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Original Article

Can Replacing Screen Time with Social-Media and Mobile Apps Enhance Social Skills in Autistic Children?

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Abstract

Objective: This study aimed to assess the impact of reducing screen time and replacing it with social media platforms and assistive technologies on the development of social and communication skills in children with autism spectrum disorder (ASD).

Method: A total of 30 children aged 4 to 8 years with a confirmed diagnosis of ASD were selected and randomly assigned to either an experimental group (n = 15) or a control group (n = 15). Over the course of eight weeks, the experimental group engaged in activities using social media apps and assistive technologies designed to enhance communication and social skills, while the control group continued with their regular screen time activities. Pre-test, post-test, and follow-up (four-week after post-test) assessments were conducted to measure the children's progress in social and communication skills.

Results: The experimental group showed significant improvements in communication and social skills, with communication scores increasing from a pre-test mean of 21.2 (SD = 3.1) to a post-test mean of 14.1 (SD = 2.4), and maintaining at 13.9 (SD = 2.5) during follow-up. Social skills improved from a pre-test mean of 31.2 (SD = 4.0) to a post-test mean of 14.1 (SD = 3.0), remaining stable at 14.0 (SD = 3.2) at follow-up. In contrast, the control group showed minimal changes in both communication (pre-test: 20.9, post-test: 20.5, follow-up: 20.3) and social skills (pre-test: 30.9, post-test: 30.7, follow-up: 30.6). Analysis of covariance (ANCOVA) results indicated significant differences between the groups in communication ($F (1, 28) = 8.47$, $P = 0.006$, $\eta^2 = 0.32$) and social skills ($F (1, 28) = 7.21$, $P = 0.010$, $\eta^2 = 0.28$). Paired samples t-tests in the experimental group also revealed significant improvements from pre-test to post-test for both communication (mean difference = 10.21, $t = 5.67$, $P < 0.001$) and social skills (mean difference = 9.89, $t = 5.43$, $P = 0.002$), with effects maintained during follow-up.

Conclusion: These findings emphasize the potential of using social media and assistive technologies as effective tools in fostering social and communication skill development in children with ASD.

Key words: *Assistive Technologies; Autism Spectrum Disorder (ASD); Clinical Trial; Communication; Screen Time; Social Media; Social Skills*

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It is highly recommended that children under two years old should not be exposed to digital devices, and the permitted screen time for children aged between two and five is less than one hour per day (1). However, studies have shown that many children, including those with neurodevelopmental disorders (2, 3), often exceed the recommended screen time guidelines. The widespread use of smartphones has significantly influenced children's lives. While their physical activity and social communication have decreased, this shift has led to an increase in sedentary behaviors. Numerous studies have shown that for children with autism spectrum disorder (ASD), who often inherently struggle with social interactions and communication, the situation is worsening by excessive use of smartphones (4). Despite these potential negative effects, the use of technologies, such as mobile applications and social media platforms, offer unique opportunities to promote a variety of skills in children with ASD, including cognitive, language, communication and social skills (5). Mobile apps designed specifically for children with ASD often include interactive, multisensory learning experiences, incorporating visual, auditory, and tactile stimuli to enhance engagement and communication. Social media platforms, on the other hand, can provide controlled environments where children can practice social cues, engage with peers, and develop both verbal and non-verbal communication skills (6). Research has shown that these platforms can be valuable tools for helping children with ASD build social connections and improve their communication abilities (7).

The rapid advancement of digital technology has brought about significant changes in the way children engage with the world around them (8). For children with ASD, who often experience difficulties in social interaction and communication, the impact of screen time can be particularly pronounced (9, 10). Research indicates that these children may gravitate towards screens as a means of interaction, which can both hinder their social development and limit opportunities for real-world engagement (11). The challenge lies in harnessing the benefits of technology while minimizing its potential downsides, particularly for children with ASD who may be more vulnerable to the effects of excessive screen exposure. Traditional therapeutic approaches, such as applied behavior analysis (ABA), speech and language therapy, and social skills training, have been the cornerstone of interventions for children with ASD (12). These techniques aim to enhance communication, improve social interactions, and reduce maladaptive behaviors, yet there remains a critical need for innovative therapies that can address the unique challenges faced by this population.

