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Survey on awareness of virtual autism among neuro physiotherapists

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Abstract
Background: Prolonged screen exposure has been associated with lack of social connectivity, language development delay and sensory motor affection which points towards classical signs observed in Virtual Autism. This study aimed to assess the levels of awareness of Virtual Autism among Neuro Physiotherapists regarding their general understanding of the term as well as understanding of signs and symptoms of Virtual Autism.
Methods: 100 participants having a minimum educational qualification of Masters in Neuro Physiotherapy were given a self-made questionnaire comprising of three main domainsDemographic Details (Domain 1), General Understanding of Virtual Autism (Domain 2), Understanding of Signs and Symptoms of Virtual Autism (Domain 3). The questionnaire was distributed via various online platforms such as LinkedIn, Email and WhatsApp. Data was categorized into tables and bar graphs and interpreted accordingly.
Results: 71% of respondents were aware about the term Virtual Autism. 58% of respondents are aware regarding the difference in terms of Virtual Autism and Autism Spectrum Disorder, 87% agreed with early screen exposure being a major contributing factor, 73% agreed that symptoms of Virtual Autism can be reversed and 65% of respondents opinionated that children with Virtual Autism need referral to a psychologist. Respondents exhibited mixed opinions regarding understanding of signs and symptoms of Virtual Autism.
Conclusion: The current analysis revealed that Neuro Physiotherapists demonstrated a generally high level of awareness regarding the existence of the term "Virtual Autism" whereas there was poor awareness regarding the difference between Virtual Autism and Autism Spectrum Disorder as well as signs and symptoms of Virtual Autism.

Keywords: Virtual autism, screen dependency disorder, early screen exposure, language developmental delay, autism spectrum disorder

Introduction

Virtual autism is a phrase formulated in 2018 by Marius Teodor Zamfir, a Romanian psychologist. He found that children, 0-3 years of age, who stared at screens for over four hours a day had sensory-motor and socio-affective deprivation [1]. This activated behaviours and elements similar to those found in children diagnosed with Autism Spectrum Disorder [1]. Zamfir discovered that his younger patients with Autism Spectrum Disorder who were exposed to more than 2 hours of screen media a day showed greater improvement and could go back to the normal schooling system within months as compared to the children who did not have early exposure to screens and were diagnosed with Autism Spectrum Disorder [9].

Screen time is referred to as the measure of the time spent on a device with a screen such as smartphones, television, computers, etc. associating with a range of problems associated with physical and mental health [7]. Excessive screen time in children is associated with many health and psychological consequences such as obesity, language development delays, poor cognition, behavioural problems and emotional dysregulations [11].

Intensive Early Screen Exposure (IESE) has been linked to negative outcomes in language, attention, socialization and emotional regulations which point towards the diagnosis of neurodevelopmental problems such as ADHD and learning difficulties [1]. During the covid-19 pandemic, there has been an increase in the amount of average screen time in children as compared to pre-pandemic [3]. 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 which is associated with increase in social communication deficits [7]. The postulated neurobiological mechanism could be the result of screen based developed neuronal pathways through the process of neuroplasticity directly competing with social salience processing resulting in a negative impact on the social brain pathways [7].

A cross sectional study was conducted in China in children aged between 3-6 years which revealed that around 55% of the children spent more than one hour per day on screens which suggested the presence of autistic like symptoms as compared to children who had never been exposed to screens in their earlier life [12]. Studies suggest there is a direct relation between early screen exposure (more than 4 hours per day) and subsequent development of symptoms of Autism Spectrum Disorder in some younger children (less than 6 years old) [1] According to recommendations by World Health Organization
(WHO), screen time should be less than one hour per day for children aged between 2 and 5 years and should be avoided for children less than 2 years old [7].

Unlike classic autism, there is no self-imposed isolation in virtual autism. There exists behaviour stereotypes, certain type of sensations, motor mannerisms, strange and obsessive concerns. These autistic-like symptoms can be reversed when exposure to screen is completely ceased [2]. Improvements in ASD symptoms and reduction in parental stress have been reported when excessive screen time is replaced with socially oriented Activities [6].

