Research Article

A Study to Identify Children with Symptoms of Virtual Autism and Contributing Factors Among Mothers of Preschoolers

Megha Arvind Porkar[1] , Shaila Mathew[2] , Manisha Kulkarni[3] , Aparna Kale[4] , Dhanraj Babu[5]

[2]https://orcid.org/0000-0002-5152-3691
[3]https://orcid.org/my-orcid?orcid=0000-0003-1931-9241
[4]https://orcid.org/0000-0003-3720-9513
[5]https://orcid.org/0000-0002-4351-615X
[1,3,4,5]Bharti Vidyapeeth (Deemed to be University) College of Nursing, Sangli, Maharashtra, India.
[2]Asst. Professor, Bharti Vidyapeeth (Deemed to be University) College of Nursing, Sangli, Maharashtra, India.

Abstract

Background: Early childhood is a critical period for language, social, emotional and behavioural development. Excessive or poorly regulated screen exposure may displace face-to-face interaction, active play and other developmentally important activities. Objective: To identify children with symptoms of virtual autism and contributing factors among mothers of preschoolers.

Methodology: A quantitative, non-experimental descriptive-analytic study was conducted among 400 mothers of preschool children aged 3–6 years. Non-probability purposive sampling method was used. Data were collected using a structured tool comprising demographic variables, a 10-item symptom assessment scale and 10 contributing-factor items. Frequency, percentage and chi-square tests were used for analysis.

Results: Of 400 children, 106 (26.5%) met the study-defined risk criterion of three or more observed symptoms and 294 (73.5%) did not. The most frequently reported symptoms were repetitive watching of the same videos (28.25%), preference for screen over people (28.0%), poor emotional response (28.0%), resistance to routine changes (26.5%), difficulty imitating actions (26.25%) and speech delay (26.0%). Among the risk group (n=106), prominent contributing factors were child irritability when screen time was stopped (80.2%), lack of awareness about screen hazards (78.3%), gadgets used during tantrums (75.5%), reduced parent–child interaction (73.6%) and gadgets used to manage behaviour (71.7%). Significant associations were found with child age, family type, mother's education and daily screen time; gender was not significant. Conclusion: The findings highlight the importance of parent education, healthy screen routines, active play, family interaction and early developmental monitoring. The study-defined term "virtual autism" is used as a screening construct and should not be interpreted as a clinical diagnosis of autism spectrum disorder.

Keywords: virtual autism; preschool children; screen time; developmental symptoms; contributing factors; mothers; paediatric nursing.

Introduction

Early childhood is characterized by rapid development of communication, cognition, social interaction, emotional regulation and play. During this period, children learn primarily through direct interaction with caregivers, peers and their physical environment. Digital devices have become increasingly accessible to young children, making screen exposure an important component of contemporary child health practice.

The World Health Organization recommends that children aged 3–4 years have no more than one hour of sedentary screen time per day, with less being better, while emphasizing active play and quality non-screen sedentary activities such as reading and storytelling with caregivers.[1] The American Academy of Pediatrics similarly emphasizes high-quality content, co-viewing and avoiding use of media as the primary strategy for calming children.[2]

Research examining screen exposure and autism spectrum disorder (ASD) has produced mixed findings. A systematic review and meta-analysis reported a positive association in observational studies but noted that publication bias and the correlational nature of the evidence limit causal interpretation.[3] Therefore, the present study focuses on observable symptoms associated with screen exposure rather than claiming that screen use causes ASD.

In the Indian context, parents may use mobile phones, television and other devices to occupy children, manage tantrums or facilitate household and work responsibilities. Understanding these practices and identifying children who demonstrate concerning symptoms may help paediatric nurses provide early guidance and referral.

Study Objectives

1. To identify symptoms of virtual autism among preschool children aged 3–6 years.
2. To assess contributing factors associated with the identified symptoms.
3. To determine the association between symptoms and selected demographic variables.

Materials and Methods

A quantitative approach with descriptive analytical design were used for the study.400 hundres mothers ofpre-schooler children were selected using non-probability purposive sampling technique.Data were collected using scale for assessing autism symptoms and questionnaire were used to assess the factors contributed to autism. 400 samples were assessed for symptoms of virtual autism by using scale,in which those who had three or more symptoms were classified in to risk category of virtual autismand they were assessed for contributing factors.Frequency,percentage and chi-square were used for analysing the collected data. Reliability of the data collection tool was used by inter-rater and test retest method. The tool was developed according to the study objectives, translated into Marathi and back-translated. Mothers were informed about the purpose of the study and participation was voluntary. Children with a prior diagnosis of autism spectrum disorder were excluded. The study used a screening criterion of three or more observed symptoms to classify risk; this criterion is not equivalent to a clinical diagnosis.