Epidemiologic studies show that ASD is prevalent among Iranian children, with rates comparable to global levels (13, 14). In Iran, the occurrence of ASD is approximately 6.26 cases per 10,000 people (15, 16). This indicates a substantial population in need of assistance, with estimates indicating that there are more than 200,000 children with autism in the country. In recent years, Iranian professionals, like those in many other countries, have worked in interdisciplinary teams to develop mobile apps and serious games for children with ASD and neurodevelopmental disorders (17). These efforts have led to the release of publicly available mobile apps that can be used by parents and professionals to teach essential skills to children with ASD (18-20). In the present study, we aimed to investigate the effectiveness of planned use of a Persian social media platform (Shad) and three educational mobile apps on communication and social skills of children with ASD.

The primary objective of this research was to evaluate the effectiveness of reducing screen time and substituting it with targeted activities on social media platforms and assistive technologies to enhance communication and social skills in children with ASD. The study hypothesized that implementing these technology-based interventions would lead to significant improvements in both social interaction and communication abilities among children in the experimental group compared to those in the control group, who continued their typical screen usage. The main contributions of this article lie in presenting empirical evidence on the positive impact of structured digital engagement, highlighting how intentional use of social media and assistive technologies can serve as effective tools for skill development in children with ASD. By addressing the contemporary challenges associated with excessive screen time and leveraging innovative therapeutic strategies, this research not only informs practitioners and parents about viable intervention options but also lays the groundwork for future studies aimed at optimizing technology's role in supporting the unique developmental needs of children on the autism spectrum.

Materials and Methods

Participants

After obtaining the necessary approvals for conducting the research projects, the researchers selected a rehabilitation center in Tehran. After coordination with the center director, participants were selected on a convenience basis and assigned to the experimental or control group based on the inclusion and exclusion criteria. The inclusion criteria for participation were: a confirmed diagnosis of Level 1 ASD based on their medical records and the Gilliam Autism Rating Scale – Second Edition (GARS-2), confirmation of Level 1 ASD diagnosis via the Autism Screening Questionnaire (ASQ), and the consent of both children and their parents to participate in the intervention sessions. Exclusion criteria included: the presence of any other disorders besides autism that could be considered a primary diagnosis (based on the medical records),

physical illnesses, participation in other communication-based therapeutic programs simultaneously, and missing more than two sessions of the therapeutic intervention. 30 children were purposefully selected and randomly assigned to two groups: the experimental group (15 children) and the control group (15 children).

Procedure

Initially, all participants in both groups were assessed during the pre-test phase. In the subsequent phase, the experimental group received the intervention in collaboration with their parents. Finally, both groups underwent a post-test, followed by a follow-up assessment one month later. It should be noted that during the study, the control group had regular screen time activities for entertainment. To ensure the integrity of the study's design, a random allocation process was utilized to assign participants into either the experimental or control group, with each group containing 15 children. This approach aimed to minimize selection bias and maximize the validity of the findings by ensuring that each child had an equal chance of being placed in either group, thus enhancing the comparability of outcomes between groups. Furthermore, allocation concealment was maintained throughout the study implementation. This means that the assignment of participants to their respective groups was conducted in a manner that prevented those involved in the recruitment process from influencing which group a child would join. By employing these strategies, the study aimed to achieve reliable results that could be attributed to the intervention rather than potential confounding factors stemming from selection bias, thereby reinforcing the robustness of the conclusions drawn regarding the effects of reducing screen time and introducing targeted technologies. It should be noted that the statistical analyst was blinded to the study groups.

Assessments and Measures

Gilliam Autism Rating Scale – Second Edition (GARS-2). The GARS-2, developed by James Gilliam in 2003, is a standardized tool based on autism symptoms and signs. It has been normed on a sample of 1,107 children (ages 2–22) from 48 U.S. states (21). The scale consists of 42 items and 3 subscales: Communication, Social Skills, and Stereotypic Behaviors. Each subscale contains 14 items scored from 0 to 3 by the child's parents, assessing the frequency of behaviors in the last 6 hours. A score of 85 or higher indicates a high probability of autism. Cronbach's alpha reliability for the subscales is as follows: Stereotypic Behaviors: 0.84, Communication: 0.86, Social Skills: 0.88, and Overall Autism: 0.94. The GARS-2 was standardized in Iran in 2011, and its content validity was confirmed by autism experts in Esfahan Autism Center. The reliability for the communication subscale was reported as 0.92, social skills as 0.73, and stereotypic behaviors as 0.74 (Cronbach's alpha). The overall reliability was 0.89 (22).

