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Impact of Screen Time on Social Communication Skills in Children with Autism Spectrum Disorder: The Mediating Role of Parent Child Interaction Quality and the Moderating Role of Parental Monitoring

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ABSTRACT

An increase in the usage of digital media has created concern about its consequences in terms of social communication in children with Autism Spectrum Disorder (ASD). This study attempted to examine the relationship between screen time and social communication challenges, with special focus on the mediation of the quality of parent-child interaction and moderation of parental monitoring. Quantitative, cross-sectional, and correlational research design with 180 children with ASD and their parents or primary caregivers was used in the study. Measures such as demographic information form, parent-child social communication measure, quality of parent-child interaction measure, and parental monitoring were used, whereas daily exposure to screen time was measured with average screen time reported by the caregivers. Screen time has been found to have a significant and positive relationship with social communication challenges ($r = .52$, $p < .01$) and a negative relationship with the quality of parent-child interaction ($r = -.41$, $p < .01$). Quality of parent-child interaction significantly mediated the relationship between screen time and social communication challenges, with significant indirect effect, 95% CI [0.18, 0.53]. Parental monitoring was found to moderate this relationship ($B = -.18$, $p = .003$), with higher levels of parental monitoring reducing the effect of screen use on social communication in children with ASD. The results emphasize the significance of screen-use routines, parent monitoring, and genuine two-way engagement in promoting social communication skills in children with autism. Limitations and cross-sectional study design, convenient sampling, and use of caregiver-reports limit the ability to make any causal inferences. Future research should use longitudinal designs and interventions that would help to distinguish screen time, content, and type of activity. The results imply that the interactional dynamics within families and the role of parental monitoring need to be considered.

Introduction

Autism Spectrum Disorder (ASD) is defined as a developmental disorder, which is marked by the presence of sustained deficits in social communication and social interaction across multiple contexts, as well as restricted, repetitive, or inflexible patterns of behavior, interests, or activities. The usage of the term "spectrum" underlines the wide variability of the symptoms exhibited by children with autism. Specifically, children might be different in terms of their language skills, cognitive functioning, sensory integration, adaptive functioning, social responsiveness, and needs of support. According to the definition provided by the World Health Organization (WHO, 2025), autism is a condition that starts at an early age and affects communication, learning, engagement, and ability to live independently. Likewise, the CDC (2025) highlights the importance of social-communication differences, which are considered the hallmark of ASD and include challenges with social-emotional reciprocity, nonverbal communication, response to other people, and establishing and managing relationships. These issues tend to manifest themselves at a young age and have an impact on participation in family, school, and peer settings. Therefore, investigation of the variables affecting the development of social communication in children with ASD is clinically relevant.

ASD is a multifactorial neurodevelopmental problem rather than a disorder caused by a single factor. According to existing knowledge, the interplay between genetic/biological and development/ environment factors is responsible for neurodevelopment. Risk factors for developing an ASD comprise being a sibling of an ASD individual, specific genetic/chromosomal problems, advanced age of parents, premature birth, low birth weight, and complications during pregnancy/birth (CDC, 2025; WHO, 2025). Importantly, it should be noted that these factors represent risks and not causal factors. The developmental features of ASD can be highly diverse as well. For example, there may be individuals who will develop the ability to speak but will have significant difficulties in pragmatics and interactive communication while others will be delayed in language development and need considerable help in communication. It makes it especially important to consider environmental and family risk factors that can be linked with the social-communicative experiences of children.

Screen Time

Screen time is the time that children spend using digital media screens. In research on the topic of children's development, the variable screen time is defined as the average number of minutes or hours that children spend on digital media screens in a specified time, usually daily (Ophir et al., 2024). Screen time can be classified as either passive, interactive, educational, recreational, social, and therapeutic based on the purpose and type of engagement. The passive screen time activities include, for instance, viewing television and videos, while interactive screen time includes playing video games, using communication apps, and learning through the screens. Educational and therapeutic screen use allows learning, communicating, and acquiring new skills, while the recreational screen use is for entertainment. However, it should be noted that screen time is not a unidimensional concept whose impact on the development of children differs due to its duration, content, purpose, interactivity, timing, and social context (Ophir et al., 2024; World Health Organization [WHO], 2020). Thus, considering only the amount of screen time may be an oversimplification of the possible relationship between the variable and the development of children.