Results

Table 1 presents the selected demographic profile of the 400 preschool children and their mothers.

Variable	Category	Frequency	Percentage
Child age(In years 0	3–4	160	40
	4–5	150	37.5
	5–6	90	22.5
Gender	Male	220	55
	Female	180	45
Family type	Nuclear	260	65
	Joint	140	35
Mother's education	Primary	90	22.5
	Secondary	160	40
	Graduate & above	150	37.5
Daily screen time	<1 hour	100	25
	1–2 hours	180	45
	>2 hours	120	30

Table 2. Distribution of children according to study-defined symptom risk.

Risk status	Frequency	Percentage
No risk (<3 symptoms)	294	73.5
Risk (≥3 symptoms)	106	26.5
Total	400	100.0

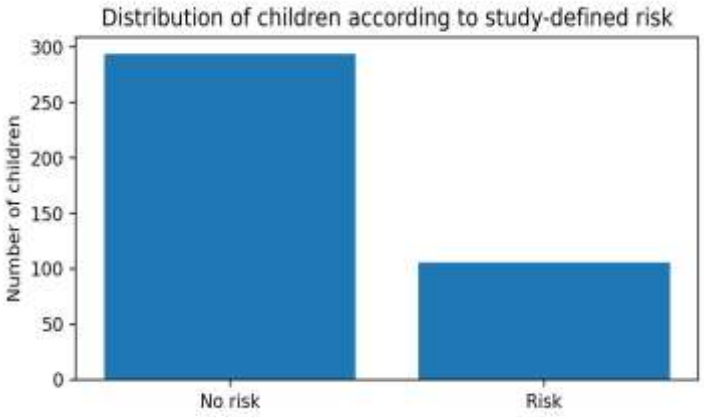

Figure 1. Distribution of children according to study-defined risk status.

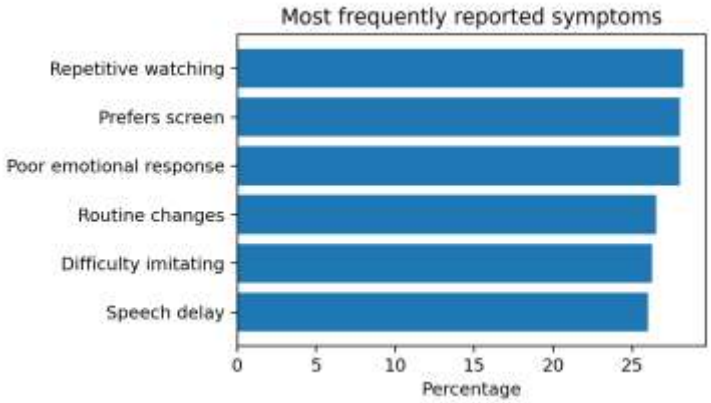

Table 3 CONTRIBUTING FACTORS AMONG CHILDREN IN THE RISK GROUP n=106

Contributing factor	Frequancy	Percentage
Lack of awareness about screen hazards	83	78.3
Gadgets used to manage behaviour	76	71.7
Limited outdoor facilities	72	67.9
Long working hours	69	65.1
Lack of extended family support	64	60.4
Gadgets during tantrums	80	75.5
TV/device in bedroom	74	69.8
Strategies used to reduce screen time	70	66.0
Child irritable when screen stopped	85	80.2
Reduced parent–child interaction	78	73.6

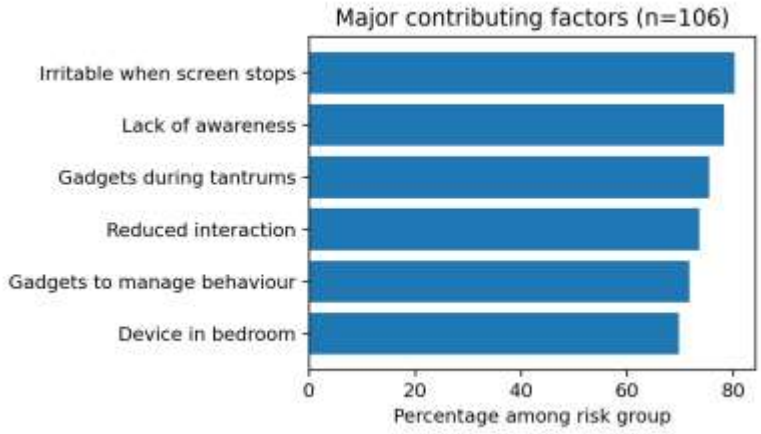

Figure 3. Major contributing factors reported among the risk group.

