancing screen time and family time, but it is imperative to understand that screen time cannot replace a safe, nurturing environment and social bonding.

The pandemic has altered the daily structure of routine of both parents and children significantly. Restructuring the routine by designating both the screen-free times (meal times and one-hour before bedtime) and the time when the child can have access to their electronics. Delineating clear boundaries about the amount and content of the screen use<sup>12</sup> along with developing a list of alternative activities, such as drawing, painting, dancing, playing with play dough, and reading picture books together, aid in setting expectations, reduction of boredom and development of self-regulation and socio-cognitive skills.

Another effective strategy for regulation of screen use is through modification of the child's environment by establishing screen-free zones e.g. at bedroom, play area<sup>13</sup> and restricting access to electronics by locking screens. Allocation of chargers and power cords to a separate location in home with limited accessibility to only parents can motivate social interaction as the child must interact with their parents for access to these devices.

Behavioral interventions are an additional effective strategies with promising positive outcomes in regulating screen time.<sup>14</sup> Positive role modeling of appropriate screen habits by parents demonstrating the behavior of switching

off of screens in screen-free times and zones results in beneficial effects on the children, who will eventually follow adults' behavior. For long-term changes in behaviors, it is imperative to provide positive reinforcement including praises and rewards after performing healthy screen behaviors, such as turning the television off, interacting with parents, and involving in substitute activities of play and crafts.

Video chats with a same-aged child or relatives with assistance of the adults using visual prompts could help strengthen social cohesion. Arranging video time together of the children singing songs, clapping hands, tours of bedroom or showing toys is an additional constructive aid. Interconnectedness can be further supported by parents showing photos of their friends and relatives and drawing about the memories together.

It is crucial for the parents to focus not only on the child but also on their own well-being. Emphasis on nutrition, physical activity, screen use limits, adequate rest and creation of work-life balance can help them to be healthy parents, which ultimately fosters a healthy parent-child relationship.<sup>15</sup> Although creating an equilibrium among appropriate screen use and fostering social connection among family members is arduous, these simple strategies go a long way towards mitigating risk of autism-like features.

## WAYS FORWARD

COVID-19 has led the world to a digital pandemic with deleterious impact on cognitive, social and language development in children, thus resulting in higher risk for ASD-like symptoms. Therefore, positive parenting with co-viewing of age-appropriate interactive programs in a controlled manner, behavioral interventions with a contingency responsive caregiver and fostering social connectedness can aid to navigate through the challenges of social restrictions to ensure healthy socio-emotional and cognitive development of today's children. Further research on effective virtual child mental health services and interventions for autism-at-risk can be a way forward.

## CONFLICT OF INTEREST

None

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