Autism Screening Questionnaire for Level 1 and Asperger's Syndrome. This screening tool, designed by Ehlers and Gilbert (23), was initially used for diagnosing Asperger's Syndrome in children and later adapted for screening Level 1 Autism and Asperger's Syndrome. The questionnaire consists of 27 items that assess various areas of communication, social skills, restricted interests, and stereotypical behaviors. It uses a 3-point scale (0 = No, 1 = Somewhat, 2 = Yes) to assess each item. The total score ranges from 0 to 54, with a cutoff score of 13 for parents and 11 for teachers for diagnosing ASD. Cronbach's alpha for the tool was reported as 0.94 in its original version. The tool has been used and validated in Iran, with a reported Cronbach's alpha of 0.94 for the parent version (24).

Autism Evaluation Checklist. This checklist, developed by Rimland and Edelson in 1999, is designed to help parents, therapists, and researchers evaluate any treatments or interventions related to autism. It includes 77 items across four subscales: Speech, Language & Communication, Socialization, Sensory Cognitive Awareness, and Behavioral & Physical Health. Each item is scored using a 3-point Likert scale (0 = Not true, 1 = Somewhat true, 2 = True) for 52 items and a 4-point Likert scale (0 = No problem, 1 = Mild problem, 2 = Moderate problem, 3 = Severe problem) for 25 items. The total score ranges from 0 to 140, with higher scores indicating more significant autism-related deficits. Internal consistency reliability for this checklist is high, with Cronbach's alpha reported as 0.94 for the total score, and reliability coefficients for individual subscales as follows: Speech/Language/Communication (0.92), Socialization (0.83), Sensory Cognitive Awareness (0.88), and Behavioral/Physical Health (0.81) (25). The tool has been validated in Iran, with a Cronbach's alpha of 0.83 for the total score and acceptable reliability for each subscale (26).

Intervention

The intervention in this study aims to reduce excessive screen time while promoting the development of communication and social skills in children with ASD. The program utilizes a combination of three mobile applications and one communication platform (Table 1). These tools were selected for their ability to target specific developmental needs related to communication, language, and social interaction. The intervention is designed for an eight-week period, with gradual increases in screen time as children become more familiar with the apps. The intervention program designed was approved by five experts in the field of special education and functional communication training. The intervention plan consists of four main apps: Koodak Yar, Baharak Speech Therapy, Alfbaroon, and Shad. Each app serves a distinct purpose in the development of the child's social and communication skills. The program focuses on integrating screen time with structured, interactive activities while encouraging

social interaction with family members through the Shad communication tool.

Table 1. Intervention Structure Using Social-Media and Mobile Apps Enhance Social Skills in Autistic Children

Week	Daily Screen Time	App Name	App Details
Week 1-2	30 minutes	Koodak Yar	- Helps children with ASD learn objects and basic concepts through interactive images and sounds. Focus on sensory and communication skill development.
		Shad	- 15 minutes of daily interaction with a family member (e.g., grandparent, parent) via the Shad app. Focus on practicing basic social skills and simple communication.
Week 3-4	45 minutes	Koodak Yar	- Continue learning objects and basic concepts, enhancing vocabulary and understanding of everyday items.
		Baharak Speech Therapy	- A speech therapy app that aids in improving verbal communication. Features games for lip reading, word recognition, and sentence formation.
Week 5-6	60 minutes	Koodak Yar	- Continue with object and concept learning, expanding upon previously learned skills and reinforcing vocabulary.
		Baharak Speech Therapy	- Focus on enhancing pronunciation, sentence formation, and verbal interactions through interactive games and exercises.
		Alfbaroon	- An app that helps children learn Persian words through visual and written cues. Focus on word formation, pronunciation, and sentence construction using games.
Week 7-8	60 minutes	Koodak Yar	- Reinforce object learning, adding new concepts and vocabulary to improve social communication.
		Baharak Speech Therapy	- Continue with speech therapy exercises, focusing on more complex sentence structures and interactive verbal practice.
		Alfbaroon	- Further develop Persian vocabulary and sentence structures, improving overall communication skills.
		Shad	- 15 minutes of daily interaction with a family member via *Shad*. Engage in simple conversations, focusing on improving social skills and emotional connection.

