

**NEURODEVELOPMENTAL DISABILITIES
AMONG CHILDREN IN INDIA: AN INCLEN
STUDY**

**INCLEN Module
Autism Spectrum Disorder
(ASD)**



THE INCLEN TRUST INTERNATIONAL

1. LEARNING OBJECTIVES OF THE MODULE

OBJECTIVES

After completing this module, the participant should be able to:

- Describe the core symptoms of Autism Spectrum Disorder (ASD)
- Describe the different clinical presentations of ASD
- Clinically evaluate a child with ASD using DSM-IV TR criteria

2. INTRODUCTION

The term Autism Spectrum Disorder (ASD) constitutes a wide spectrum of neurodevelopmental disorders characterized by impairment in several areas of development. The term ‘pervasive’ is used because many basic areas of psychological development are affected at the same time. The impairments are ‘qualitative’ and are distinctively deviant relative to the individual’s developmental or cognitive age. These include deficits in reciprocal social-emotional functioning, atypical language and communication, and unusual behaviours including stereotypic behaviours and/or restricted interests.

According to proposed revisions (DSM V Development) by American Psychiatric Association*, the term Autism Spectrum Disorder

(ASD) includes autistic disorder (autism), Asperger’s Disorder, Childhood Disintegrative Disorder and PDD-Not Otherwise Specified (PDD-NOS). Our knowledge of ASD is evolving and as we learn more about the etio-pathogenesis of these disorders, classifications will evolve.

Autism Spectrum Disorders (ASD) Comprises of ...

1. Includes autistic disorder/autism
2. Asperger’s Syndrome
3. Rett’s Disorder
4. Childhood Disintegrative Disorder
5. Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS)

(DSM IV TR)

* American Psychiatric Association- DSM V Development
<http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=94#>

Critical Concept

1. Qualitative impairment in reciprocal social interactions
2. Qualitative impairment in communication skills
3. Presence of stereotyped behaviors or restricted interests and activities

2.1 Definition of Autism Spectrum Disorders (ASD)

Developmental disorders characterized by qualitative impairment in reciprocal social interactions along with qualitative impairment in communication and/or restrictive, repetitive and stereotyped pattern of behavior, interests and activities. In addition, children with ASD may have unusual responses to sensory experiences or perceptions.

2.2 Description of Disorders Included within ASD

* *Autistic Disorder*

Autistic disorder is considered to be the behavioral prototype of Autism Spectrum Disorders, thus it will be discussed in depth here.

All of the following symptoms/deficits may/may not be present in a child. Since there is a wide variation in presentation of ASD, variable combination of symptoms may be present in a given child.

a. *Deficits in reciprocal social interaction*

- This may manifest as a delay in appearance of social smile
- There may be impairment in the non-verbal behaviors used for social interaction (eye-to-eye contact, facial expressions, body postures and gestures)
- Child may appear to be “in his/her own world”
- There may be lack of spontaneous sharing of enjoyment and interests with other people
- Social interaction is rarely initiated spontaneously
- Contrary to popular belief, autistic children can show definite signs of attachment with familiar people or even clinginess to a specific caregiver
- On the other extreme, these children may display excessive familiarity with strangers due to the absence of social inhibitions and stranger anxiety

b. *Deficits in verbal and non-verbal communication*

- Approximately 50% never develop speech. In the remaining 50%, language acquisition is delayed and deviant
- This may manifest with impairment in the ability to initiate or sustain a conversation, or stereotyped, repetitive use of language
- Children may exhibit repetition of words or phrases regardless of meaning or relevance (echolalia) and pronominal reversal (substituting ‘I’ for ‘you’ or vice-versa)
- Delayed speech along with absence of meaningful gestures in children with autism results in significant handicap in terms of social communication. The child may not be able to understand gestures or use them during communication

- There is delayed / absent protodeclarative pointing or effort to indicate an item of interest to another person

c. *Stereotypic Behavior*

- Restrictive and repetitive behaviors present as stereotypic movements (body rocking, finger twirling, hand flapping, spinning and tiptoe walking)
- A preoccupation with certain ideas or objects (i.e. a fascination with certain numbers, letters, schedules, animate or inanimate objects especially parts of a toy)
- An apparently inflexible adherence to specific, nonfunctional routines or rituals

d. *Sensory Deviance*

- These may be visual (seeing things from a particular angle), auditory (appearing deaf at times, clapping hand over their ears), olfactory (sniffing objects) or perceptual (refusing to eat food with certain textures or tastes, mouthing of objects, compulsive touching of certain objects or textures, diminished response to pain)
- Increased sensitivity to touch, including but not limited to the feel of running water, adversity to bathing

e. *Play*

- This may be atypical or deviant, and if present, is mechanical and repetitive
- Imaginative play is markedly impaired or absent
- The child may play with objects which are not usually used for play by children of the same developmental level. E.g. A six-year old child collecting and playing with shoes, papers or wrappers
- Lining things up

f. *Abnormalities of mood or affect*

- Mood may be inappropriate to the situation or circumstances.
- This may be in the form of uncontrollable crying or laughing in a situation where it is not warranted.

g. *Others*

These children may be oblivious to hazards or may have excessive fear of harmless objects.

*** *Other Autism Spectrum Disorders***

¶ ***Asperger's Disorder***

- It is characterized by marked difficulties in socialization, a one-sided communication style and rigid pattern of interests that may appear focused on rote memorization of factual information.
- Intellectual skills are usually preserved.
- These children may show marked paucity of nonverbal communication such as use of gestures and affective tone of voice, lack of empathy and a tendency to intellectualize emotions and motor clumsiness.

¶ **Rett's Disorder**

- Children seem to develop normally for the first 5-18 months of life, although parents may notice excessive hand patting, waving, and involuntary movements of the fingers, wrists and arms.
- This is followed by slowing of acquisition of developmental milestones. Children undergo rapid deterioration with loss of previously acquired speech, and loss of purposeful hand movements. Typically "hand washing and wringing" movements and other stereotyped behaviors develop. Fine tremulousness of body and ataxia are also seen.
- A lack of interest in social relationships occurs. Social skills may improve later in life.
- These children are generally mentally retarded.
- Another characteristic feature is deceleration of head growth, which leads to acquired microcephaly.
- Although this has classically been reported in girls, since the discovery of the MECP2 gene, variants of this syndrome with some overlap in the symptomatology have been reported in males who have mutations of MECP2
- Children with Rett's Disorder are also prone to develop breathing irregularities and cardiac arrhythmias.

¶ **Childhood Disintegrative Disorder (CDD) or Heller's Disease**

- Children develop normally in language, social and other skills until 2-3 years age.
- This is followed by a period of regression in which all previously acquired skills (bowel and bladder training, language and social skills) are lost.
- The child may become mute, lose the ability to play purposefully and develop autistic-like stereotypes.
- A child with CDD is often indistinguishable from a child with autism. The diagnosis is based on the child's early development. In the majority of cases (75%) the child's behavior and development deteriorate to a much lower level of functioning and then plateau. In a minority the deterioration is progressive.

¶ **Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)**

This category is used when there is severe and pervasive impairment in development of reciprocal social interaction, associated with impairment in either verbal or nonverbal communication skills or presence of stereotyped behavior, interests and activities; but the criteria are not fulfilled for a specific ASD. This category includes "atypical autism" i.e. presentations that do not meet criteria for ASD because of late age at onset, atypical symptomatology or sub threshold symptomatology or all of these.

3. CLINICAL SPECTRUM

3.1 Clinical features of Autistic Spectrum Disorders

Manifestations may vary depending on the level of development, chronological age and degree of impairment.

- Onset of symptoms is usually before 3 years of age.
- The most noticeable characteristic is impaired ability to develop normal social skills with lack of eye contact, gestures and facial expression.
- Delay in or failure to acquire speech. Young children with autism also have deficient comprehension and the communicative use of speech and gesture. (*This may not be true for*

children with Asperger's Disorder who can often pass as "typical" until a much later age i.e. about 10-12 years).

- Children with autism often do not engage in pretend play, which starts before the age of two years in normal children. Intrusive stereotypes may prevent children from engaging in meaningful activity or social interaction.

3.2 Co-morbidities with Autistic Spectrum Disorders

- **Psychiatric Disorders:** The co-morbid psychiatric disorders include Attention Deficit Hyperactivity Disorder, anxiety disorders, disruptive behavior disorders, mood disorders, tics, Tourette Disorder and depression.
- **Intellectual Disabilities (previously referred to as Mental Retardation):** About 41% children with ASD have intellectual disabilities (i.e. IQ < 70)[†]
- **Epilepsy / Seizures:** The overall prevalence of epilepsy in children with ASD is 25-30%. The presentation is bimodal, with onset most likely to occur in infancy, with a second peak in early adolescence. All types of seizures may occur. Children with Tuberous sclerosis are more likely to have epilepsy and autistic disorder.
- **Feeding Disturbances and Gastrointestinal Problems:** Feeding habits and food preferences have been commonly associated in children with ASD. The frequently reported food disturbances are low levels of food acceptance, food selectivity by type and food selectivity by texture. Gastrointestinal problems are frequently reported (30%) and can be severe in nature.
- **Sleep Disturbances:** Sleep problems have been reported in 44–83 percent of children (aged 3–15 years) with autism. Parasomnias (behaviors like breath cessations and bruxism) have also been reported.
- **Hearing Impairment:** The vast majority of children have normal hearing function. Nevertheless studies have reported profound bilateral hearing loss in 3.5% of cases of autistic children, prevalence greater than that seen in the general population.