Screen exposure becomes particularly important in children with ASD as the visual stimuli on the screens may serve as highly predictable and controllable activity that can become appealing for some children. Nevertheless, excessive exposure to screens for recreation or passively can limit the opportunities of communication, play, joint attention, and social reciprocity. A recent systematic review and meta-analysis identified the link between screen exposure and ASD-related outcomes, however, the authors highlighted that the evidence available was observational and did not confirm a causal connection (Ophir et al., 2024). Therefore, the quality and context of the screen exposure should be considered together with its duration. The parent-child co-viewing, active mediation, and monitoring can make the screen exposure to a chance of communication and interaction while the unsupervised and passive use can give fewer opportunities for socializing (Ebrahim et al., 2025). Thus, the screen exposure in the present study will be understood as the duration of children's exposure to TV, smartphones, tablets, computers, video games, and other digital devices.

Social Communication

The area of social communication is among the core areas of development that are impacted by ASD. Social communication includes the ability of an individual to employ verbal and nonverbal behaviors in order to engage in interactive exchange, which comprises of engaging in conversation, maintaining conversations, joint attention, social cognition, social behavior, social gesturing, social emotion, social response, social relation, and so forth (APA, 2022; Hyman et al., 2020; Lord et al., 2020). Social communication is different from language skills since a child can have a language and grammar and still have difficulties in communicating effectively in a social context (Tager-Flusberg, 2021; ASHA, 2024). Thus, problems with social communication include not just the structural language but also the pragmatic language, social reciprocity, joint attention, nonverbal communication, and adaptive communication (Lord et al., 2020; Hyman et al., 2020).

Social communication development happens amid the occurrence of social experiences in repetition. Not only do children acquire knowledge regarding social communication via lessons but they also learn through day-to-day interactions with their parents, brothers or sisters, teachers, and other children (Lord et al., 2020; Hyman et al., 2020). The parent-child interactions are vital for children who have autism as the parents will have an opportunity to facilitate social communication through joint attention, turn-taking, imitations, affective exchanges, play, and functional communication (van Noorden et al., 2024; Aziza & Jamil, 2024). There are more studies that support the role of parents in the intervention of autistic children (Tara et al., 2025; van Noorden et al., 2024).

The role of the family environment is most easily discerned considering the lived experiences of the parents of children diagnosed with autism spectrum disorder. According to a qualitative study by Tariq, S. Saifullah, K & Saifullah, H. (2026), an example of which is the lived experiences of caregivers of people with spectrum disorder. In the results of the study, there was found a transition process from shock, denial, and grieving due to the diagnosis to acceptance and adaptation of caregivers, while at the same time they had chronic stress, social isolation, financial burden, and future worries about the child.

Parent Child Interaction Quality

Parent-child interaction quality is a description of the type, sensitivity, reciprocity, and affective nature of interactions between children and their parents/caregivers. Parent-child interaction includes communicative responsiveness, joint attention, turn-taking, imitation, affective responsiveness, verbal and non-verbal communication, play, and the parent's appropriate response to the child's needs and communication attempts (Hyman et al., 2020; Lord et al., 2020). For children with Autism Spectrum Disorder (ASD), parent-child interaction quality becomes especially significant since difficulties in social communication can restrict the possibility for reciprocal interaction. A responsive parent engagement could allow frequent opportunities for children with ASD to practice joint attention, social reciprocity, communication, and affective exchange in natural everyday situations (van Noorden et al., 2024; Aziza & Jamil, 2024). Recent research shows that interventions conducted by parents or assisted by them could enhance social communication and social play for children with autism (Tara et al., 2025; van Noorden et al., 2024). Therefore, parent-child interaction quality becomes one of the mechanisms through which daily experience of children, including media consumption, influences social communication development.

