

INDT-ASD : An Autism Diagnostic Tool for Indian Children DEVELOPMENTAL PEDIATRICIAN'S PERSPECTIVE

CHUI MAE WONG AND SWATI SINGHAL

Department of Child Development, KK Women's and Children's Hospital, Singapore. drsinghalswati@gmail.com

The Diagnostic and Statistical Manual for Mental Disorders, Version IV Text Revision (DSM-IV-TR), published by the American Psychiatric Association in 1994 (revision in 2000), defines Autism Spectrum Disorder (ASD) as a disorder characterized by qualitative impairments in social interaction, with varying degrees of difficulties in communication and marked repetitive behaviors or restricted interests. Version 5 (DSM-5), published in 2013, has made significant changes in the proposed criteria for autism diagnosis and classification, although almost all the core features from the DSM-IV TR still prevail [1]. Studies worldwide estimate that the prevalence of ASD has been increasing, with the US Centre for Disease Control and Prevention (CDC) reporting it to be around 1%. There are no actual figures for the Indian population, but it is estimated that there are around 2.3 million affected children in India [2].

Screening tools, such as the Modified Checklist for Autism in Toddlers (M-CHAT), Autism Behavior Checklist (ABC) and the Autism Spectrum Screening Questionnaire (ASSQ), are available for use by general pediatricians. If a child is suspected to have autism, based on clinical suspicion or positive screening on a checklist, he/she needs detailed evaluation to confirm the diagnosis. To diagnose autism, various psychometric tools are available which are mapped to either the DSM-IV TR or DSM-5. The use of these tools is not mandatory to diagnose autism and some clinicians prefer to conduct informal assessments based on history and their observations of the child. However, formal assessments tools are considered superior by most professionals as they tend to be more structured and reproducible to meet the required diagnostic criteria. These tools include the Childhood Autism Rating Scale (CARS), Gilliam Autism Rating Scale (GARS), Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R). However, it is important to note that all the above tools were developed in the Western world. There is some research to show that neurotypical

individuals from different cultures could display behavior and mannerisms that could be misread as autism by another society [3]. Autism being a behavioral diagnosis, it is vital to consider an individual's behavior within the context of cultural background.

The proposed new tool [4], the INCLEN Diagnostic Tool for Autism Spectrum Disorder (INDT-ASD), has been developed in India. It is to be used by trained personnel and is based on both history from primary caregivers and direct observation of a child aged 2 to 9 years. The tool has been standardized and validated using the CARS. The INDT-ASD certainly has some distinct advantages. It takes into account various ethnic and religious variables present in this culturally vibrant country, especially in respect to peer interaction and play skills. Apart from English, it is also available in various Indian languages, including *Hindi, Malayalam, Odia, Konkani, Urdu, Khasi, Gujarati* and *Telugu*. This undoubtedly facilitates interviewing of caregivers as well as interaction with the child. The tool also clearly indicates that in cases where the history obtained is incongruent with observations of the child, which information is to be given precedence over the other. In a resource-constrained setting, it appears to be an useful tool which can be completed in a short time. The tool appears equipped to diagnose children with severe autism (41 of the total 51 autistic children were diagnosed with severe difficulties). However, it perhaps needs to be further evaluated to see if it can also reliably diagnose those with high-functioning autism or Asperger Syndrome (none of the children in the study had an Asperger diagnosis). There was reported to be no gender differences although actual numbers of boys and girls in the autism group were not given. Also, although the performance of the INDT-ASD was stated to be 'equally good among pre-school (< 6 years) and primary school (≥ 6 years) children', larger field trials would be useful to ascertain the sensitivity and specificity of the INDT-ASD in children 2-3 years of age, as we move worldwide towards earlier identification and intervention in ASD.

This would then also better link in with the cut-off age of '4 years or more' used in many questions in the INDT-ASD. Longer-term longitudinal studies can also be undertaken to determine the diagnostic stability of the INDT-ASD.

The INDT-ASD is currently mapped closely to the DSM-IV TR. Now that the DSM-5 has been published, further research should be done to see if it is just as efficacious for the DSM-5 criteria. It would also be interesting to see how the tool compares to other locally developed tools, such as the Indian Scale for the Assessment of Autism (ISAA), which has been available since 2009 [5]. Finally, an important aspect to note is that psychometric diagnostic tools are to assist a clinician to conclude a diagnosis, but ultimately, it is sound clinical judgment – based on a clear history and a thorough behavioral observation – that is of utmost importance. It is always prudent to consider other differential diagnoses such as cerebral palsy, intellectual disability, neurodegenerative disorders, hearing loss and vision loss.

We hope that further training, usage, and development of the INDT-ASD will facilitate awareness, diagnosis and early intervention for children with autism in India.

Funding: *None*; Competing Interest : *None stated*

REFERENCES

1. Brentani H, Paula CS, Bordini D, Rolim D, Sato F, Portolese J, *et al.* Autism spectrum disorders: an overview on diagnosis and treatment. *Rev Bras Psiquiatr.* 2013;35(Suppl 1):S62-72.
2. Krishnamurthy VA. Clinical experience of autism in India. *J Dev Behav Pediatr.* 2008;29:331-3.
3. Freeth M, Sheppard E, Ramachandran R, Milne E. Cross-cultural comparison of autistic traits in the UK, India and Malaysia. *J Autism Dev Disord.* 2013;43:2569-83.
4. Juneja M, Mishra D, Russell PSS, Gulati S, Deshmukh V, Tudu P, *et al.* INCLIN diagnostic tool for autism spectrum disorder (INDT-ASD): Development and validation. *Indian Pediatr.* 2014;51:
5. Patra S, Arun P. Use of Indian scale for assessment of autism in child guidance clinic: an experience. *Indian J Psychol Med.* 2011;33:217-9.

Challenges in Diagnosis of Autism and the Struggle of Using Western Screening Tools in Different Cultures PSYCHIATRIST'S PERSPECTIVE

ANJALI VARMA AND JOSEPH W ISKANDAR

Department of Psychiatry and Behavioral Medicine, Virginia Tech Carilion School of Medicine, Roanoke, VA 24016, USA.

Anjali.Varma@va.gov

Autism spectrum disorder (ASD) and other related conditions are estimated to affect up to 10-15 people per 10,000 in populations worldwide [1]. As defined in the recently published Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), ASD encompasses the previous DSM IV TR's autistic disorder (autism), Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified. ASD manifests in early childhood and is characterized by deficits in verbal communication, social interaction, and restricted repetitive behaviors, interests and activities. Although a clear etiology of ASD is unknown, several different factors have been implicated such as genetic predisposition, obstetric complications, exposure to toxic agents, and perinatal exposure to medications such as valproic acid [2], or infections such as maternal rubella. Several metabolic abnormalities have

been identified in various studies (e.g. elevated 5-HT, impaired phenolic amines metabolism) while neuroimaging has yielded inconsistent results in evaluating autism. Thus, the diagnosis is primarily clinical and often challenging due to frequent co-morbidities and lack of adequate comprehensive screening.

With increased awareness of the potential benefits of early interventions, there has been an increased interest and emphasis on early identification of infants and toddlers with or at risk of ASD. Several instruments have been developed to diagnose ASD. However, administering these tools may need the expertise of child psychiatrists, pediatricians and child psychologists who have extensive training and experience with children with autism in order to use these tools and come up with a reliable and valid evaluation. The Childhood Autism Rating Scale (CARS) is a commonly used scale for diagnosis and measuring the severity of autism along