Co -occurring Conditions

- Psychiatric Disorders
- Intellectual Disabilities
- Epilepsy / Seizures
- Feeding Disturbances and Gastrointestinal problems
- Sleep Disturbances
- Hearing Impairment

3.3 Natural History / Course of Autism Spectrum Disorder

- It is very important to remember that the clinical spectrum changes with age and level of developmental maturity.
- The specific characteristics change as the child grows older, but the deficits continue into and through adult life with broadly similar patterns.
- During infancy, most children with ASD have a history of delayed language development. Some children (25-30%)[‡] begin to say few words and then stop speaking often between 15 to

[†] <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5810a1.htm>

[‡] Tuchman RF, Rapin I. Regression in pervasive developmental disorders: seizures and epileptiform electroencephalogram correlatives. *Pediatrics*. 1997;99:560–5662.

24 months of age. Often delays and deviations in language become apparent during the 2nd or 3rd year of age and are a common cause of seeking professional help.

- As the child develops, the child may become more willing to be passively engaged in social interaction, but their behavior is still deviant with lack of awareness of other people's boundaries and/or inappropriate intrusiveness.
- Hyperactivity improves and ritualistic behaviors start decreasing during adolescence. Depression may develop in some high functioning autistic individuals who have limited social and language skills when they struggle with the normal desire to be a part of a group.

Early indicators of risk for ASD

Early red flag signs for communication-

- Does not babble by 1 year of age
- Does not point to objects or people by 1 year of age
- Does not make meaningful gestures by 1 year of age
- Does not speak one word by 16 months
- Does not combine two words by 2 years
- Does not respond to name
- Loss of language or social skills at any age
- Decreased use of non-verbal behavior during communication: e.g., eye to eye gaze, facial expression, body posture, gestures

Early red flag signs for social functioning-

- Poor eye contact
- Doesn't smile
- Doesn't seem to know how to play with toys
- Excessively lines up toys or other objects
- Is attached to one particular part of the toy or object
- Does not share enjoyments, interests or achievements with other people (e.g. Does not show or point)

Werner E, Dawson G. Validation of the phenomenon of autistic regression using home videotapes. *Arch Gen Psychiatry*. 2005;62:889–895

Turner LM, Stone WL, Pozdol SL, Coonrod EE. Follow-up of children with autism spectrum disorders from age 2 to age 9. *Autism*. 2006;10:243–265

4. DIFFERENTIAL DIAGNOSES

- Acquired epileptic aphasia (Landau-Kleffner syndrome) - History of epileptic seizures (first manifestation in up to 60% patients), clinical course, EEG.
- Stereotypic Movement Disorder
- Severe or profound Intellectual disabilities
- Undiagnosed hearing impairment

5. DIAGNOSIS

5.1 Diagnostic Criteria

Consensus Clinical Criteria (CCC)– ASD is defined as group of developmental disorders characterized by qualitative impairment in reciprocal social interactions along with qualitative impairment in communication and / or restrictive, repetitive and stereotyped pattern of behavior, interests and activities.

The criteria for diagnosis is based on best currently available evidence and / or consensus among national and international experts, using minimal investigations to serve the needs of resource-constrained settings.

5.2 Instructions for Evaluation

1. In evaluating a child, clinicians rely on questionnaires and direct observation (both structured and unstructured settings) to arrive at a diagnosis
2. In the current program, DSM-IV TR criteria are used for the diagnosis of autistic spectrum disorders
3. For the ease of application, a part of DSM-IV TR criteria have been converted into a questionnaire. This consists of questions to elicit responses in three relevant categories:
 - a. Qualitative impairment in social interaction,
 - b. Communication, and
 - c. Restrictive, repetitive and stereotyped pattern of behavior, interests and activities

Consensus Clinical Criteria (CCC) for Diagnosis of Autism Spectrum Disorders[§]

DSM- IV TR Criteria
A. A total of six (or more) items from (1), (2), and (3), with at least two from section (1), and at least one each from (2) and (3)
1. Qualitative impairment in social interaction, as manifested by at least two of the following:
a. Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial Expression, body postures, and gestures to regulate social interaction.
b. Failure to develop peer relations appropriate to developmental level
c. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g. by a lack of showing, bringing, or pointing out objects of interest)
d. Lack of social or emotional reciprocity (give-and-take)
2. Qualitative impairment in communication, as manifested by at least one of the following:
a. Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
b. In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
c. Stereotyped and repetitive use of language
d. Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
3. Restrictive repetitive and stereotyped pattern of behavior, interests and activities, as manifested by at least one of the following:-
a. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
b. Apparently inflexible adherence to specific, nonfunctional routines or rituals
c. Stereotyped and repetitive motor mannerism (e.g., hand or finger flapping or twisting, or complex whole-body movements)
d. Persistent preoccupation with parts of object
B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:
• Social interaction
• Language as used in social communication
• Symbolic or imaginative play
C. The disturbance is not better accounted for by Rett's Disorder or Childhood disintegrative disorder

[§] Source: **Diagnostic & Statistical Manual of Mental Disorders Fourth Edition- Text Revision (DSM IV-TR)**

Consensus Criteria for Diagnosis of Asperger's Disorder

DSM-IV TR Criteria

<p>In Asperger's Disorder (as compared to autism), there is no significant delay in language. There is also no significant delay in cognitive development or in the development of age appropriate self help skills, adaptive behavior and curiosity about the environment in childhood. <i>Diagnosis depends on affirmative response to at least two items in (A) and at least one item in (B) and affirmative response to (C), (D), (E) and (F).</i></p>	
A	Qualitative impairment in social interaction, as manifested by at least two of the following:
	1. Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
	2. Failure to develop peer relationships appropriate to developmental level
	3. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
	4. Lack of social or emotional reciprocity
B	Restricted, repetitive, and stereotyped patterns of behavior, interests, and activities, as manifested by at least of one of the following:
	1. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
	2. Apparently inflexible adherence to specific, nonfunctional routines or rituals
	3. Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole body movements)
	4. Persistent preoccupation with parts of objects
C	The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.
D	There is no clinically significant delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).
E	There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.
F	Criteria are not met for another specific pervasive developmental disorder.

Consensus Criteria for Diagnosis of Rett's Disorder

DSM-IV TR Criteria

These individuals have apparently normal prenatal and perinatal development, and normal psychomotor development through the first five months of life with normal head circumference at birth. There is loss of previously acquired purposeful hand skills between the age of 5 and 30 months with subsequent development of stereotyped hand movements (e.g., hand wringing or hand washing)	
(A) All of the following:	
1. Apparently normal prenatal and perinatal development	
2. Apparently normal psychomotor development through the first five months after birth	
3. Normal head circumference at birth	
(B) Onset of all of the following after the period of normal development:	
1. Deceleration of head growth between ages 5 and 48 months	
2. Loss of previously acquired purposeful hand skills between ages 5 and 30 months with the subsequent development of stereotyped hand movements (e.g., hand wringing or hand washing)	
3. Loss of social engagement early in the course (although often social interaction develops later)	
4. Appearance of poorly coordinated gait or trunk movements	
5. Severely impaired expressive and receptive language development with severe psychomotor retardation	

Consensus Criteria for Diagnosis of Childhood Disintegrative Disorder

DSM-IV TR Criteria

There is marked regression in multiple areas of functioning following a period of at least 2 years of apparently normal development. There is clinically significant loss of previously acquired skills (before age 10 years) in at least two of the following areas: expressive or receptive language, social skills bowel or bladder control, play or motor skills.	
A	Apparently normal development for at least the first two years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play, and adaptive behavior
B	Clinically significant loss of previously acquired skills (before age 10 years) in at least two of the following areas: <ul style="list-style-type: none"> • Expressive or receptive language • Social skills or adaptive behavior • Bowel or bladder control • Play • Motor skills
C	Abnormalities of functioning in at least two of the following areas: <ul style="list-style-type: none"> • Qualitative impairment in social interaction (e.g., impairment in nonverbal behaviors, failure to develop peer relationships, lack of social or emotional reciprocity) • Qualitative impairments in communication (e.g., delay or lack of spoken language, inability to initiate or sustain a conversation, stereotyped and repetitive use of language, lack of varied make-believe play) • Restricted, repetitive, and stereotyped patterns of behavior, interests, and activities, including motor stereotypes and mannerisms)

Consensus Criteria for Diagnosis of Pervasive Developmental Disorder-NOS (PDD-NOS)

DSM-IV TR Criteria

A diagnosis of “PDD-NOS” is made in the following conditions

- When the child fulfils the diagnostic criteria for Autism, but age of onset of symptoms is after 3 years
- When the child has impaired social interaction and either impaired verbal/non-verbal communication or restrictive, repetitive, and stereotyped patterns of behaviors, interests, and activities, but total number of criteria fulfilled is 3-5.

