

Reports

Telehealth Interventions for Autism Spectrum Disorder Communities

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The Centers for Disease Control and Prevention has estimated the prevalence of autism spectrum disorder (ASD) in the United States to be 2.7%.¹ Importantly, diagnosis at age 4+ is considered delayed, as patients with ASD can be diagnosed and receive treatment as early as 2 years of age. Delays in diagnosis can be partially explained by factors such as a lack of trained specialists and long waitlists to see existing specialists, especially in rural or under-resourced areas. Early interventions for ASD are considered best practice, so delays in diagnosis are consequential. To reduce this gap in developmental screening, telehealth has been explored as a potential delivery method for diagnostic services that could increase access for at-risk communities.

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To reduce this gap in developmental screening, telehealth has been explored as a potential delivery method for diagnostic services that could increase access for at-risk communities. This article aims to synthesize the current evidence comparing the use of telehealth and in-person interventions in terms of diagnostic consistency and validity, health care delivery (eg, cost, safety, and equity), patient/caregiver satisfaction, usability of technology, and treatment efficacy (ie, improvement as measured by the Clinical Global Impressions [CGI] scale). This review aims to advance the literature in determining the optimal intervention models for patients and their families.

DIAGNOSTIC CONSISTENCY AND VALIDITY

Telehealth has been shown to be invaluable for addressing barriers to ASD diagnosis. Sutantio et al found that a telehealth approach using protocol-guided video recording evaluation has a high diagnostic validity compared to direct in-person assessment.² Indeed, the study showed that the diagnostic agreement between the 2 methods was 82.5%.²

Similarly, Nazneen et al compared in-person clinician diagnosis with parent recordings of child behavior that were then sent to clinicians for evaluation, reporting 91% diagnostic agreement between these 2 methods.³ Additionally, trained providers who remotely observed the administration of the TELE-STAT (a tool used to identify ASD symptoms via several tasks) were able to accurately identify 78.9% (15/19) of children who later received a diagnosis of ASD via a comprehensive in-person evaluation.⁴ In this study, no children were inaccurately diagnosed with ASD based on the telehealth consultation. Finally, in their review of 8 studies, Stavropoulos et al found that telehealth diagnoses are 80%–91% as accurate as in-person diagnoses.⁴ Altogether, these studies suggest that ASD diagnoses can be accurately made via remote observation and interviewing.

HEALTH CARE DELIVERY (COST, SAFETY, EQUITY)

Telehealth access reduces patient burden in part by reducing cost. Wagner et al indicated telehealth increases access to ASD diagnostic evaluations for those who may have had difficulty attending in-person appointments due to transportation or other financial barriers, such as taking time off work and obtaining childcare for siblings.⁵ Additionally, by reducing certain barriers for families, telehealth-based ASD diagnostic evaluations can decrease wait times, which can expedite time to diagnosis and early intervention services. Moreover, remote services can be safely provided dur-



ing public health emergencies such as the COVID-19 pandemic.

PATIENT/CAREGIVER SATISFACTION

Caregivers have reported high levels of satisfaction with ASD and neurodevelopmental telehealth diagnostic evaluations. In a study utilizing the TELE-ASD-PEDS and TELE-STAT, caregivers found the telehealth screening process acceptable and comfortable.⁶ Reisinger et al found that approximately 88% of caregivers reported being satisfied with telehealth evaluations and indicated that their child might have felt more comfortable playing with a parent compared to an unfamiliar adult such as the provider.⁷ The authors also noted that caregivers reported higher rates of satisfaction, especially those with lower adaptive skills that involve communication, daily living, and socialization and those who had children with higher ASD symptomology scores.⁷ This level of satisfaction may be due to the fact that for children who experience more severe ASD symptoms, a telehealth evaluation may facilitate the wait time for accessing an evaluation and diagnosis, which consequently leads to earlier access for interventions and supports.

USABILITY OF TECHNOLOGY

Despite the promise of telehealth in ASD diagnosis and treatment, caregivers and providers have indicated some concerns about telehealth. Some caregivers encountered difficulties operating their devices during evaluations or keeping their child on the screen while engaging in assessments.⁵ Others expressed concern that telehealth screening tools may not allow clinicians to observe the full range of a child's behavior. Providers have also expressed concerns about conducting virtual diagnostic assessments due to challenges related to the family's home environment, including a lack of play materials and distractions. However, a recent provider survey indicated that these problems were rarely rated as disruptive to the evaluation process.⁸ Furthermore, technical and setup difficulties occurred in less than 20% of the telehealth evaluations.⁷ Caregivers' and providers' overall perspectives about the usability of technology have been largely positive.

TREATMENT EFFICACY

In a study by Corona et al, researchers found that in-person ASD interventions produce better outcomes than telehealth interventions as assessed by the CGI Improvement scale.⁹ In this study, 115 patients with ASD and their families participated in a 6-session behavioral intervention and support service model either in-person, via telehealth, or through a hybrid service model.⁹ Between these groups, there was a statistically significant difference in improvement ($P < .05$) in the domains of play, nonverbal communication, and social interactions, with in-person services outperforming telehealth services.

However, within this study, parents also reported clinical improvements for children receiving telehealth-only services, reporting increased use of nonverbal social communication strategies (eg, eye gaze, gestures), vocalizations (eg, sounds, words), and symbolic communication (eg, object use).⁹ Bearss et al also found that within a single-arm feasibility trial of RUBI-PT (a program that provides virtual parental training to families with an ASD patient), 78.6% of children diagnosed with ASD were rated by an independent evaluator as "much improved" on the CGI scale after 24 weeks of treatment.¹⁰ Therefore, although some studies have found that virtual training is inferior in to-person training, virtual training has still been reported as effective.

DISCUSSION

The evidence indicates that there are pros and cons to the use of telehealth services in the provision of care for patients with ASD. Using virtual diagnostic services has the potential to expand access to ASD diagnosis and treatments and give providers more opportunities to observe patients with ASD in their natural environments. However, because the use of virtual intervention delivery has not been adequately studied—and what studies do exist are limited by small sample sizes, nonstandardized measures, and the absence of comparable control groups—in-person intervention delivery is preferred.¹¹

In summary, research suggests telehealth services are on par with in-person services, especially in terms of providing accurate diagnostic assessments. For some parameters, such as health care delivery, telehealth services are superior to in-person services in terms of cost-saving and accessibility. Most patients and caregivers are satisfied with telehealth services; however, some families prefer in-person care. The usability of telehealth services has also been largely positive. However, in terms of treatment efficacy, in-person services show evidence for greater clinical improvement when compared to telehealth services via the CGI scale. Overall, both telehealth and in-person services have their own limitations; however, telehealth services are a suitable alternative as their accessibility may accommodate patients with ASD and their families who are not always within reach of in-person services. By bridging the gap to earlier interventions, telehealth is a powerful tool with the potential to benefit many families.

Take Home Summary

The literature suggests that the quality of autism spectrum disorder care delivered through telehealth, particularly diagnostic assessments and early interventions, is equivalent to in-person services in terms of quality, reliability, and patient satisfaction. This article reviews the literature comparing in-person vs remote care based on several relevant parameters, including

diagnostic consistency and validity, service delivery, patient/caregiver satisfaction, usability of technology, and treatment efficacy.

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