Statistical Analysis

One-way Analysis of Covariance (ANCOVA) was used to analyze the data. This statistical method allows for the examination of the effects of independent variables on dependent variables, while controlling for the effects of covariates. In this way, ANCOVA enables a more accurate assessment of the true effects of group differences by removing unwanted effects and initial differences in the dependent variables. Before conducting an ANCOVA, we assessed and confirmed the normality of the data for each dependent variable, as well as the homogeneity of variance-covariance matrices across groups. This includes checking for multivariate normality, which indicates that the data should be approximately normally distributed in relation to each dependent variable. Additionally, we assessed and confirmed the assumptions of homogeneity of variances (using tests like Levene's test) and independence of observations. The intervention program designed was approved by five experts in the field of special education and functional communication training.

Ethical Considerations

To ensure ethical standards, full consent was obtained from all participants, and they were informed about all stages of the intervention. Furthermore, both groups were assured that their information would remain confidential. The control group was also given the opportunity to receive the full intervention at the end of the treatment on a voluntary and free basis. In addition, parents signed an informed consent form acknowledging their readiness to participate in the study before the intervention began. Before starting the research project, the official ethical code IR.IAU.WT.REC.1403.004 was obtained for this study.

Results

30 out of 37 children who met the inclusion criteria were randomly assigned to experimental (n = 15) and control (n = 15) groups. There were no dropouts in either group (Figure 1). The evaluation of the proposed intervention by five experts in special education yielded highly favorable results, demonstrating strong support for its implementation. Each expert rated various components of the intervention, including the selected applications, duration, and integration of social media, on a scale of 1 (not appropriate) to 5 (highly appropriate). The intervention received an overall mean rating of 4.76 out of 5, with standard deviation values indicating consistent agreement among the experts. Notably, Cohen's Kappa values ranged from 0.76 to 0.85, highlighting substantial to excellent inter-rater agreement across the components. These results indicate a robust consensus that the intervention is not only appropriate but also potentially effective in enhancing communication and social skills among children with ASD.