Proposed Modifications in DSM IV Criteria leading to DSM V

The DSM IV criteria (used for building CCC for ASD as well as the instrument INDT) are currently in the process of being modified and updated, leading to the proposed DSM V**. DSM V proposes Autism Spectrum Disorders to include autistic disorder (autism), Asperger’s Disorder, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified. Rett’s Disorder is excluded from the spectrum of ASD. The three domains/criteria for diagnosis of ASD have been modified and merged into two major domains i.e.-

- Social /communication deficits
- Fixated interests and repetitive behaviors

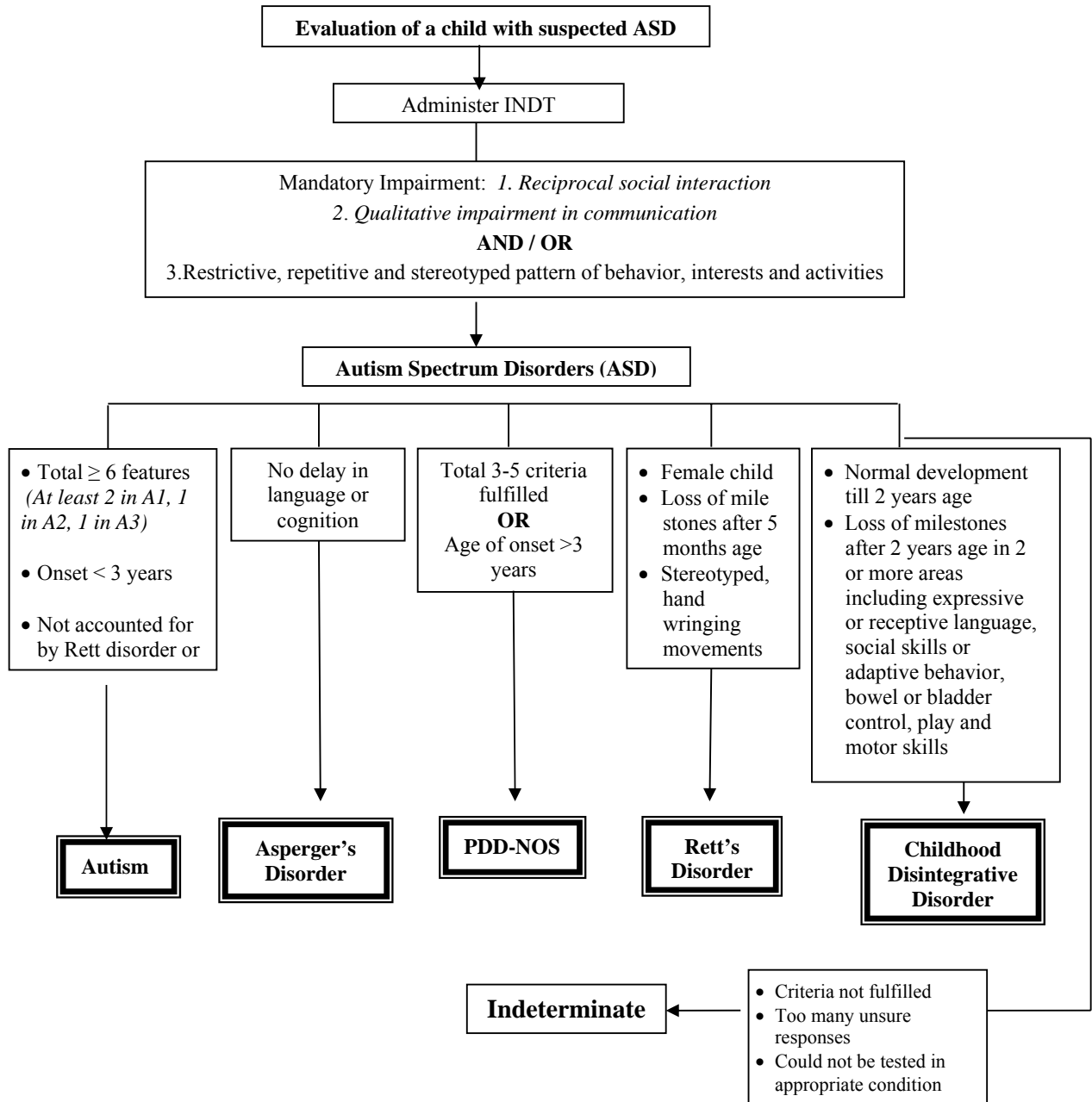
This has been done to avoid repetition of certain criteria and is thought to increase clarity and specificity with adequate sensitivity. One notable addition is the criteria of “unusual sensory behaviors” within the sub-domain of stereotyped motor and verbal behaviors. Other major modifications include-

- No particular age limit for onset of symptoms (three years in DSM IV) has been specified
- The criteria in DSM IV stating that “the symptoms are not better accounted for by Childhood Disintegrative Disorder and Rett’s Disorder” have also been removed.

The final DSM V criteria are expected to be published and released in 2013.

** <http://www.dsm5.org>

Algorithm for Evaluation of ASD



Source: Tool Developed and validated by INCLLEN TAG members

6. BROAD PRINCIPLES OF MANAGEMENT

The goals of management of ASD are-

- Advancement of normal development (acquisition of cognitive, communication and social skills)
- Promotion of learning and problem solving in structured semi-structured and unstructured settings.
- Reduction of maladaptive behavior that impede learning in order to facilitate integration into the society
- Treatment of all co-morbid conditions
- Assistance to families to cope with the child's behavioural impairments and to provide appropriate therapies and interventions

6.1 Management of Primary Problems

The earlier and more frequent the intervention, the better the prognosis. Universally accepted goals are improvement of the overall functioning status of the child with development of communication, social, adaptive, behavioral and academic skills. Therapy with young children focuses on speech and language, special education, parent education, training and support and pharmacotherapy for certain target symptoms. Older children and adolescents with greater intelligence but poor social skills and psychiatric symptoms may require psychotherapy, behavioral or cognitive therapy and pharmacotherapy.

6.1.1 Behavioral & Psychological Treatment

This is the primary mode of therapy for children with ASD. Training programme for each child is individualized based on the child's likes and dislikes.

▲ For children 2- 3 years of age

- Target deficits in learning, language, imitation, attention, motivation, compliance and initiative of interaction.
- Behavioral methods/ communication/ occupational/ physical therapy/ social play intervention.
- Physical activity to develop motor coordination (games/ puzzle/ paint).
- Encourage interaction and use of language at snack time.

▲ For children 3- 9 years of age

- Provide a structure to enable a child to acquire social skills and functional communication.
- Involve parents to help the child use the skills and behavior learned at school when at home.
- Encourage to grow his/ her areas of strength.
- Skills as learning how to behave in social gatherings and in making friends
- Address practical matters in activities of daily living

Management

- Behavioral and Psychological Treatment
- Pharmacological Treatment
- Management of associate problems / Comorbidities
- Family Support

Applied Behavior Analysis (ABA)^{††} for treatment of autism has seen a surge of interest in the recent years. ABA is the use of behavior analytic methods and research findings to change socially important behaviors in meaningful ways. In a quality ABA program, behavior change procedures are specified clearly with a written program or set of instructions for teaching each skill. The instructions and prompts, reinforcers (rewards) and materials are used to develop each skill are tailored to the needs of the individual learner.

6.1.2. Pharmacological Treatment

- There is no pharmacological cure or substitute for appropriate educational, behavioral, psychotherapeutic, vocational, and recreational programs.
- Medication is used only as an adjunct to these core behavioral and psychological interventions.
- The goals are to minimize core symptoms, prevent harmful behavior (aggression, self-injury) and maximize the benefits of non-medical intervention.
- A reduction in these abnormal behaviors may facilitate communication, learning, socialization and integration into community settings.

6.2 Management of Associated Problems / Co-morbidities

- **Intellectual Disability-** Acquisition of skills employed in the activities of daily living
- **Eating Disorder-** Cognitive Behavior therapy in those without significant intellectual disability
- **Sleeping Disorder-** Use of appropriate medications and routine activity.

6.3 Steps for Prevention

Secondary and tertiary prevention include-

- Genetic counseling (especially genetic and metabolic conditions associated with Autistic disorder and Rett's Disorder)
- Increasing awareness among parents and community.
- Increasing index of suspicion among primary care providers to enable early diagnosis.
- Increasing awareness and sensitizing kindergarten, nursery and primary school teachers
- Appropriate management as early as possible.

6.4 Referral Pattern

- High index of suspicion and early identification
 - By increasing awareness among parents and teachers (play schools and regular schools)
 - Awareness among doctors- general pediatricians/ psychologists/ pediatric neurologists
- Creating a network of agencies who can diagnose and manage such children so that appropriate and timely referral can be possible

6.5 Rehabilitation

Rehabilitation of children with ASD involves providing multidisciplinary assessment and advice to prevent development of secondary complications. The rehabilitation team should consist of a group of

^{††} <http://www.autismspeaks.org/whattodo/index.php>

specialist professionals who work as a coordinated multidisciplinary team to enable people to transfer skills acquired during therapy sessions to their daily living activities. These include a developmental pediatrician / neurologist, a psychiatrist, ophthalmologists and optometrists, audiologists, psychologists, occupational and physical therapists, speech and language pathologist, behavioral expert and special educator.