Methodology

Study Design and Setting

This study which is a survey-based study utilized a descriptive cross-sectional type of study design to analyse the levels of awareness of Virtual Autism among a group of Physiotherapists having a minimum educational qualification of Masters degree in Neuro Physiotherapy. The participants were selected from a variety of workplace settings such as hospitals, private clinics, rehabilitation centres, academic institutions and others from Mumbai as well as Navi Mumbai. A self-made questionnaire was validated by experts in the Neuro Physiotherapy field and circulated via various online platforms such as LinkedIn, Email, WhatsApp, etc. The Questionnaire comprises mainly of three domains: Demographic Details (Domain 1), General Understanding of Virtual Autism (Domain 2), Understanding of Signs and Symptoms of Virtual Autism (Domain 3). The data was collected over a period of six months and the results were analysed using MS Excel.

Data Sources and Study Population-

The data was collected from a total number of 100 participants. Participants were eligible for inclusion if they were clinical physiotherapists of Neuro specialty with minimum 1 year of experience, Neuro Physiotherapists working in academics and research, Neuro Physiotherapists working in home based set up, both male and female neuro physiotherapists. Records were excluded of physiotherapists of other specialty, students and interns pursuing physiotherapy, physiotherapists who have not given consent to participate. The data collected was analysed using descriptive analysis in MS Excel 2010 and represented in different categories using tabular form, bar graphs and pie charts.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee at TMV's Lokmanya Tilak College of Physiotherapy. All data was kept anonymous prior to analysis. No patient identifiers were extracted, and data was handled in line with ethical standards.

Data Analysis

Data extracted was updated into Microsoft Excel 2010. Each question was entered along with.

It's respective data and the frequency distribution and percentage values were calculated using Statistical function of Conditional Counting Function. The data was then summarized to Represent into tabular format, pie charts and bar graphs depending on various categories.

Results

Out of the 100 participants, majority of the respondents were female (69%) whereas the male Respondents were 31%. (Table 1). Majority of the respondents belonged to age group 20-29 (78%) followed by age group 30-39 (18%) and age group 40-49 (4%). (Table 2). Table 3 Represents majority of the respondents being PG (Postgraduate) (97%) whereas only 3% of the respondents having obtained a degree of PhD (Doctorate).

Statistical Analysis

Data analysis was done using MS EXCEL for windows, the frequency distribution and percentage values were calculated and reported.

Table 1: Sex Wise Distribution of the Respondents

Gender	Number	Percentage
Male	31	31%
Female	69	69%

Majority of the respondents were female (69%) whereas the male respondents were 31%.

Table 2: Age Wise Distribution of the Respondents

Age range	Number	Percentage
20-29	78	78%
30-39	18	18%
40-49	4	4%

Majority of the respondents belonged to age group 20-29 (78%) followed by age group 30-39 (18%) and age group 40-49 (4%).

Table 3: Distribution of Respondents According to Current Academic Qualification

Current academic qualification	Number	Percentage
Pg (postgraduate)	97	97%
Phd (doctorate)	3	3%

Majority of the respondents were PG (Postgraduate) (97%) whereas only 3% of the respondents obtained a degree of PhD (Doctorate).

Table 4: Distribution of Respondents According to Area of Interest

Area of interest	Number	Percentage
Adult rehabilitation	40	40%
Pediatric rehabilitation	10	10%
Both	50	50%