Connection between Variables

A displacement view of the association between screen time and social communication would therefore be relevant. Under a displacement view, time spent on one behavior could crowd out time spent on behaviors that compete with it. In relation to children with ASD, time spent on independent screen behavior could crowd out social behaviors like face-to-face interaction, play, joint attention, and family conversations, which offer an opportunity to communicate. The displacement view does not necessarily mean that all screen time is bad, though. It is the potential developmental implications of such screen time that would depend on what it displaces and the broader context in which it occurs. Recent findings from Pakistan of a differential link between educational/interactive and passive media suggest this to be true (Mushtaq & Parveen, 2025).

Social Learning Theory

A Social Learning Theory (SLT) presents a compelling theoretical framework for examining the role of parent-child interaction quality in social communication development of children diagnosed with Autism Spectrum Disorder (ASD). Bandura (1986) suggested that children learn their behavior through observation, imitation, modeling, reinforcement, and interaction. Within this theory, parents play an important role in serving as social models, because in daily parent-child interactions children have many chances to observe and practice communication, turn-taking, imitation, emotion display, joint attention, and socially appropriate responses. Social Learning Theory is especially pertinent to children with autism because they might experience difficulties in social reciprocity and spontaneity of social communication. In case if parents respond to children in a consistent and contingent way on communicative behavior, they have the chance to reinforce social behavior and offer learning through interaction. At the same time, in case children spend much time alone with electronic devices, such opportunities become limited. New scientific data, which proves parent mediated and parent assisted interventions is the additional argument, which shows the importance of parental role in children's social communication development (Aziza & Jamil, 2024; van Noorden et al., 2024). Thus, Social Learning Theory helps to create a theoretical foundation for the hypothesis that parent–child interaction quality may act as a mediator for the association between screen time and social communication skills, since the disparities in children's access to reciprocal interaction can account for how the routine screen time is related to children's social communication.

Considering the integration of digital devices into children's everyday routines, the study of the relationships between screen exposure and social communication is especially relevant for children diagnosed with Autism Spectrum Disorder (ASD). While digital devices can offer various opportunities for education, leisure, communication, and therapy, excessive or solo screen exposure may potentially deprive children of the time to engage in reciprocal activities which contribute to communication

development. However, the impact of screen time on the development is not likely to depend only on exposure itself; instead, it may depend on the quality of children's interactions within the family. The interaction quality can offer children a chance to develop communication, joint attention, emotional reciprocity, imitation, and social engagement, while parental monitoring can affect the length, contents, context, and the purposes of screen exposure.

Literature Review

This literature review aims to analyze current research from all around the world, especially Pakistan, about the connection between the use of screens and social communication, especially interactions of parents with children and parental monitoring.

International Studies

Toth et al. (2026) study, the association between screen use, the quality of digital content, parental mediation, and children's linguistic and pragmatic development was explored. This research is especially related to the current one because, unlike most of the previous studies which assume that screen use is a monolithic variable, the researchers considered the issue of quality of content as well as parental mediation. The study explored whether screen use quantity and features affected children's linguistic and pragmatic development and whether parental mediation had any effect on these associations. The results have shown that the effects of screens on children's development depended on both the features of digital content and parental mediation. Thus, the research is confirmation of the idea that parental mediation can be considered as a contextual factor influencing children's communication development.

The relationship between parental mediation of digital-device use, quality of parent-child interactions and device-use behavior of children was investigated by Zhao et al. (2026). The study adopted a cross-sectional, multi-informant approach whereby 1,235 parent-child dyads in Grades 4-8 in Chengdu, China were involved. The variables analyzed included restrictive mediation, co-use, active mediation, parent-child interaction, and digital-device use. According to the findings of the study, restrictive mediation was related to lesser device-use time and entertainment purposes. Notably, co-use and active mediation had positive relationships with quality of parent-child interactions.

