Online tools can improve autism diagnosis

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Online tools and assessments can help speed up diagnosis of autism spectrum disorder (ASD), the first comprehensive survey of research in the field has concluded.

The survey showed that using internet-based tools in healthcare—a field known as telehealth—has potential to improve services in autism care, when used alongside existing methods.

The research, published today in *PLOS ONE*, was conducted by a team led by experts from Swansea University Medical School. The results are timely as the COVID-19 pandemic is prompting fresh thinking about providing services online.

Currently it can sometimes take several years after someone first seeks help before ASD diagnosis is confirmed. This can be due to a shortage of expertise, to several appointments being necessary, and the fact that the process can be very stressful for individuals who might later be diagnosed with ASD. As these are specialist services, they can also require lots of traveling for families and experts alike.

Delays in diagnosis can lead to poor outcomes for both the families and individuals.

Telehealth is already used successfully in areas such as radiology, cardiology, mental health, and for monitoring patients with diabetes and hypertension. However, the new study is the first to review the existing literature on the use of telehealth to support ASD diagnostic assessment.

The research team surveyed twenty years' worth of research in fields related to autism and telehealth, narrowing down an initial sample of 3700 articles to a set of ten for close study.

They examined which telehealth approaches have been used in the

diagnosis and assessment of ASD in children and adults and how they compare with face-to-face methods.

The review revealed two main approaches to using telehealth:

1. Real-Time method—for example, videoconferencing, which enables a range of health professionals in different areas to meet in real time with the family to assess the child or adult, reducing the need for travel or multiple appointments

2. Store-and-Forward method—this involves providing a way for parents/carers to upload videos of a child's behavior to a web portal, enabling clinicians to see a child in their everyday surroundings, to better inform the assessment.

The team found evidence that these two approaches: are acceptable to both families and clinicians; have good diagnostic accuracy; enable families from a wider area to access professionals; reduce costs for accessing care; enable the natural behaviors in the home setting to be observed; may enable both parents in divorced families to contribute to the diagnostic process.

Professor Sinead Brophy of Swansea University Medical School said:

"Telehealth can potentially improve the efficiency of the diagnosis process for ASD.

The evidence reviewed in our study shows that it can reduce delays and improve outcomes, when used in conjunction with existing methods. It could be of particular benefit to those with clear autism traits and adults with ASD.

Telehealth methods allow for collaboration and the sharing of

experiences between the family, education and ASD experts. They can be just as good as face-to-face methods in terms of satisfaction for the patient, family and clinician."

Manahil Alfuraydan of Swansea University Medical School, primary author of the research, said: "They reduce the time to diagnosis, particularly for those with more severe autism where there is good agreement in terms of the diagnosis compared to the face to face methods. Our study highlights the potential of telehealth. Larger randomized controlled trials of this technology in relation to ASD are warranted."

More information: Manahil Alfuraydan et al, Use of telehealth for facilitating the diagnostic assessment of Autism Spectrum Disorder (ASD): A scoping review, *PLOS ONE* (2020). DOI: 10.1371/journal.pone.0236415

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