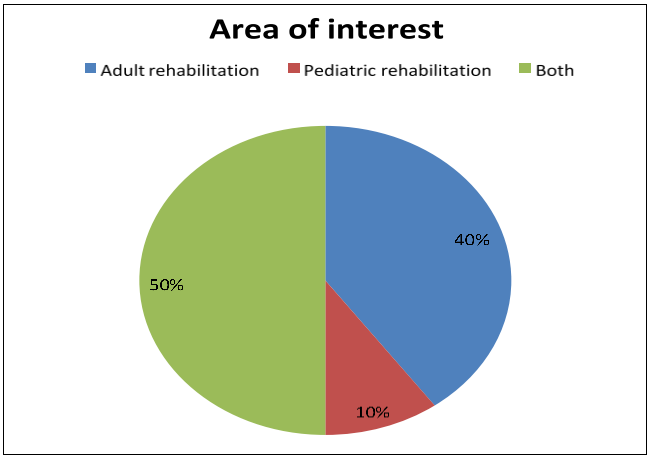


Chart 1: Area of Interest

Majority of the respondents had both Adult as well as Pediatric rehabilitation as their area of interest (50%) whereas 40% of the respondents expressed only Adult rehabilitation as their area of interest and 10% of the respondents expressed Pediatric rehabilitation as their area of interest.

Table 5: Distribution of Respondents According to Type of Pediatric Conditions Seen in Everyday Patients

Type of pediatric Conditions seen in Everyday patients	Number	Percentage
Autism spectrum Disorder	59	16%
Cerebral palsy	84	24%
Down's syndrome	43	12%
Attention deficit Hyperactive Disorder	49	14%
Delayed milestones	71	20%
Mental retardation	29	8%
Others	22	6%

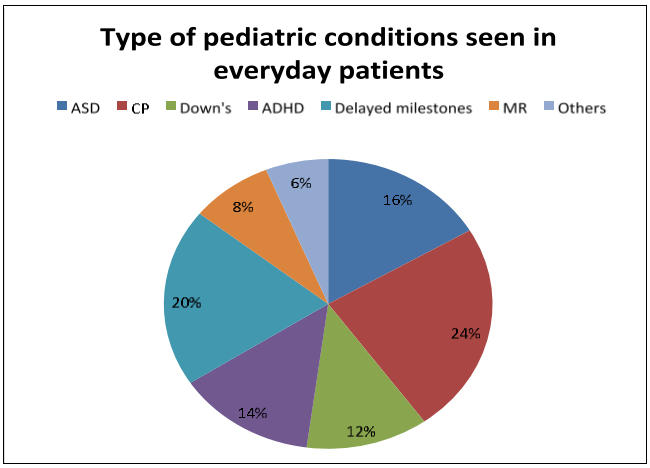
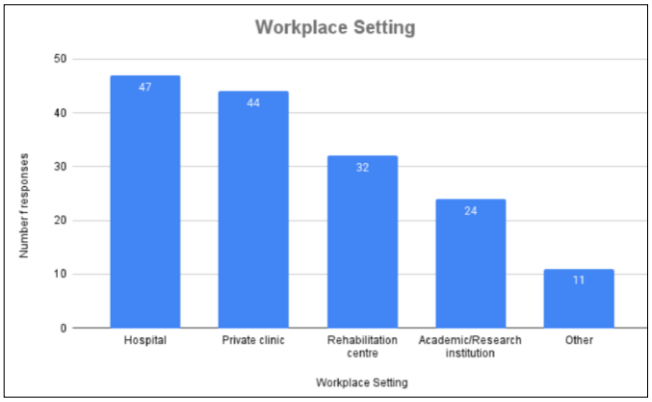


Chart 2: Types of Pediatric conditions seen in everyday patients

Cerebral Palsy forms the largest share (24%) of the type of pediatric conditions seen in everyday patients by respondents. This is followed by Delayed Milestones (20%) and Autism Spectrum Disorder (16%). The rest include Attention Deficit Hyperactivity Disorder (14%) and Down's Syndrome (12%) whereas Mental retardation and other miscellaneous conditions form 8% and 6% respectively.

Table 6: Distribution of Respondents According to Workplace Setting

Workplace setting	Number	Percentage
Hospital	47	30%
Private clinic	44	28%
Rehabilitation Centre	32	20%
Academic/research Institution	24	15%
Other	11	7%



Graph 1: Workplace Setting

The highest number of respondents are from hospitals (47) which account to 30% of the total respondents followed by those working in Private clinics (44) accounting to 28% of the respondents. There were 32 respondents from Rehabilitation Centres (20%) and 24 respondents from Academic/Research Institutions (15%). The least number of respondents (11) accounting for 7% of total respondents fall under the miscellaneous category.