6.6 Special Benefits

- National Trust for Welfare of Persons with Autism, Cerebral Palsy, Intellectual Disability and Multiple Disability Act, 1999 has provisions for legal guardianship of the four categories and creation of enabling environment for as much independent living as possible. The Ministry of Finance has included income tax exemption for parents/ guardians of children with autism according to Section 80DD and Section 80U of the Income Tax Act 1961.
- The National Trust also provides following assistance for persons with disabilities: Economic rehabilitation of persons with disabilities comprise of both wage employment in organized sector and self-employment (3% reservation in employment in government establishments; wage employment in private sector; self-employment; special benefits for women and children with disabilities; provision of barrier-free environment).
- NHFDC (National Handicapped Finance and Development Corporation) schemes implemented through state channelising agencies (SCA) and nationalized banks: Loan up to Rs. 3.00 lakh can be availed for self-employment amongst persons with intellectual disability, cerebral palsy and autism

6.7 Management of the Family with a Affected Child

- Developing social support groups
- Counseling the family

6.8 Assessment of Medical Co morbid Aspects

1. Assessment of vision and hearing in all children
2. Assessment of intellectual disability in all children
3. **Electroencephalography:** indicated in children with suspected seizures, episodes of unusual behavior and symptoms of regression, unusually poor sleep or regressive loss of previously acquired sleep.
4. **Neuroimaging:** indicated in children with focal neurological signs, dysmorphic features or regression.
5. **Assessment of sleep disorders:** indicated when the sleep problems cause considerable stress and interfere with family functioning.
6. **Assessment of feeding problems:** if leading to significant malnutrition
7. **Genetic referral and testing (DNA analysis, High-Resolution Chromosome Analysis):** indicated in the presence of dysmorphic features or a positive family history of intellectual disability of undetermined etiology. Genetic testing for Fragile X syndrome and Rett's Disorder is available.
8. **Metabolic testing:** indicated when there is additional history of episodic lethargy and cyclic vomiting, early seizures, dysmorphic features, intellectual disability or regression.
9. **Screening for lead levels:** indicated for children with significant geophagia or pica.

Case Vignettes

Case vignette 1

Sonia, a three year old girl was brought by her parents with the complaints of delayed speech and abnormal behavior. On further questioning the possibility of an ‘Autistic Spectrum Disorder (ASD)’ was considered. The Consensus Clinical Criteria (CCC) for ASD was applied. The parental responses and/or physicians’ observations have been recorded in the form below.

Give your diagnosis?

	Ask	Observe	Encircle the appropriate response		
A1a	i) * For children aged less than 4 years: Does your child usually enjoy being taken in the lap or hugged? For children aged 4 years or more: When your child was a baby/toddler, did he/she enjoy being taken in the lap or hugged? <input type="checkbox"/>	In children below 4 years age: Response to being touched and cuddled by parent: enjoys/tolerates/squirms/ stiffens/ gets upset/ <input type="checkbox"/> Indifferent <input type="checkbox"/>	Yes	No	Unsure
	ii) Does your child usually make eye contact with you or other people? <i>E.g. While playing, asking for things, talking to you.</i> <input type="checkbox"/>	* Quality of eye contact <input type="checkbox"/>	Yes	No	Unsure
	iii) * Does your child usually use various gestures appropriately during social interactions? <i>E.g. Namaste, Salaam, waving bye-bye, hello, touching feet etc.</i> (At least sometimes spontaneously) <input type="checkbox"/> (use appropriate example as required)	Use of these gestures in response to your greeting and while departing <input type="checkbox"/>	Yes	No	Unsure
	Further elaborate if required about inappropriate gestures like repeatedly greets anybody without knowing				
A1b	iv) Does your child usually show appropriate facial expressions according to the situation? <i>E.g. being happy, sad, afraid etc.</i> <input type="checkbox"/>	*Appropriateness of facial expressions while interacting with parents, with you (stranger), while playing, when given toy/favorite food or when scolded. <input type="checkbox"/>	Yes	No	Unsure
	i) * Does your child usually enjoy the company of other children? <input type="checkbox"/>	Child’s interaction with other children <input type="checkbox"/>	Yes	No	Unsure
	ii) * For children aged 4 years or more: Does your child have friends of his/her age (In school and neighborhood) with whom he/she loves to share food or play together? <input type="checkbox"/>	Quality of child’s interaction with other children of his/her age <input type="checkbox"/>	Yes	No	Unsure or NA
	iii) * For children aged 4 years or more: Does your child play mostly with children who are much older or much younger than him/her? <input type="checkbox"/>	Quality of child’s interaction with other children <input type="checkbox"/>	Yes	No	Unsure or NA

A1c	i) * For children aged less than 4 years: Does/did your child ever point with his/her index finger to bring your attention to show the things that interest him/her ? <i>E.g. kite, plane flying in the sky, cow/dog on the road etc.</i> For children aged 4 years or more: Does your child usually bring things to show you on his/her own he/she has made painted or new toy/gift? <input type="checkbox"/>	Observe how the child draws attention toward a toy/object of interest; Look for coordinated pointing <input type="checkbox"/>	Yes	No	Unsure
	ii) * For children aged 4 years or more, and are able to speak: Does your child talk to you about things he/she likes or has achieved without being asked about them? <input type="checkbox"/>	<input type="checkbox"/>	Yes	No	Unsure or NA
A1d	i) * Does your child usually prefer to play alone and gets irritated/moves away when his/her sibs or other kids try to play with him/her? <input type="checkbox"/>	Quality of play activity in a group of children or with siblings <input type="checkbox"/>	Yes	No	Unsure
	ii) * Does your child play games involving turn taking or rule based with other children properly ? <i>E.g. Cricket, Hide and seek/I-spy, Ludo, Stapoo, Ring-a- ring roses etc.</i> <input type="checkbox"/>	Quality of child's involvement in rule-based games or games involving taking turns <input type="checkbox"/>	Yes	No	Unsure
	iii) * Does your child usually share his/her happiness with you or come to you for comfort when hurt or upset? <input type="checkbox"/>	Sharing happiness or distress with the parents <input type="checkbox"/>	Yes	No	Unsure
	iv) * For children aged 4 years or more: Does your child usually share your happiness or try to comfort you when you are upset/sad? <input type="checkbox"/>	Sharing of parent's happiness or distress by the child <input type="checkbox"/>	Yes	No	Unsure or NA
A2a	* Does your child speak normally for his/her age? <i>If the child can not speak normally:</i> Can he/she communicate with you by using gestures? <i>E.g. pointing with index finger, nodding/shaking head for yes/no etc.</i> <input type="checkbox"/> <i>If the child can not speak at all AND can not communicate by appropriate gestures, then only mark as "NO".</i> <i>If the child cannot speak BUT can communicate by appropriate gestures, then mark as "YES".</i>	Use of age-appropriate language (words and phrases); Spontaneous use of gestures for communication; *Quality/maturity of pointing (Mature or immature pointing and 'hand over hand' pointing) <input type="checkbox"/>	Yes	No	Unsure
<p>Ask A2b only if child is speaking at 2-3 word sentences level</p> <p>Ask A2c only if the child is speaking at few words level</p>					

A2b	i)* Does your child initiate a conversation with you? <input type="checkbox"/>	Quality of child's conversation with parents or yourself <input type="checkbox"/>	Yes	No	Unsure or NA
	ii)* For children aged 4 years or more: Can you have conversation with your child during which he/she not only answers your questions, but also adds something new to continue the conversation? <input type="checkbox"/>	Quality of child's conversation with parents or yourself <input type="checkbox"/>	Yes	No	Unsure or NA
A2c	i) Does your child usually repeat words or phrases regardless of meaning (in part or whole) that he/she has heard? <i>E.g. If you say 'toffee' he will also say 'toffee' if you say 'come' he will also say 'come' and if you ask "what is your name", he/she also says "what is your name".</i> <input type="checkbox"/>	* Immediate echolalia (words or phrases) <input type="checkbox"/>	Yes	No	Unsure or NA
	ii) Does he/she incessantly repeat things/T.V serial dialogue regardless of meaning/ context, whatever he/she has heard later on ? <input type="checkbox"/>	* Delayed echolalia <input type="checkbox"/>	Yes	No	Unsure or NA
	iii) For children aged 4 years or more: Does your child usually use "I for me" and "me for you" incorrectly? <i>E.g., when you ask "do you want milk?" he/she says "yes, you want milk" or "Rohit wants milk" (referring to him self).</i> <input type="checkbox"/>	* Pronoun reversal <input type="checkbox"/>	Yes	No	Unsure or NA
	iv) For children aged 4 years or more: During conversation does your child often speak 'out of context' or irrelevantly? <input type="checkbox"/>	Out-of-context speech and neologisms <input type="checkbox"/>	Yes	No	Unsure or NA
	v) * For children aged 6 years or more: Does your child understand that somebody is making fun of him/her or can he/she understands jokes? <input type="checkbox"/>	Child's response to an age-appropriate joke <input type="checkbox"/>	Yes	No	Unsure or NA