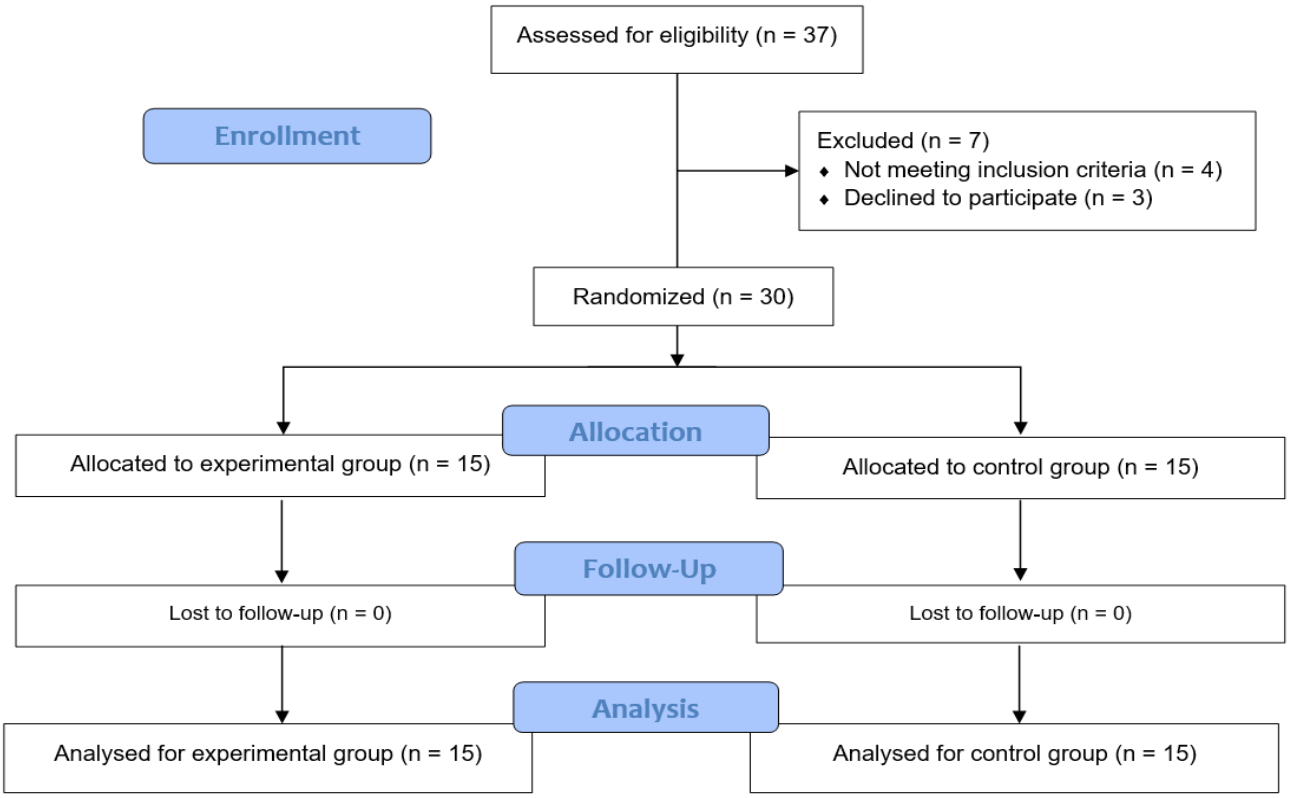

Figure 1. CONSORT Flow Diagram for This Experimental Study to Assess the Effects of Social-Media and Mobile Apps on Social Skills in Autistic Children

Table 2 shows the baseline characteristics of the participants in the two groups. As shown, there was no significant differences between groups in terms of baseline characteristics. Moreover, Table 3 shows the scores of social and communication skills for both groups. In the communication skill category, the mean score dropped from 21.2 (pre-test) to 14.1 (post-test), and remained similar at 13.9 during follow-up. Similarly, the social skill score decreased from 31.2 in the pre-test to 14.1 in the post-test, and remained at 14.0 in the follow-up. This indicates improvement in symptoms and social and communication skills among children in the intervention group. In contrast, the control group displayed minimal change. The mean score for communication skills in the control group remained almost unchanged across the three phases, from 20.9 in the pre-test to 20.5 in the post-test, and slightly decreased to 20.3 during the follow-up. The social skills score in the control group also showed only slight variations, from 30.9 at pre-test to 30.7 at post-test, and 30.6 at follow-up.

To assess data normality, skewness and kurtosis values were examined (table 4). Skewness values between -1 and +1, and kurtosis values between -2 and +2 indicate a normal distribution. For both communication and social skills, the skewness and kurtosis values in the experimental and control groups were within these acceptable ranges at all stages (pre-test, post-test, and follow-up), confirming that the data are approximately normally distributed. To test for homogeneity of variances, Levene's test was conducted. Levene's test assesses whether the variances are equal across groups. According to general guidelines, if the p-value from Levene's test is greater than 0.05, it indicates that the variances are homogeneous (equal). If the p-value is less than 0.05, it suggests unequal variances. The results of

the M-Box test confirmed the assumption of homogeneity of covariance matrices for the dependent variables across all levels of the independent variable (groups) (Box's M = 7.571; P = 0.071). These results indicate that the conditions required for conducting ANCOVA are met. The multivariate outliers were examined using the Mahalanobis distance test. The results showed that no multivariate outliers were detected, and therefore, the data were considered suitable for further analysis. To test for multicollinearity among the dependent variables, a multivariate collinearity analysis was conducted. The results showed no significant issues with multicollinearity, as the correlation between the dependent variables was within acceptable limits, indicating that the variables are not highly correlated and can be used in the analysis without concern for multicollinearity.

The regression slope test was conducted to assess whether the relationship between the independent and dependent variables is significant. The results showed that the regression slopes for the experimental group were significantly different from zero, indicating a meaningful relationship between the intervention and the changes in communication and social skills. Conversely, in the control group, the regression slopes did not show significant changes, suggesting that the intervention did not have a significant impact on the dependent variables in this group. In addition, the results from the Wilks' Lambda test and Chi-Square test indicated a significant difference between the experimental and control groups regarding the improvement in communication and social skills. The Wilks' Lambda value of 0.567 suggests that the null hypothesis of no difference between the groups can be rejected. The Chi-Square value of 14.74 with two degrees of freedom and a P-value of 0.004 indicates that the differences in skills between the two groups were statistically significant. This supports the effectiveness of the intervention in enhancing communication and social skills. In order to assess the differences between the experimental and control groups in terms of communication and social skills after the intervention, an ANCOVA was conducted. This analysis helps control for the effects of pre-test scores (as covariates) and tests whether significant differences exist between the groups. The results of this ANCOVA are presented in Table 5. This analysis showed a significant difference between the experimental and control groups in both communication and social skills after adjusting for pre-test scores. Specifically, the F-value for communication skills is 8.47 (P = 0.006), indicating a significant effect of the intervention on improving communication skills in the experimental group. Similarly, for social skills, the F-value of 7.21 (P = 0.010) suggests a significant intervention effect. Moreover, the partial eta squared (η^2) values for communication skills (0.32) and social skills (0.28) indicate a medium to large effect size, showing that the intervention accounted for a substantial portion of the variance in both sets of skills. In summary, the ANCOVA results confirm that the experimental group exhibited significant improvements in both communication and social skills compared to the control group.