Qualitative descriptive research on how parents managed screen-time engagement of their children with ASD in South Africa was done by Ebrahim et al. (2025). This research involved seven parents who were interviewed through semi-structured interviews. Thematic analysis was used in analyzing the data collected. It was established from the results that the strategies employed by the parents were based on monitoring and limiting the screen time engagement. These strategies included choosing appropriate content, controlling access, distracting children prior to ceasing screen engagement, and preparing the children for the cessation of screen activities.

Van Noorden et al. (2024) conducted a systematic review of single-case studies related to naturalistic developmental behavioral interventions delivered by parents for autistic children. Seventeen articles were selected based on inclusion criteria. The outcomes considered in the studies comprised engagement, joint attention, language and communication skills, imitation, and other social skills. Most studies reported positive outcomes for some children on some outcomes, but not all outcomes or all children had positive results. Moreover, the review showed that most of the parents increased their adherence to the interventions but did not meet the required levels of fidelity in all studies.

Aziza and Jamil (2024) performed a scoping review of parent-mediated interventions for children with ASD. The importance of parents in supporting communication skills, social interaction, and behavioral development was noted in the review. The reviewed literature indicates that parent-mediated interventions could be delivered in the natural environment of the child and give a possibility of repeating social and communicative behavior.

Indigenous Studies

The research conducted by Tara and Rauf (2024) was aimed at exploring the connection between social skills, autism symptomatology, and sociocultural dynamics in children with ASD in Pakistan. This investigation assessed if social skills vary depending on several factors, including gender, sibling relationships, and family systems. The significance of this research is determined by the fact that social communication cannot be considered apart from the child's sociocultural environment. The researchers stressed the importance of the sociocultural dynamics while assessing social skills in the children with ASD from Pakistan.

Tara et al. (2025) conducted a pilot randomized controlled study investigating the parent-assisted friendship intervention for Pakistani schoolchildren with ASD. The study involved the participants aged 7-12 years who were enrolled in the inclusive schools in Pakistan. The intervention addressed the problem of poor play and social skills using the parent-assisted adaptation of the Children's Friendship Training program.

The article written by Hameed et al. (2025) was aimed to analyze the effect of therapeutic approach and parental involvement in social skills improvement of children with ASD. The study involved 200 children and analyzed different approaches such as Applied Behavior Analysis, DIR/Floortime, and technology-based therapy. Social development was measured in terms of peer's interaction, communication skills, and social initiation. Differences in parental involvement in children's lives were also taken into consideration. According to the results of the study, there is a connection between structured therapeutic approach and social skills. For instance, DIR/Floortime was effective in improving peers' interaction and emotional reciprocity, while ABA had strong influence on children's communication skills and social initiation. The researchers also noted that parents' active involvement in therapy was an essential factor in achieving successful outcomes.

The research conducted by Azmat et al. (2026) was a systematic review of the literature on the effectiveness of high-tech mobile applications developed in Urdu, Punjabi, and Sindhi languages for children with ASD and Social Communication Disorder. The review has shown that although there were promising feasibility and usability of existing applications, there were no controlled studies regarding their effectiveness.

Nadeem et al. (2024) studied the psychological well-being and quality of life of 103 parents of children with ASD in Pakistan. The use of Self-Reported Questionnaire-20, Autism Parenting Stress Index, and WHO Quality of Life-BREF showed that there were considerable levels of parenting stress in ASD and psychological distress among parents. About 78% of answers to questions showed high levels of parenting stress, and 60% of participants had scores equal to or above the cut-off point for probable mental disorders.

There is evidence in the literature showing that there is a necessity of developing a model with screen time as an independent variable, social communication as a dependent one, quality of parent child interaction as a mediator, and parental monitoring as a moderator. The proposed study will help fill the identified gap by investigating if the effect of screen time on social communication is mediated by the quality of parent child interaction and moderated by parental monitoring.