General Understanding of Virtual Autism

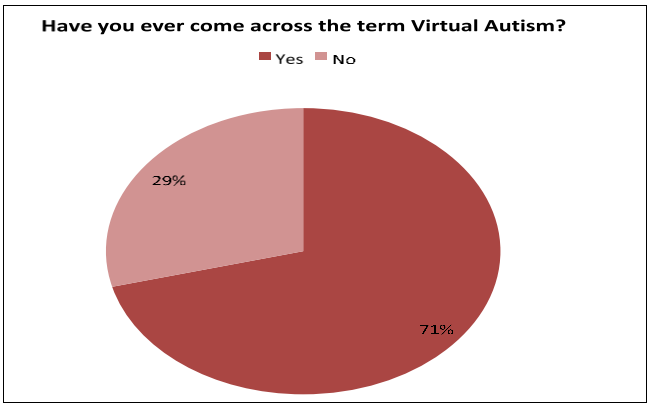
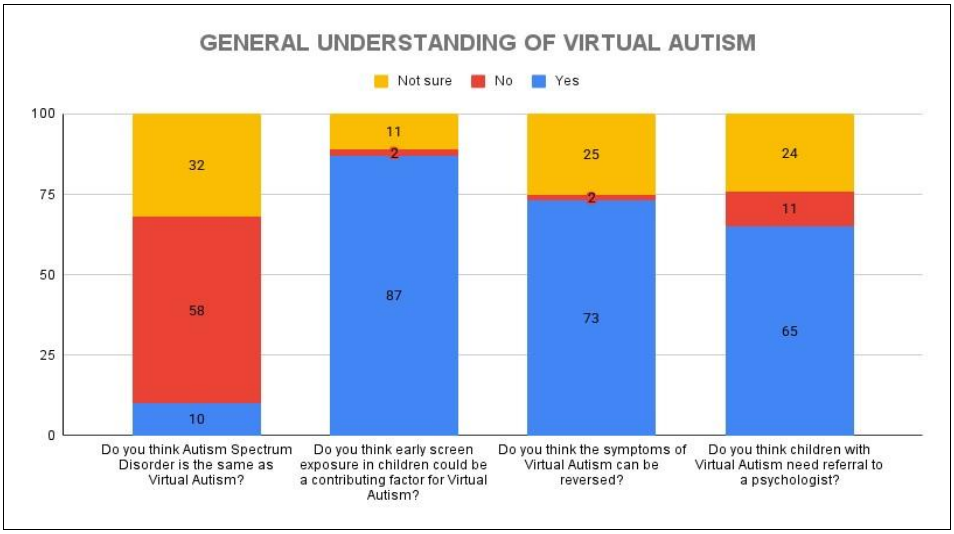
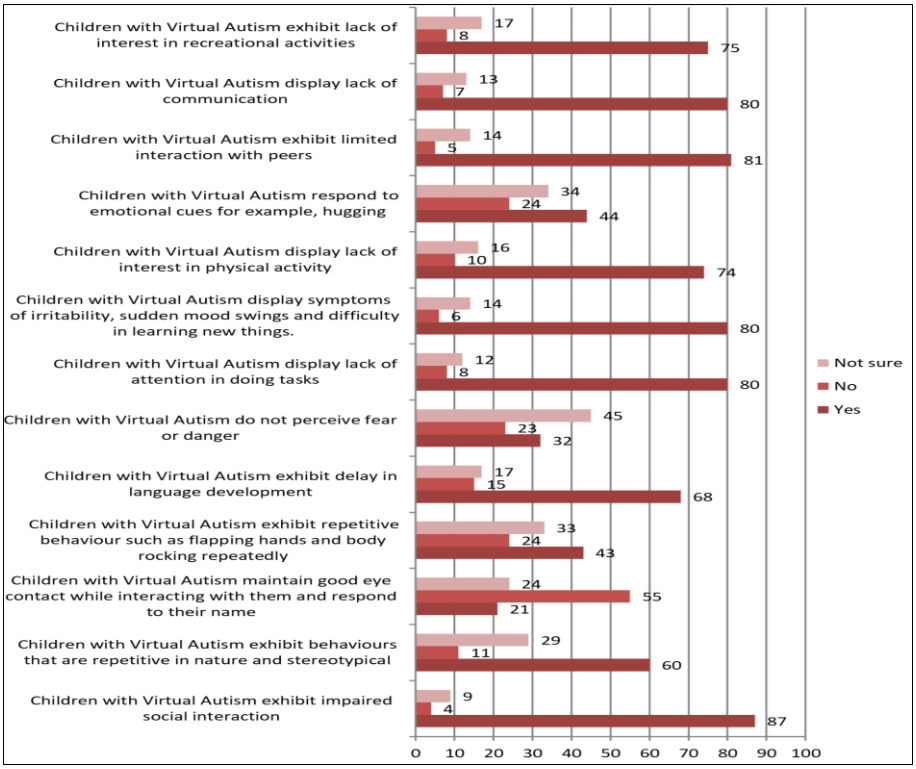