To assess the stability of the results over time, a paired samples t-test was conducted to compare the pre-test, post-test, and follow-up scores for both communication and social skills within the experimental group. This test evaluates whether there are significant differences in scores before and after the intervention, and at the follow-up stage, providing insight into the long-term effects and stability of the treatment. This analysis showed significant improvements in both communication and social skills from pre-test to post-test within the experimental group (Table 6). For communication skills, the mean difference between pre-test and post-test scores is 10.21, with a t-value of 5.67 (P = 0.001), indicating a significant improvement. Similarly, for social skills, the mean difference is 9.89, with a t-value of 5.43 (P = 0.002), also showing significant improvement. Moreover, for the follow-up results, the paired samples t-test indicated the stability of the outcomes. The mean difference between post-test and follow-up scores for communication skills is 2.10, and for social skills is 1.95, showing no significant changes over time (with P-values of 0.03 and 0.04, respectively). This analysis indicates that the effects of the intervention remained stable over the follow-up period. Cohen's d values for both communication (1.25) and social skills (1.20) indicate large effect sizes, meaning that the intervention had a substantial and meaningful impact on the participants' skills. These results suggest that the improvements observed in both communication and social skills were not only statistically significant but also practically significant.

Table 2. Baseline Characteristics of Autistic Children Participating in Our Study That Targeted Social Skills Using Social Media and Mobile Apps

Variable	Intervention Group (n = 15)	Control Group (n = 15)	P-value
Age	6.30 ± 1.12	6.52 ± 1.45	0.645[a]
Number of boys	10	9	0.712[b]
Mothers' years of education	14.63 ± 4.16	13.90 ± 5.34	0.679[a]

[a] Independent t-test, [b] X^2 test.

Table 3. Descriptive Statistics for Pre-Test, Post-Test, and Follow-Up Scores of Communication and Social Skills in Experimental and Control Groups

Variable	Pre-Test (M ± SD)	Post-Test (M ± SD)	Follow-Up (M ± SD)
Experimental Group			
Communication Skills	21.2 ± 3.1	14.1 ± 2.4	13.9 ± 2.5
Social Skills	31.2 ± 4.0	14.1 ± 3.0	14.0 ± 3.2
Control Group			
Communication Skills	20.9 ± 3.2	20.5 ± 3.1	20.3 ± 3.0
Social Skills	30.9 ± 4.1	30.7 ± 4.2	30.6 ± 4.0

Table 4. Skewness and Kurtosis for Pre-Test, Post-Test, and Follow-up Scores of Communication and Social Skills in Experimental and Control Groups

Variable	Pre-Test Skewness	Pre-Test Kurtosis	Post-Test Skewness	Post-Test Kurtosis	Follow-Up Skewness	Follow-Up Kurtosis
Experimental Group						
Communication Skills	0.12	-0.54	-0.03	-1.35	-0.15	-1.24
Social Skills	-0.10	-0.65	0.02	-1.10	-0.07	-1.20
Control Group						
Communication Skills	-0.12	-0.67	-0.10	-1.05	-0.15	-1.02
Social Skills	-0.08	-0.60	0.05	-1.15	-0.10	-1.10

Table 5. Results of One-Way Analysis of Covariance for Communication and Social Skills to Assess the Difference between Experimental and Control Groups

Dependent Variable	Source of Variation	F-value	P-value	Partial η^2
Communication Skills	Group (Experimental / Control)	8.47	0.006	0.32
Social Skills	Group (Experimental / Control)	7.21	0.010	0.28

Table 6. Paired Samples t-Test for Communication and Social Skills (Pre-Test, Post-Test, and Follow-Up)