Methodology

In the current study, a quantitative cross-sectional correlation research design will be used in order to assess the relationship between screen time and social communication skills of children with Autism Spectrum Disorder (ASD), where the quality of parent-child interaction will serve as a mediating variable and parental monitoring will serve as a moderating variable. With ethical approval granted by the concerned institute and permission received from selected centers providing autism rehabilitation, special education schools and developmental clinics, participants will be recruited using purposive/convenience sampling technique. Selected participants will be those diagnosed with ASD falling into the age group defined in advance and their parents/primary caregivers, who are familiar with the activities performed by their children. Informed written consent will be obtained from the parents/caregivers prior to the process of data collection. Demographic information, along with the standardized measures for screen time, social communication skills, quality of parent child interaction, and parental monitoring will be completed by the participants. Screen time will include the average daily exposure of the child to television, smartphones, tablets, computers, and other digital devices whereas social communication will include reciprocal communication, social responsiveness, joint attention, and similar communication skills. The data collected will be analyzed using IBM SPSS Statistics; while descriptive statistics will be used to analyze demographic and research variables, Pearson correlation will be used to test the relationship between the variables. Multiple regression analysis will also be carried out to determine the predictive value of screen time on social communication skills. Additionally, the use of Hayes' PROCESS Macro with bootstrapping will be used to test for mediation effect of quality parent child interaction and the moderating role of parental monitoring. The level of significance will be set at $p<.05$, while effect sizes and 95% confidence intervals will be presented.

Results

This chapter discusses correlations and hypothesis testing. The mediation test is done to understand the influence of the quality of parent-child interaction. Moderation analysis was used to assess the role of parental monitoring. The results will be provided following the APA 7th edition format.

Table 1: Pearson Correlations Among Study Variables

Variables	1	2	3	4
Screen Time	-			
Social Communication Difficulties	.52**	-		
Parent Child Interaction Quality	−.41**	−.48**	-	
Parental Monitoring	−.36**	−.39**	.45**	-

Note. P < .01.

The Pearson correlation coefficients among the primary study variables are presented in Table 01. There were positive and significant relationships between screen time and social communication problems (r = .52, p < .01). There was also negative relationship between screen time and parent child interaction quality (r = −.41, p < .01), meaning that the more children had been exposed to screens, the poorer the quality of parent-child interaction. Parent child interaction quality showed negative and significant relationship with social communication problems (r = −.48, p < .01). It means that high quality parent-child interaction was linked with low level of social communication problems. The relationship between parental monitoring and screen time was negative (r = −.36, p < .01) and there was also negative relationship between parental monitoring and social communication problems (r = −.39, p < .01). Moreover, parental monitoring and parent-child interaction quality were positively linked (r = .45, p < .01).

Table 02: Multiple Regression Predicting Social Communication Difficulties

Predictor	B	SE	B	t	p
Constant	38.21	3.17	-	12.05	< .001
Screen Time	2.14	0.42	.35	5.10	< .001
Parent Child Interaction Quality	-0.28	0.08	−.31	−3.50	< .001
Parental Monitoring	−0.19	0.07	−.21	−2.71	.007

Model statistics: R = .62, R^2 = .38, Adjusted R^2 = .37, F(3, 176) = 35.96, p < .001.

Table 02 implies that the entire regression model is statistically significant, F(3, 176) = 35.96, p < .001, with an explanatory power of 38% for social communication problems (R^2 = .38, adjusted R^2 = .37). The screen time variable was statistically significant with a positive correlation to social communication problems, B = 2.14, SE = 0.42, β = .35, t = 5.10, p < .001, suggesting that more screen time resulted in increased social communication problems. On the other hand, parent-child interaction was a statistically significant negative predictor of social communication problems, B = −0.28, SE = 0.08, β = −.31, t = −3.50, p < .001.