Chart 3: A pie chart illustrating the distribution of percentage between respondents who are aware of the term "Virtual Autism" and those who are not

71% of respondents answered "Yes", indicating that a majority have heard of the term. 29% of the respondents answered "No", meaning nearly one-third are still unfamiliar with it.



Interpretation: A significant number of respondents identified that Autism Spectrum Disorder is not the same as Virtual Autism (58%) suggesting that many are aware of the distinction between the two conditions. The highest agreement was observed for the role of early screen exposure as a contributing factor to Virtual Autism (87%). This shows strong awareness among respondents about the environmental influence of screen time on child development. Most participants agreed that the symptoms of Virtual Autism can be reversed (73%), while a smaller proportion were either unsure (25%) or disagreed (2%). A majority of respondents believe that children with Virtual Autism should be referred to a psychologist (65%), reflecting awareness of the need for professional intervention.



Interpretation: A majority of respondents agreed that children with Virtual Autism often display lack of communication, limited interaction with peers, lack of attention in tasks, symptoms of irritability, mood swings and learning difficulties, delay in language development, repetitive and stereotypical behaviours, impaired social interaction. Respondents showed moderate agreement on signs such as lack of interest in recreational activities and reduced responsiveness to emotional cues. Many respondents were uncertain about whether children with Virtual Autism perceive fear appropriately. There was also mixed awareness regarding children's ability to maintain good eye contact and respond to their name.

Discussion

The purpose of this study was to understand the awareness of Virtual Autism among neuro physiotherapists and how neuro physiotherapists understand and respond to the new phenomenon- "Virtual Autism, a term used in reference with developmental symptoms attributed to excessive screen exposure, symptoms of which mimic that of autism spectrum disorder (ASD). Although not recognised as a formal diagnosis, the concept of Virtual Autism has gained attention in recent years after clinicians reported seeing ASD-like behaviours in children with long term early screen exposure. The results show that neuro physiotherapists generally have good awareness of key risk factors, but some uncertainties remain about signs and symptoms as well as about how Virtual Autism truly differs from ASD.

In the current study, awareness of 100 neuro physiotherapists with atleast more than one year of experience was investigated where respondents answered a series of questions based on 3 major domains. The domains were categorized into Demographic Details (Domain 1), General Understanding of Virtual Autism (Domain 2) and Understanding of Signs and Symptoms of Virtual Autism (Domain 3). The questionnaire was circulated as a Google form via various online platforms and responses were analysed to determine the awareness of Virtual Autism. The demographic profile of the participants were mostly postgraduate neuro physiotherapists working across hospitals, private clinics, and rehabilitation centres with more than 50% of the respondents having both Adult as well as pediatric rehabilitation as their area of interest. Information was obtained regarding the types and number of pediatric cases seen by these neuro physiotherapists in everyday patients with Cerebral Palsy being the most common case of them all.