A2d	<p>Does your child participate in games like “Pat-a-cake”, “Peek-a-boo”, “Ring-a-ring rose”, “Akkad bakkad bambe po”, “Posam paa”, “Chal chameli baag mein” and “Totaa ud-maina ud” etc.?</p> <p style="text-align: center;">OR</p> <p>Does your child play variable imaginative play with toys like For girls:- kitchen set/ dolls/clay or dough For boys:- telephone/ toy gun/motor car?</p> <p style="text-align: center;">OR</p> <p>Has your child played different games like “ghar-ghar”, “teacher-student” (school-school), “chor-police” etc. with other kids interactively <input type="checkbox"/></p>	<p>Quality of child’s play with toys or other objects Look for any form of variable pretend play</p>	Yes	No	Unsure
<p>(May add age appropriate regional examples of variable pretend play as necessary)</p> <p>Note for interviewer: If <u>any</u> one is positive will be marked as “Yes”</p>					
A3a	<p>i)* Does your child have excessive interest in odd things/activities which other children do not have? <i>E.g., collecting toffee wrappers, polythene bags, piece of string or rope, pulling thread and rubber band etc.</i> <input type="checkbox"/></p>	<p>Any unusual interests i.e. unusual for child’s age <input type="checkbox"/></p>	Yes	No	Unsure
	<p>ii)* Does your child have excessive interest in typical things but the interest is so all encompassing that it interferes his/her activities? (Excluding T.V watching) <input type="checkbox"/></p>	<p>Excessive and all-encompassing interest in activities that are typical for other child his/her age <input type="checkbox"/></p>	Yes	No	Unsure
	<p>iii)* Does your child like lining or stacking objects/toys excessively? (Excluding blocks) <input type="checkbox"/></p>	<p>Excessive lining of objects or toys <input type="checkbox"/></p>	Yes	No	Unsure
A3b	<p>Does your child unreasonably insist on doing things in a particular way and/or become upset if there is any change in the daily routine? <i>E.g., Taking exactly the same route to the school or market, insisting on food being served in the same pattern or sequence etc.</i> <input type="checkbox"/></p>	<p>Child’s insistence on any unusual routines or rituals <input type="checkbox"/></p>	Yes	No	Unsure

A3c	i) Does your child keep on repeating any of the followings, like <ul style="list-style-type: none"> • flapping hands, • hand wringing, • toe-walking, • rocking or spinning, • making unusual finger or hand movements near his/her face? <input type="checkbox"/>	* Any type of motor stereotypes, unusual finger/hand movements near face <input type="checkbox"/>	Yes	No	Unsure
<p>Note for interviewer: Ask with demonstration and answer yes if any one of above example is positive</p>					
	ii) * Does your child have inappropriate fascination with movement? <i>E.g. spinning wheels, opening and closing of doors, electric fan, running water and any other revolving object etc.</i> <input type="checkbox"/>	Child's inappropriate fascination with objects in motion <input type="checkbox"/>	Yes	No	Unsure
A3d	Does your child prefer to play with a particular part of a toy/object rather than the whole toy/object? <i>E.g. wheels of a toy rather than the whole toy</i> <input type="checkbox"/>	* Quality of child's play with different toys and objects <input type="checkbox"/>	Yes	No	Unsure

SECTION B: Complete this section (1-5) based on responses from section A and further history taking (6-12)

<p>1. No. of criteria fulfilled in A1 of the section A (Social Interaction) 0: Less than two 1: Two or more</p>	<input type="text" value="1"/>
<p>2. No. of criteria fulfilled in A2 of the section A (Communication) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>3. No. of criteria fulfilled in A3 of the section A (Restricted Interests) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>4. Interpretation of questionnaire (1 to 3) 0: No ASD (If response to 2 or more of 1 to 3 is “0”) 1: ASD present (If response to 1 is “1” and response to either or both of 2 and 3 is “1”)</p>	<input type="text" value="1"/>
<p>5. Total number of criteria fulfilled in A1, A2 and A3 together 0: Less than Six 1: Six or more</p>	<input type="text" value="1"/>
<p>6. Does/ did your child have any of these problems? 0: No 1: Yes</p> <p>A. Significant delay in development of language of the child? (Not spoken single words by 2 years and communicative phrases by 3 years)</p> <p>B. Difficulty in using language in daily activities or during interaction with other people?</p> <p>C. Started participating in varieties of pretend play at a later age?</p> <p>D. ANY of the following (Tick (✓) the problems present in the child)</p> <ul style="list-style-type: none"> - To be separate and indifferent from other children - No/few friends - Difficulty in school (due to behavior or studies) - Less understanding regarding societal norms 	<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/>
<p>7. Did your child have these symptoms before three years of age? 0: No 1: Yes/Do not know/ Not sure</p>	<input type="text" value="1"/>
<p>8. Does the child fulfill all the following criteria for diagnosis of Rett’s Disorder?</p> <ol style="list-style-type: none"> 1. Female Child 2. Loss of purposeful hand skills between 5-30 months age and development of stereotyped hand wringing, hand washing or hand to mouthing movements 3. Loss of social engagement early in course during 9-29 months (although often social interaction develops later) 4. Severely impaired expressive (speech expression) and receptive language (speech comprehension) development with severe psychomotor retardation <p>0: No 1: Yes</p>	<input type="text" value="0"/>

<p>9. Does the child fulfill all the following criteria for diagnosis of Childhood Disintegrative Disorder?</p> <ul style="list-style-type: none"> • Normal development till 2 years age, by the presence of age appropriate verbal and nonverbal communication, social relationships, play and adaptive behavior • After 2 years of age, loss of previously acquired milestones (before age 10 years) in 2 or more of the following areas (Tick (✓) the areas in which milestones are lost) <ul style="list-style-type: none"> - Expressive/receptive language - Social skills/Adaptive behavior - Bowel or bladder control - Play skills - Motor skills • Abnormalities of functioning in at least two of the following areas: <ul style="list-style-type: none"> - Qualitative impairment in social interaction - Qualitative impairment in communication - Restricted, repetitive and stereotyped patterns of behavior <p style="text-align: right;"><input type="checkbox"/> 0</p> <p>0: No 1: Yes</p>		
<p>10. There is no clinically significant delay in any of the following?</p> <ul style="list-style-type: none"> • Language development (single words used by age 2 years, communicative phrase used by age 3 years) • Cognitive Development or Development of age-appropriate self-help skills • Adaptive behavior (Other than in social interaction) <p style="text-align: right;"><input type="checkbox"/> 0</p> <p>0: No 1: Yes</p>		
<p>11. Summary assessment of ASD</p> <p style="text-align: right;"><input type="checkbox"/> 1</p> <p>0: No ASD (Response to 4 is “0”) 1: Autism (Response to ALL of 1 to 7 is “1” and 8,9 is “0”) 2: Asperger disorder (Response to 4 is “1”, 6D is “1” and 10 is “1”) 3: PDD-NOS (Response to 4 is “1” and either 5 or 7 or both is “0”) 4: Rett disorder (Response to 4 is “1” and 8 is “1”) 5: CDD (Response to 4 is “1” and 9 is “1”) 9. Indeterminate (Criteria not fulfilled, too many unsure responses, could not be tested in appropriate condition)</p>		
<p>12. Can these symptoms be solely explained by Intellectual Disability?</p> <p style="text-align: right;"><input type="checkbox"/> 0</p> <p>0: No 1: Yes</p> <p>If yes, refer to TAG review</p>		
Name of the Assessor	Signature of the Assessor	Date of assessment

Answer: Sonia fulfills a total of 8 criteria (A1a, A1b, A1c, A1d, A2a, A2d, A3c, A3d), despite 2 criteria being non-applicable (A2b and A2c) due to lack of speech. In addition there is functional impairment in social functioning and symbolic play which started before the age of three years. It is not better accounted for by any other disorder. Hence the child has Autism based on the CCC.

Case vignette 2

Suresh, a five years old boy, is referred to a child psychiatrist because of delayed speech development and inability to interact properly with children of his own age. His mother describes him as aloof and is upset because he never enjoys being hugged, and even gets upset when his mother cuddles him on occasion. He has never brought anything over to show her or shared anything of interest with her. Even when he is in pain or gets hurt he rarely comes to her for comfort, but sits quietly in a corner by himself.