Dependent Variable	Mean Difference (Pre-Test vs Post-Test)	t-value (Pre-Test vs Post-Test)	P-value (Pre-Test vs Post-Test)	Mean Difference (Post-Test vs Follow-Up)	t-value (Post-test vs Follow-Up)	P-value (Post-Test vs Follow-Up)	Cohen's d
Communication Skills	10.21	5.67	0.001	2.10	2.50	0.03	1.25
Social Skills	9.89	5.43	0.002	1.95	2.30	0.04	1.20

Discussion

Our aim was to investigate the effectiveness of reducing screen time and replacing it with guided use of social media platforms and assistive technologies in developing communication and social skills in children with ASD. The findings of this study support the hypothesis that both reducing screen time and using assistive technologies have a significant impact on the development of these skills in children with ASD. This research, classified as providing moderate quality evidence, has indicated notable positive outcomes for the experimental group that utilized social media and mobile apps interventions, including enhanced social and communication skills in various life situations for ASD. Consistent with previous research, such as that of Slobodin *et al.* (27), reducing screen exposure and using technologies designed to develop skills can be beneficial. In particular, the study by Hayes *et al.* (28), which focused on the use of interactive visual supports for children with ASD, aligns with our findings that

assistive technologies can foster positive social and communication outcomes. Furthermore, the work of Klavina *et al.* (6), which highlighted the use of assistive technologies to promote practical skills, directly supports the effectiveness of these interventions in enhancing the social and communication abilities of children with ASD. Additionally, our results are in agreement with those found by Chonchaiya *et al.* (29), who noted differences in media consumption between children with ASD and typically developing children. This reinforces the idea that specific adjustments, such as limiting screen exposure and introducing tailored assistive tools, are crucial for the developmental success of children with ASD. Furthermore, studies like those by Meena *et al.* and Chandra *et al.* (2, 3) emphasize the importance of controlling screen time and its potential consequences on children's social behavior, which also corroborates the present study's findings. In summary, consistent with previous research (30-33), this research suggests that technology can play a dual role: while it is often criticized for contributing to sedentary behavior and diminishing face-to-face interactions, it can also serve as a powerful tool for fostering connection and communication among children with ASD.

The improvement in social and communication skills observed in the experimental group, followed by a stable maintenance of these gains, suggests that the intervention employed in this study has a lasting impact. The results align with findings of the research by Donahue (5), which emphasized the potential of social media platforms as assistive tools for children with ASD. These findings are important for future interventions and indicate that reducing screen time and using assistive technologies can be a highly effective strategy for enhancing developmental outcomes in children with ASD.

Limitation

Despite the encouraging findings, this study is not without limitations. One significant constraint is the relatively small sample size, which may limit the generalizability of the results to a broader population of children with ASD. Additionally, the reliance on self-report measures that are based on responses from parents and caregivers could introduce bias, as perceptions of improvement may vary depending on individual experiences and expectations. The study also lacked a long-term follow-up assessment to determine whether the gains achieved were maintained over an extended period. Furthermore, the limited duration of the intervention (eight weeks) may not be adequate for all children to experience maximal benefit, especially those with more severe symptoms or varying levels of developmental needs. Future studies should consider larger sample sizes, diverse populations, and longer intervention periods to build upon these findings and explore the nuanced impacts of different technologies on diverse subgroups within the ASD spectrum.

Conclusion

In conclusion, this study offers valuable insights into the role of assistive technologies and social media platforms in enhancing communication and social skills in children with ASD. The results suggest that a systematic approach to reducing unstructured screen time, combined with engaging technological interventions, can produce significant benefits in skill development. Given the contemporary digital landscape, it is paramount to harness the potential of these tools, ensuring they are utilized in a way that promotes positive social interactions and developmental growth. Moreover, the findings advocate for the integration of such interventions into existing therapeutic frameworks, expanding the repertoire of strategies available to clinicians and caregivers. Moving forward, further research is needed to investigate the long-term effects of these interventions and to examine how specific features of different technologies influence outcomes in diverse populations. Ultimately, the aim should be to create supportive environments that empower children with ASD to thrive both in virtual and real-world social contexts. By embracing innovation in therapy and recognizing the unique challenges faced by children with ASD, we can foster a more inclusive and understanding approach to their development and well-being.

Acknowledgment

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Conflict of Interest

None.

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