General understanding regarding virtual autism

Many respondents correctly recognised the link between excessive screen time and developmental delays. This is consistent with large studies showing that high screen use in early childhood can be associated with slower communication and problem-solving development (Madigan *et al*., 2019) [13] Other research, such as a longitudinal study, researching for communication and problem solving developmental delay found that longer

daily screen exposure at one year of age predicted delays in language, fine motor skills, and personal-social abilities by age four [14] These findings provide a strong scientific background for the widespread belief in the study that early screen exposure plays a significant role in Virtual Autism. Another interesting finding was the divided opinion on whether Virtual Autism is a separate condition from ASD. About half of the respondents viewed them as distinct, while others were unsure. A comparative study was done to highlight the differences between Virtual Autism and ASD. Two children, one with ASD and the other with Virtual Autism were selected based on various characteristics. The findings concluded that ASD requires intervention using sustained therapy while Virtual Autism can be reversed by reducing screen time and increasing interaction. Most participants also believed that the symptoms of Virtual Autism can improve or even reverse when screen time is reduced and parent–child interaction increases. This correlates with an intervention-based study involving young children diagnosed with ASD and prolonged screen exposure showed that education of parents regarding screen time and interaction-based strategies reduced ASD symptoms in those children. Several studies have shown that when parents limit screen time and actively engage with children, language and social interaction can improve over time. This motivates clinicians to screen for such symptoms and to counsel families about reducing screen use [15].

There were varied opinions from respondents when asked about the difference in presentation between ASD and Virtual Autism. Few respondents expressed Virtual Autism as a condition occurring due to environmental influence as a result of excessive screen use whereas ASD as a neurodevelopmental condition persisting lifelong. Other respondents expressed that unlike ASD, children with virtual autism often have normal early development but begin to show signs such as speech delay, poor eye contact and reduced social interaction after prolonged exposure to screens. Importantly, others said the symptoms of virtual autism are often reversible. When screen time is significantly reduced and replaced with rich interpersonal interaction and environmental stimulation, many affected children show substantial improvement or complete recovery.

Knowledge Regarding Signs and Symptoms of Virtual Autism

When asked about specific signs and symptoms, the majority of the respondents expressed agreement regarding major features such as poor social interaction(87%), delay in language development (68%), lack of attention in doing tasks (80%), display symptoms of irritability, sudden mood swings and difficulty in learning new things (80%), lack of interest in physical activities (74%), limited interaction with peers (81%), lack of communication (80%) and lack of interest in recreational activities (75%)—all of which overlap with both Virtual Autism and ASD. However, they were less confident about more subtle features such as eye contact, emotional responsiveness, or sensory issues. This uncertainty is understandable, as the scientific evidence connecting these subtle behaviours specifically to screen exposure is still limited. Even in studies of children with excessive screen use, the strongest links have been with general developmental delays rather than with social-emotional cues.

Overall, this study highlights both progress and remaining challenges. Physiotherapists are recognising the risks of excessive screen exposure and are aware that many of its effects can be reversed. At the same time, they face the practical challenge of distinguishing developmental delays due to excessive screen exposure from neurodevelopmental disorders like ASD. Clearer definitions and evidence-based guidelines are needed to help clinicians navigate this area and to support parents in making informed decisions.

Conclusion

The current analysis reveals that neuro physiotherapists demonstrated a generally high level of awareness regarding the existence of the term “Virtual Autism” whereas there was poor awareness regarding the difference between Virtual Autism and Autism Spectrum Disorder as well as signs and symptoms of Virtual Autism.

Clinical Significance

1. **Screening for risk factors:** Because it is widely recognised that screen exposure is a risk factor; rehabilitation team should routinely ask about early and current screen exposure when assessing developmental delay or social-communication problems. Documenting screen habits can guide differential diagnosis (ASD vs. screen-related delay) and management.