Suresh did not begin to speak until the age of three, and even now uses only about 200 words (mainly names of objects and persons). He has not started using pronouns. Most of his speech consists of repetitive phrases or parts of jingles heard on television, or simple requests or demands. He is unable to converse properly with others and likes talking to himself in a nonsensical language while rocking back and forth. He usually has the same kind of a blank expression on his face, irrespective of the situation. He has a tendency of looking away when spoken to and not responding when called. If he wants to obtain an object that is out of reach he will drag a chair and try to get it by himself or drag an adult to where it is placed and try to maneuver his hand to reach for it He hardly points at objects. He cannot understand jokes and does not respond when others start laughing at something funny. His mother complains that he cannot understand simple questions and will give totally irrelevant answers (i.e. what will you eat? - shoe)

Suresh demonstrates a number of unusual behaviors and interests. He is fascinated with water and often will spend long periods of time intently watching water dripping into a sink. He shows no interest in playing with toys in a usual way. He likes spinning the wheels of a particular red car and would rather arrange objects like kitchen utensils in a straight line. He can do this for hours on end. His play never exhibits any sort of variety or use of imagination. He shows little interest in usual children's programs or cartoons on television; but likes watching programs with fast music. He becomes very upset if things are changed in the house and was inconsolable when his parents bought a new car. Suresh does not interact much or communicate with his nursery teacher. She is concerned as she has observed that he prefers to stay by himself, rather than play with other children. He has not made any friends and becomes irritable if other children try to approach him.

When Suresh was three, his mother was told by the family doctor that Suresh probably would grow out of these problems. Suresh's mother senses now that Suresh is suffering from a severe and chronic condition. There is no significant medical history in the past.

Observations: Suresh displayed no interest in the other children at the clinic or the examiner. He showed no response to the examiner's welcoming smile and hello. It was noted that throughout the interview Suresh had more or less the same facial expression. There was no change in his expression even when his favorite red car was given to him, when his parents were asked to leave the room or when the mother took him on her lap and cuddled him. In

fact in that instance he squirmed and tried to get away. The quality of eye contact was not normal. Suresh did make eye contact with his parents, albeit ill-sustained. However he avoided making eye contact with the examiner.

It was observed that Suresh has minimal communication skills, did not use any gestures at all throughout. He did not follow the examiner's finger when he pointed at a toy in the corner of the room. He muttered some unintelligible words in between to himself and did not react to any of the examiners questions (i.e. Where is your mother? Show me the fan, Come here.). He repeated a few words of the questions that were asked of him.

Suresh did not exhibit any interest in the few toys that were there in the clinic, but he made a line of the toy cars by placing them in a line against the wall. He spun the wheels of his red car for around 10 minutes at a stretch. No form of pretend play was noted.

He was observed to toe-walk, rock from side to side and frequently made unusual hand movements near his face (his mother had not noticed him making this at home). He kept on getting up and moving around the room. He went to the door quite a few times. At departure he did not acknowledge or wave back to the examiner.

Q: Study the given case and apply the CCC to make your diagnosis?

SECTION A

	Ask	Observe	Encircle the appropriate response
A1a	i) * For children aged less than 4 years: Does your child usually enjoy being taken in the lap or hugged? For children aged 4 years or more: When your child was a baby/toddler, did he/she enjoy being taken in the lap or hugged?	In children below 4 years age: Response to being touched and cuddled by parent: enjoys/tolerates/squirms/ stiffens/ gets upset/ Indifferent	Yes <input checked="" type="radio"/> No <input type="radio"/> Unsure <input type="radio"/>
	ii) Does your child usually make eye contact with you or other people? <i>E.g. While playing, asking for things, talking to you.</i>	* Quality of eye contact	Yes <input type="radio"/> No <input checked="" type="radio"/> Unsure <input type="radio"/>
	iii) * Does your child usually use various gestures appropriately during social interactions? <i>E.g. Namaste, Salaam, waving bye-bye, hello, touching feet etc.</i> (At least sometimes spontaneously) (use appropriate example as required)	Use of these gestures in response to your greeting and while departing	Yes <input type="radio"/> No <input checked="" type="radio"/> Unsure <input type="radio"/>

	Further elaborate if required about inappropriate gestures like repeatedly greets anybody without knowing				
	iv) Does your child usually show appropriate facial expressions according to the situation? <i>E.g. being happy, sad, afraid etc.</i>	*Appropriateness of facial expressions while interacting with parents, with you (stranger), while playing, when given toy/favorite food or when scolded.	Yes	No	Unsure
A1b	i) * Does your child usually enjoy the company of other children?	Child's interaction with other children	Yes	No	Unsure
	ii) * For children aged 4 years or more: Does your child have friends of his/her age (In school and neighborhood) with whom he/she loves to chat, share food or play together?	Quality of child's interaction with other children of his/her age	Yes	No	Unsure or NA
	iii) * For children aged 4 years or more: Does your child play mostly with children who are much older or much younger than him/her?	Quality of child's interaction with other children	Yes	No	Unsure or NA
A1c	i) * For children aged less than 4 years: Does/did your child ever point with his/her index finger to bring your attention to show the things that interest him/her? <i>E.g. kite, plane flying in the sky, cow/dog on the road etc.</i> For children aged 4 years or more: Does your child usually bring things to show you on his/her own he/she has made, painted or new toy/gift?	Observe how the child draws attention toward a toy/object of interest; Look for coordinated pointing	Yes	No	Unsure
	ii) * For children aged 4 years or more, and are able to speak: Does your child talk to you about things he/she likes or has achieved without being asked about them?		Yes	No	Unsure Or NA
A1d	i) * Does your child usually prefer to play alone and gets irritated/moves away when his/her sibs or other kids try to play with him/her?	Quality of play activity in a group of children or with siblings	Yes	No	Unsure
	ii) * Does your child play games involving turn taking or rule based with other children properly ? <i>E.g. Cricket, Hide and seek/I-spy, Ludo, Stapoo, Ring-a- ring roses etc.</i>	Quality of child's involvement in rule-based games or games involving taking turns	Yes	No	Unsure
	iii) * Does your child usually share his/her happiness with you or come to you for comfort when hurt or upset?	Sharing happiness or distress with the parents	Yes	No	Unsure

	iv) * For children aged 4 years or more: Does your child usually share your happiness or try to comfort you when you are upset/sad?	Sharing of parent's happiness or distress by the child	Yes	<input checked="" type="radio"/> No	Unsure or NA
A2a	* Does your child speak normally for his/her age? <i>If the child can not speak normally: Can he/she communicate with you by using gestures? E.g. pointing with index finger, nodding/shaking head for yes/no etc.</i> <u>If the child can not speak at all AND cannot communicate by appropriate gestures, then only mark as "NO".</u> <u>If the child can not speak BUT can communicate by appropriate gestures, then mark as "YES".</u>	Use of age-appropriate language (words and phrases); Spontaneous use of gestures for communication; *Quality/maturity of pointing (Mature or immature pointing and 'hand over hand' pointing)	Yes	<input checked="" type="radio"/> No	Unsure
<p><i>Ask A2b only if child is speaking at 2-3 word sentences level</i></p> <p><i>Ask A2c only if the child is speaking at few words level</i></p>					
A2b	i)* Does your child initiate a conversation with you?	Quality of child's conversation with parents or yourself	Yes	No	<input checked="" type="radio"/> Unsure or NA
	ii)* For children aged 4 years or more: Can you have conversation with your child during which he/she not only answers your questions, but also adds something new to continue the conversation?	Quality of child's conversation with parents or yourself	Yes	No	<input checked="" type="radio"/> Unsure or NA
A2c	i) Does your child usually repeat words or phrases regardless of meaning (in part or whole) that he/she has heard? <i>E.g. If you say 'toffee' he will also say 'toffee' if you say 'come' he will also say 'come' and if you ask "what is your name", he/she also says "what is your name".</i>	* Immediate echolalia (words or phrases)	<input checked="" type="radio"/> Yes	No	Unsure or NA
	ii) Does he/she incessantly repeat things/T.V serial dialogue regardless of meaning/context, whatever he/she has heard later on ?	* Delayed echolalia	<input checked="" type="radio"/> Yes	No	Unsure or NA
	iii) For children aged 4 years or more: Does your child usually use "I for me" and "me for you" incorrectly? <i>E.g., when you ask "do you want milk?" he/she says "yes, you want milk" or "Rohit wants milk" (referring to him self).</i>	* Pronoun reversal	Yes	<input checked="" type="radio"/> No	Unsure or NA

	iv) For children aged 4 years or more: During conversation does your child often speak 'out of context' or irrelevantly?	Out-of-context speech and neologisms	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure or NA
	v) * For children aged 6 years or more: Does your child understand that somebody is making fun of him/her or can he/she understands jokes?	Child's response to an age-appropriate joke	<input type="radio"/> Yes	<input checked="" type="radio"/> No	Unsure or NA
A2d	Does your child participate in games like "Pat-a-cake", "Peek-a-boo", "Ring-a-ring rose", "Akkad bakkad bambe po", "Posam paa", "Chal chameli baag mein" and "Totaa ud-maina ud" etc.? OR Does your child play variable imaginative play with toys like For girls:- kitchen set/ dolls/clay or dough For boys:- telephone/ toy gun/motor car? OR Has your child played different games like "ghar-ghar", "teacher-student" (school-school), "chor-police" etc. with other kids interactively	Quality of child's play with toys or other objects Look for any form of variable pretend play	<input type="radio"/> Yes	<input checked="" type="radio"/> No	Unsure
	<i>(May add age appropriate regional examples of variable pretend play as necessary)</i> Note for interviewer: If <u>any one</u> is positive will be marked as "Yes"				
A3a	i)* Does your child have excessive interest in odd things/activities which other children do not have? <i>E.g., collecting toffee wrappers, polythene bags, piece of string or rope, pulling thread and rubber band etc.</i>	Any unusual interests i.e. unusual for child's age	<input type="radio"/> Yes	<input checked="" type="radio"/> No	Unsure
	ii)* Does your child have excessive interest in typical things but the interest is so all encompassing that it interferes his/her activities? (Excluding T.V watching)	Excessive and all-encompassing interest in activities that are typical for other child his/her age	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure
	iii)* Does your child like lining or stacking objects/toys excessively ? (Excluding blocks)	Excessive lining of objects or toys	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure
A3b	Does your child unreasonably insist on doing things in a particular way and/or become upset if there is any change in the daily routine? <i>E.g., Taking exactly the same route to the school or market, insisting on food being served in the same pattern or sequence etc.</i>	Child's insistence on any unusual routines or rituals	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure

A3c	i) Does your child keep on repeating any of the followings, like <ul style="list-style-type: none"> • flapping hands, • hand wringing, • toe-walking, • rocking or spinning, • making unusual finger or hand movements near his/her face? 	* Any type of motor stereotypies, unusual finger/hand movements near face	Yes	No	Unsure
<i>Note for interviewer: Ask with demonstration and answer yes if any one of above example is positive</i>					
	ii) * Does your child have inappropriate fascination with movement? <i>E.g. spinning wheels, opening and closing of doors, electric fan, running water and any other revolving object etc.</i>	Child's inappropriate fascination with objects in motion	Yes	No	Unsure
A3d	Does your child prefer to play with a particular part of a toy/object rather than the whole toy/object? <i>E.g. wheels of a toy rather than the whole toy</i>	* Quality of child's play with different toys and objects	Yes	No	Unsure

SECTION B: Complete this section (1-5) based on responses from section A and further history taking (6-12)

<p>1. No. of criteria fulfilled in A1 of the section A (Social Interaction) 0: Less than two 1: Two or more</p>	<input type="text" value="1"/>
<p>2. No. of criteria fulfilled in A2 of the section A (Communication) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>3. No. of criteria fulfilled in A3 of the section A (Restricted Interests) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>4. Interpretation of questionnaire (1 to 3) 0: No ASD (If response to 2 or more of 1 to 3 is “0”) 1: ASD present (If response to 1 is “1” and response to either or both of 2 and 3 is “1”)</p>	<input type="text" value="1"/>
<p>5. Total number of criteria fulfilled in A1, A2 and A3 together 0: Less than Six 1: Six or more</p>	<input type="text" value="1"/>
<p>6. Does/ did your child have any of these problems? 0: No 1: Yes</p> <p>A. Significant delay in development of language of the child? (Not spoken single words by 2 years and communicative phrases by 3 years)</p> <p>B. Difficulty in using language in daily activities or during interaction with other people?</p> <p>C. Started participating in varieties of pretend play at a later age/not started pretend play?</p> <p>D. ANY of the following (Tick (✓) the problems present in the child)</p> <ul style="list-style-type: none"> - To be separate and indifferent from other children - No/few friends - Difficulty in school (due to behavior or studies) - Less understanding regarding societal norms 	<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/>
<p>7. Did your child have these symptoms before three years ? 0: No 1: Yes/Do not know/ Not sure</p>	<input type="text" value="1"/>
<p>8. Does the child fulfill all the following criteria for diagnosis of Rett’s Disorder?</p> <ul style="list-style-type: none"> • Female Child • Loss of purposeful hand skills between 5-30 months age and development of stereotyped hand wringing, hand washing or hand to mouthing movements • Loss of social engagement early in course during 9-29 months (although often social interaction develops later) • Severely impaired expressive and receptive language development with severe psychomotor retardation <p>0: No 1: Yes</p>	<input type="text" value="0"/>

<p>9. Does the child fulfill <u>all</u> the following criteria for diagnosis of Childhood Disintegrative Disorder?</p> <ul style="list-style-type: none"> • Normal development till 2 years age, by the presence of age appropriate verbal and nonverbal communication, social relationships, play and adaptive behavior • After 2 years of age, loss of previously acquired milestones (before age 10 years) in 2 or more of the following areas (Tick (✓) the areas in which milestones are lost) <ul style="list-style-type: none"> - Expressive/receptive language - Social skills/Adaptive behavior - Bowel or bladder control - Play skills - Motor skills • Abnormalities of functioning in at least two of the following areas: <ul style="list-style-type: none"> - Qualitative impairment in social interaction - Qualitative impairment in communication - Restricted, repetitive and stereotyped patterns of behavior <p style="text-align: right; margin-right: 20px;"><input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="0"/></p> <p>0: No 1: Yes</p>		
<p>10. There is no clinically significant delay in any of the following?</p> <ul style="list-style-type: none"> • Language development (single words used by age 2 years, communicative phrase used by age 3 years) • (Cognitive Development or Development of age-appropriate self-help skills) • Adaptive behavior (Other than in social interaction) <p style="text-align: right; margin-right: 20px;"><input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="0"/></p> <p>0: No 1: Yes</p>		
<p>11. Summary assessment of ASD</p> <p style="text-align: right; margin-right: 20px;"><input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/></p> <p>0: No ASD (Response to 4 is “0”) 1: Autism (Response to ALL of 1 to 7 is “1” and 8,9 is “0”) 2: Asperger disorder (Response to 4 is “1”, 6D is”1” and 10 is “1”) 3: PDD-NOS (Response to 4 is “1” and either 5 or 7 or both is”0”) 4: Rett disorder (Response to 4 is “1” and 8 is “1”) 5: CDD (Response to 4 is “1” and 9 is “1”) 10. Indeterminate (Criteria not fulfilled, too many unsure responses, could not be tested in appropriate condition)</p>		
<p>12. Can these symptoms be solely explained by Intellectual Disability?</p> <p style="text-align: right; margin-right: 20px;"><input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="0"/></p> <p>0: No 1: Yes</p> <p>If yes, refer to TAG review</p>		
Name of the Assessor	Signature of the Assessor	Date of assessment

Answer: On applying the CCC, 11 criteria are fulfilled (A1a, A1b, A1c, A1d, A2a, A2c, A2d, A3a, A3b, A3c and A3d). Thus More than 6 criteria are positive. Some of the criteria are also supported by the abnormal observations during examination. In addition there is functional impairment in social functioning and symbolic play which started before the age of three years. It is not better accounted for by any other disorder. Hence Suresh is diagnosed as having Autism.

Case Vignette 3

Sachin, a seven year old boy studies in class 2. His mother has started becoming concerned at his inability to make friends with children his own age, although he seems to get on well with much older children. He is extremely shy with adults as well, but can be made to interact with a lot of persistence. Sachin never played with toys a lot except for all sorts of mechanical and clockwork toys, which he likes taking apart and reassembling. He will show his parents his handwork and is happy when they applaud. He sometimes pretends that he goes to work like his father, who is an engineer and is extremely proud of this particular talent. He likes collecting screws and nuts in a polythene bag, which he carries in his pocket all the time. He gets extremely upset if he is asked to leave them at home. He usually doesn't like playing games, but can be persuaded to play with some insistence. His mother is also concerned that Sachin does not speak as much as children of his own age. He can carry out a conversation when he wants to, but he is usually not so inclined. There was a slight delay in attainment of language in early childhood, which led him to being screened for a hearing deficit. However he was found to have normal hearing. Sachin displays some unusual habits on occasion. He likes rocking from side to side, especially if he has nothing to do. When he gets excited he occasionally flaps his hands. His mother has seen him walk on his toes at times, which she thinks is a game they play at school. His performance is average at school and there are no complaints regarding his behavior. The child does not seem to be sad or depressed and there are no family problems at home.

In the clinic the following observations were made. Sachin seemed to be shy. He gave a slight smile in response to the examiners greeting but said 'hello' only after prompting by his mother. His eye contact was sustained and changes in his expression were noted. It was very difficult to draw him out. He didn't speak much, although he responded appropriately (but very briefly) to whatever was asked of him. He showed the examiner his little back of screws, which he was carrying in his pocket.

There were no overt speech abnormalities, although there was definitely decreased speech on the whole (without the presence of resentment or irritation). He responded to a joke cracked by the examiner after a slight delay. He only displayed interest and played appropriately with the battery-driven car with a degree of pretend play as well in the form of noises and planning of destination. No stereotypic movements were observed. His anthropometry (including head circumference of 51.5 cm), general physical examination and systemic evaluation are normal.