Table 4 ASSOCIATION BETWEEN RISK STATUS AND SELECTED VARIABLES

Variable	χ^2	df	p value	Inference
Child age	7.42	2	0.024	Significant
Gender	1.08	1	0.298	Not significant
Type of family	6.31	1	0.012	Significant
Mother's education	8.54	2	0.014	Significant
Daily screen time	18.96	2	0.001	Highly significant

The findings show statistically significant associations between study-defined risk status and child age, family type, mother's education and daily screen time. Gender was not significantly associated with risk status.

Discussion

In the present study, 26.5% of preschool children met the investigator-defined risk criterion of three or more symptoms. Repetitive watching of the same videos and preference for screens over people were among the most frequently reported features. These findings are clinically relevant as behaviours involving reduced social interaction, limited play and communication concerns warrant observation and, where persistent, developmental assessment.

The most frequently reported contributing factor in the risk group was irritability when screen time was stopped (80.2%). This was followed by lack of parental awareness regarding screen hazards (78.3%) and use of gadgets during tantrums (75.5%). The American Academy of Pediatrics specifically cautions against relying on media as the primary strategy for calming young children and recommends parental co-use and consistent limits.[2]

Daily screen time showed the strongest statistical association with risk status (χ^2=18.96, p=0.001). This finding is consistent with the broader evidence base supporting reduction of sedentary screen time and replacement with active play and caregiver interaction.[1] However, the cross-sectional nature of the present study means that causality cannot be established. It is also possible that children with pre-existing communication or behavioural difficulties may seek screens more often, making the relationship bidirectional.

The significant association with mother's education suggests that parent education may be an important avenue for prevention. Paediatric nurses, community health nurses and early childhood educators can provide practical guidance on screen routines, alternative activities, co-viewing, outdoor play and responsive communication.

Implications For Paediatric Nursing

1. Nurses should incorporate brief developmental and screen-use questions into routine child health encounters. 2. Mothers should receive individualized education regarding age-appropriate screen exposure and healthy alternatives. 3. Families should be encouraged to use non-screen strategies for soothing and managing tantrums. 4. Children with persistent speech, social or behavioural concerns should be referred for professional developmental

assessment. 5. Community-based parent education programmes can promote active play, storytelling, family interaction and healthy digital habits.

Conclusion

The study identified study-defined symptoms in 26.5% of the preschool children assessed. Irritability when screen time was stopped, lack of awareness about screen hazards, gadgets used during tantrums and reduced parent–child interaction were prominent contributing factors. Significant associations were observed with child age, family type, mother's education and daily screen time. Paediatric nursing interventions should emphasize parent education, healthy screen routines, active play, communication and early developmental referral when concerns are observed.

Recommendations

1. Replication with probability sampling and larger, geographically diverse samples.
2. Use of validated developmental and autism screening instruments in future studies.
3. Longitudinal research to examine temporal relationships between screen exposure and developmental outcomes.
4. Intervention studies evaluating structured parent education and screen-reduction programmes.
5. Inclusion of fathers, caregivers and preschool teachers in future research.

References

1. World Health Organization. Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. Geneva: World Health Organization; 2019.
2. Council on Communications and Media. Media and Young Minds. Pediatrics. 2016;138(5):e20162591. doi:10.1542/peds.2016-2591.
3. Screen Time and Autism Spectrum Disorder: A Systematic Review and Meta-Analysis. JAMA Network Open. 2023;6(12):e2346775. doi:10.1001/jamanetworkopen.2023.46775.
4. Madigan S, Browne D, Racine N, Mori C, Tough S. Association between screen time and children's performance on a developmental screening test. JAMA Pediatrics. 2019;173(3):244–250.
5. American Academy of Pediatrics. Family Media Plan and guidance for healthy media use in children. American Academy of Pediatrics.