2. **Referral pathways:** The finding that 65% would refer to psychology supports establishing clear local referral pathways (psychology/speech & language therapy) for children presenting with autism-like features and significant screen exposure. Early coordinated assessment can clarify whether symptoms meet ASD diagnostic criteria or are more consistent with screen-related delay.

3. **Parent education & behavioural intervention:** High number of respondents believe in reversibility (73%) means they are likely to recommend structured parent guidance: screen-time reduction, replacement with social interaction, and strategies such as language modelling and play-based therapy. Even when ASD is present, limiting excessive screen time benefits sleep, attention, and family interaction.

4. **Training needs for health professionals:** Mixed responses about eye contact and repetitive behaviours indicate gaps in differentiating ASD core features from screen-related presentations; targeted continuing-education (workshops, case-based learning) for rehabilitation professionals would improve diagnostic reasoning and referral measures.

Service planning: Given that respondents are distributed across hospitals, clinics and rehabilitation centres, educational materials and screening protocols should be deployed across these settings (not only specialist centres) to capture presentation of such symptoms early.

References

1. Satish Kumaraswamy, Amala P Binoe. Awareness of virtual autism among parents. International Journal of Current Advanced Research,2022:11:1283–1286.

2. Zamfir MT. The consumption of virtual environment more than 4 hours/day, in the children between 0–3 years old, can cause a syndrome similar with the autism spectrum disorder. Journal of Romanian Literary Studies,2018:13:953–968.
3. Tiwari S, John J. Special educators' knowledge and training on autism in Karnataka: A crosssectional study. Indian Journal of Psychiatry,2017:59(3):359.
4. Heffler KF, Sienko DM, Subedi K, McCann KA, Bennett DS. Association of early-life social and digital media experiences with development of autism spectrum disorder–like symptoms. JAMA Pediatrics,2020:174(7):690.
5. Alrahili N, Almarshad NA, Alturki RY, Alothaim JS, Altameem RM, Alghufaili MA, *et al*. The association between screen time exposure and autism spectrum disorder-like symptoms in children. Cureus, 2021, 13(10).
6. McArthur BA, Tough S, Madigan S. Screen time and developmental and behavioral outcomes for preschool children. Pediatric Research,2022:91(6):1616–1621.
7. Moktan S, Karki U. Rising trend in screen time and associated autism-like symptoms in the digital age of COVID-19 pandemic. Journal of Psychiatric Association of Nepal,2022:11(1):43–45.
8. Muppalla SK, Vuppalapati S, Reddy Pulliahgaru A, Sreenivasulu H. Effects of excessive screen time on child development: An updated review and strategies for management. Cureus, 2023, 15(6).
9. Harlé B. Intensive early screen exposure as a causal factor for symptoms of autistic spectrum disorder: The case for «Virtual autism». Trends in Neuroscience and Education,2019:17(100119):100119.
10. McArthur BA, Tough S, Madigan S. Screen time and developmental and behavioral outcomes for preschool children. Pediatric Research,2022:91(6):1616–1621.
11. Robinson TN, Banda JA, Hale L, Lu AS, Fleming-Milici F, Calvert SL, *et al*. Screen media exposure and obesity in children and adolescents. Pediatrics,2017:140(S2):S97–S101.
12. Xiang H, Lin L, Chen W, Li C, Liu X, Li J, *et al*. Associations of excessive screen time and early screen exposure with health-related quality of life and behavioral problems among children attending preschools. BMC Public Health, 2022. 22(1).
13. Madigan S, *et al*. Association between screen time and children's performance on a developmental screening test. JAMA Pediatrics,2019:173(3):244–250.
14. Takahashi I, *et al*. Screen time at age 1 year and communication and problem-solving developmental delay at 2 and 4 years. JAMA Pediatrics,2023:177(10):1039–1046.
15. Heffler K, Frome LR, Gullo DF. Changes in autism symptoms associated with screen exposure: Case report of two young children. Psychiatry Research Case Reports,2022:1(3):100059.