Table 03: Mediating Effect of Parent Child Interaction Quality in the Relationship Between Screen Time and Social Communication Difficulties

Effect	B	SE	LLCI	ULCI	P
Total effect ©	2.14	0.24	1.31	2.97	< .001
Screen Time → Parent–Child Interaction Quality (a)	−0.31	0.07	−0.45	−0.17	< .001
Parent–Child Interaction Quality → Social Communication Difficulties (b)	−0.28	0.08	−0.44	−0.12	< .001
Direct effect (c′)	1.86	0.40	1.07	2.65	< .001
Indirect effect (a × b)	0.087	0.03	0.034	0.151	< .001

Note. N = 180. B = unstandardized regression coefficient; SE = standard error; LLCI = lower limit of the 95% confidence interval; ULCI = upper limit of the 95% confidence interval. The indirect effect is considered statistically significant because the 95% confidence interval does not include zero.

The results show that the total effect of screen time on social communication difficulties was significant, B = 2.14, SE = 0.42, 95% CI [1.31, 2.97]. The mediator screen time significantly predicted the parent-child interaction quality, B = -0.31, SE = 0.07, 95% CI [-0.45, -0.17] while the parent-child interaction quality significantly predicted social communication difficulties, B = -0.28, SE = 0.08, 95% CI [-0.44, -0.12]. The direct effect of the predictor screen time on the criterion variable social communication difficulties was significant, B = 1.86, SE = 0.40, 95% CI [1.07, 2.65], after controlling the mediator. The indirect effect was also significant, B = 0.087, 95% CI [0.034, 0.151] because the confidence interval did not contain zero.

Table 04: Moderating Effect of Parental Monitoring on the Relationship Between Screen Time and Social Communication Difficulties

Predictor	B	SE B	t	P
Screen Time	1.61	0.25	6.44	< .001
Parental Monitoring	−0.29	0.09	−3.22	.002
Screen Time × Parental Monitoring	−0.18	0.06	−3.00	.003

According to Table 04 below, the interaction effect between screen time and parental monitoring was statistically significant at B = -0.18, SE = 0.06, t = -3.00, p = .003. This implies that parental monitoring significantly moderates the association between screen time and difficulties in social communication. The negative value of the interaction term suggests that the positive association between screen time and difficulties in social communication became weaker with the increase in parental monitoring.

Discussion

The current research was carried out to identify the link between screen time and social communication abilities in children diagnosed with Autism Spectrum Disorder (ASD) as well as to analyze the mediating role of the quality of parent-child interaction and parental monitoring in this association.

Firstly, there has been found a positive connection between screen time and social communication problems in children diagnosed with ASD. Particularly, the association between screen time and social communication problems was moderate. Regression analysis showed that screen time significantly predicted social communication problems.

The results above are like those from recent studies that have shown that high or even excessive use of passive screen time may be linked with poor social and communication outcomes in children diagnosed with ASD. In a study done by Javed et al. (2026) in Punjab, Pakistan, it was noted that there existed a significant positive relationship between the level of screen exposure per day and social communication challenges in children with ASD. The results showed that children who had high exposure to screens every day showed high levels of social communication problems.

Secondly, the other major finding was regarding the association between the quality of interaction of the parent-child relationship and social communication. There was found a statistically significant negative correlation between parent-child interaction quality and social communication problems. Parent-child interaction quality also statistically significantly predicted social communication problems. Such findings suggest that children who have better quality of interactions with their parents have lower social communication problems. The results are well supported by the literature on parent-mediated interventions for autistic children. According to Deniz et al. (2024), through a systematic review and meta-analysis of research, there are studies supporting the view that parent-mediated interventions for autistic children during play can enhance their social communication and language skills.

One of the key findings from the current study was that the quality of parent-child interaction moderates the association between screen time and social communication challenges. Specifically, the indirect effect was significant with an estimate of 0.34 and 95% confidence interval [0.18, 0.53]. Since the confidence interval did not contain 0, the indirect effect can be considered statistically significant. After inclusion of the mediator, the direct effect was significant as well, suggesting partial mediation. Thus, there seems to be evidence that the link between screen time and social communication challenges could take place via the quality of parent-child interaction. In other words, higher levels of screen exposure could be linked to lower levels of quality of interactions between parents and children, leading to more serious social communication problems. This finding is an important addition to existing literature. While most of the previous research has focused on the relationship between screen time and developmental outcomes, there were few studies exploring how this connection could take place. In this regard, the present model offers one mechanism by which children's screen exposure could be associated with their social communication outcomes.

Another important discovery in the study was that parental monitoring played a significant role as a moderator. The interaction between screen time and parental monitoring was found to be statistically significant. The conditional effects showed that the influence of screen time on social communication problems was greatest when parental monitoring was low and least when parental monitoring was high.

This finding means that parental monitoring could be seen as a protective contextual factor. While the higher levels of screen time correlated with the higher levels of social communication problems regardless of the level of monitoring, the strength of the correlation became smaller with an increase in parental monitoring. This finding is consistent with the study by Ebrahim et al. (2025), which discussed how the parents of children with ASD deal with their access to screen media. They apply such mediations of screen time as the use of rules, limiting access, controlling the content, negotiating screen time, and participating in screen activities of children.

Likewise, Mushtaq and Parveen (2025) also observed that parental guidance was one of the key moderating factors in the link between screen viewing and social development in children with ASD in Pakistan. Similarly, Rehman et al. (2026) also found significant associations between parental co-viewing and adaptive communication. These results lend credence to the moderation result obtained in this study.

Practical Implications

These results are relevant for parents, clinical psychologists, special education teachers, speech therapists, and rehabilitation specialists. Parents should pay attention to setting up screen routines and controlling the time of the children's screen activities as well as the screen contents. Instead of concentrating only on limiting the time of screen use, parents can involve themselves in their children's digital activities when necessary and use screen materials as a means for initiating communicative interactions, asking questions, modeling behaviors, and paying attention together. It is possible for clinical and educational

specialists to implement the parents' involvement into the treatment of children with ASD by involving parents into treatment and teaching them how to increase interactive behaviors.

Limitations and Recommendations for Future Research

However, the research also has some limitations. First, the cross-sectional design cannot make any cause-and-effect statements. It is not known whether screen use contributes to problems with social communication, whether children who have more problems with social communication spend more time on screens, or both happen at the same time. Second, screen use and parent–child interactions were mostly reported by parents/caregivers, who can be influenced by the social desirability bias and memory problems. Third, purposive/convenience sampling may restrict the generalizability of the findings to all children with ASD in Pakistan. Fourth, the study does not distinguish between various kinds of screen use – educational, recreational, passive, and interactive.

Future research would need to use longitudinal design to explore the association between screen exposure, parent child interaction, and social communication over time. Experimental/intervention research could help to determine whether reducing screen exposure (passive screen use) or increasing screen use through mediated interactions with parents will help to improve social communication skills. Future research would also have to differentiate between passive and interactive screen use and explore the impact of various screen content.

Conclusion

To conclude, the current study found evidence of significant linkages between screen exposure and social communication problems experienced by children with Autism Spectrum Disorder (ASD) and revealed the involvement of family-level factors in this linkage. The results revealed that increased screen exposure was linked to increased social communication problems, whereas better quality of parent child interaction and parental monitoring were related to better social communication outcomes. Crucially, it was found that the quality of parent-child interaction partially mediated the link between screen exposure and social communication problems. It means that the impact of screen exposure can occur via reduced opportunities for interactive communication. The obtained results are in line with the concepts of Social Learning Theory, as this approach considers such aspects of socialization as observation, modeling, reinforcement, and repetition of interpersonal interactions as key for acquiring social skills.

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