Q. Apply the consensus clinical criteria to the aforementioned case and make your diagnosis.

SECTION A

	Ask	Observe	Encircle the appropriate response		
A1a	i) * For children aged less than 4 years: Does your child usually enjoy being taken in the lap or hugged? For children aged 4 years or more: When your child was a baby/toddler, did he/she enjoy being taken in the lap or hugged?	In children below 4 years age: Response to being touched and cuddled by parent: enjoys/tolerates/squirms/ stiffens/ gets upset/ Indifferent	Yes	No	Unsure
	ii) Does your child usually make eye contact with you or other people? <i>E.g. While playing, asking for things, talking to you.</i>	* Quality of eye contact	Yes	No	Unsure
	iii) * Does your child usually use various gestures appropriately during social interactions? <i>E.g. Namaste, Salaam, waving bye-bye, hello, touching feet etc.</i> (At least sometimes spontaneously) (use appropriate example as required)	Use of these gestures in response to your greeting and while departing	Yes	No	Unsure
	Further elaborate if required about inappropriate gestures like repeatedly greets anybody without knowing				
iv) Does your child usually show appropriate facial expressions according to the situation? <i>E.g. being happy, sad, afraid etc.</i>	*Appropriateness of facial expressions while interacting with parents, with you (stranger), while playing, when given toy/favorite food or when scolded.	Yes	No	Unsure	
A1b	i) * Does your child usually enjoy the company of other children?	Child's interaction with other children	Yes	No	Unsure
	ii) * For children aged 4 years or more: Does your child have friends of his/her age (In school and neighborhood) with whom he/she loves to chat, share food or play together?	Quality of child's interaction with other children of his/her age	Yes	No	Unsure or NA
	iii) * For children aged 4 years or more: Does your child play mostly with children who are much older or much younger than him/her?	Quality of child's interaction with other children	Yes	No	Unsure or NA

A1c	<p>i) * For children aged less than 4 years: Does/did your child ever point with his/her index finger to bring your attention to show the things that interest him/her ? <i>E.g. kite, plane flying in the sky, cow/dog on the road etc.</i></p> <p>For children aged 4 years or more: Does your child usually bring things to show you on his/her own he/she has made, painted or new toy/gift?</p>	<p>Observe how the child draws attention toward a toy/object of interest; Look for coordinated pointing</p>	Yes	No	Unsure
	<p>ii) * For children aged 4 years or more, and are able to speak: Does your child talk to you about things he/she likes or has achieved without being asked about them?</p>		Yes	No	Unsure Or NA
A1d	<p>i) * Does your child usually prefer to play alone and gets irritated/moves away when his/her sibs or other kids try to play with him/her?</p>	<p>Quality of play activity in a group of children or with siblings</p>	Yes	No	Unsure
	<p>ii) * Does your child play games involving turn taking or rule based with other children properly? <i>E.g. Cricket, Hide and seek/I-spy, Ludo, Stapoo, Ring-a- ring roses etc.</i></p>	<p>Quality of child's involvement in rule-based games or games involving taking turns</p>	Yes	No	Unsure
	<p>iii) * Does your child usually share his/her happiness with you or come to you for comfort when hurt or upset?</p>	<p>Sharing happiness or distress with the parents</p>	Yes	No	Unsure
	<p>iv) * For children aged 4 years or more: Does your child usually share your happiness or try to comfort you when you are upset/sad?</p>	<p>Sharing of parent's happiness or distress by the child</p>	Yes	No	Unsure or NA
A2a	<p>* Does your child speak normally for his/her age? <i>If the child can not speak normally:</i> Can he/she communicate with you by using gestures? <i>E.g. pointing with index finger, nodding/ shaking head for yes/no etc.</i></p> <p><u>If the child can not speak at all AND can not communicate by appropriate gestures, then only mark as "NO".</u></p> <p><u>If the child can not speak BUT can communicate by appropriate gestures, then mark as "YES".</u></p>	<p>Use of age-appropriate language (words and phrases); Spontaneous use of gestures for communication; *Quality/maturity of pointing (Mature or immature pointing and 'hand over hand' pointing)</p>	Yes	No	Unsure
<p><i>Ask A2b only if child is speaking at 2-3 word sentences level</i></p> <p><i>Ask A2c only if the child is speaking at few words level</i></p>					

A2b	i)* Does your child initiate a conversation with you?	Quality of child's conversation with parents or yourself	Yes	<input checked="" type="radio"/> No	Unsure or NA
	ii)* For children aged 4 years or more: Can you have conversation with your child during which he/she not only answers your questions, but also adds something new to continue the conversation?	Quality of child's conversation with parents or yourself	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure or NA
A2c	i) Does your child usually repeat words or phrases regardless of meaning (in part or whole) that he/she has heard? <i>E.g. If you say 'toffee' he will also say 'toffee' if you say 'come' he will also say 'come' and if you ask "what is your name", he/she also says "what is your name".</i>	* Immediate echolalia (words or phrases)	Yes	<input checked="" type="radio"/> No	Unsure or NA
	ii) Does he/she incessantly repeat things/T.V serial dialogue regardless of meaning/ context, whatever he/she has heard later on ?	* Delayed echolalia	Yes	<input checked="" type="radio"/> No	Unsure or NA
	iii) For children aged 4 years or more: Does your child usually use "I for me" and "me for you" incorrectly? <i>E.g., when you ask "do you want milk?" he/she says "yes, you want milk" or "Rohit wants milk" (referring to him self).</i>	* Pronoun reversal	Yes	<input checked="" type="radio"/> No	Unsure or NA
	iv) For children aged 4 years or more: During conversation does your child often speak 'out of context' or irrelevantly?	Out-of-context speech and neologisms	Yes	<input checked="" type="radio"/> No	Unsure or NA
	v) * For children aged 6 years or more: Does your child understand that somebody is making fun of him/her or can he/she understand jokes?	Child's response to an age-appropriate joke	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Unsure or NA

<p>A2d</p>	<p>Does your child participate in games like “Pat-a-cake”, “Peek-a-boo”, “Ring-a-ring rose”, “Akkad bakkad bambe po”, “Posam paa”, “Chal chameli baag mein” and “Totaa ud-maina ud” etc.?</p> <p style="text-align: center;">OR</p> <p>Does your child play variable imaginative play with toys like For girls:- kitchen set/ dolls/clay or dough For boys:- telephone/ toy gun/motor car?</p> <p style="text-align: center;">OR</p> <p>Has your child played different games like “ghar-ghar”, “teacher-student” (school-school), “chor-police” etc. with other kids interactively</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>(May add age appropriate regional examples of variable pretend play as necessary)</i></p> <p>Note for interviewer: If <u>any</u> one is positive will be marked as “Yes”</p> </div>	<p>Quality of child’s play with toys or other objects Look for any form of variable pretend play</p>	<p><input checked="" type="radio"/> Yes</p>	<p><input type="radio"/> No</p>	<p><input type="radio"/> Unsure</p>
<p>A3a</p>	<p>i)* Does your child have excessive interest in odd things/activities which other children do not have? <i>E.g., collecting toffee wrappers, polythene bags, piece of string or rope, pulling thread and rubber band etc.</i></p> <hr/> <p>ii)* Does your child have excessive interest in typical things but the interest is so all encompassing that it interferes his/her activities? (Excluding T.V watching)</p> <hr/> <p>iii)* Does your child like lining or stacking objects/toys excessively? (Excluding blocks)</p>	<p>Any unusual interests i.e. unusual for child’s age</p> <hr/> <p>Excessive and all-encompassing interest in activities that are typical for other child his/her age</p> <hr/> <p>Excessive lining of objects or toys</p>	<p><input checked="" type="radio"/> Yes</p>	<p><input type="radio"/> No</p>	<p><input type="radio"/> Unsure</p>
<p>A3b</p>	<p>Does your child unreasonably insist on doing things in a particular way and/or become upset if there is any change in the daily routine? <i>E.g., Taking exactly the same route to the school or market, insisting on food being served in the same pattern or sequence etc.</i></p>	<p>Child’s insistence on any unusual routines or rituals</p>	<p><input type="radio"/> Yes</p>	<p><input checked="" type="radio"/> No</p>	<p><input type="radio"/> Unsure</p>

A3c	i) Does your child keep on repeating any of the followings, like <ul style="list-style-type: none"> • flapping hands, • hand wringing, • toe-walking, • rocking or spinning, • making unusual finger or hand movements near his/her face? 	* Any type of motor stereotypies, unusual finger/hand movements near face	Yes	No	Unsure
<p>Note for interviewer: Ask with demonstration and answer yes if any one of above example is positive</p>					
	ii) * Does your child have inappropriate fascination with movement? <i>E.g. spinning wheels, opening and closing of doors, electric fan, running water and any other revolving object etc.</i>	Child's inappropriate fascination with objects in motion	Yes	No	Unsure
A3d	Does your child prefer to play with a particular part of a toy/object rather than the whole toy/object? <i>E.g. wheels of a toy rather than the whole toy</i>	* Quality of child's play with different toys and objects	Yes	No	Unsure

SECTION B: Complete this section (1-5) based on responses from section A and further history taking (6-12)

<p>1. No. of criteria fulfilled in A1 of the section A (Social Interaction) 0: Less than two 1: Two or more</p>	<input type="text" value="1"/>
<p>2. No. of criteria fulfilled in A2 of the section A (Communication) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>3. No. of criteria fulfilled in A3 of the section A (Restricted Interests) 0: Nil 1: One or more</p>	<input type="text" value="1"/>
<p>4. Interpretation of questionnaire (1 to 3) 0: No ASD (If response to 2 or more of 1 to 3 is “0”) 1: ASD present (If response to 1 is “1” and response to either or both of 2 and 3 is “1”)</p>	<input type="text" value="1"/>
<p>5. Total number of criteria fulfilled in A1, A2 and A3 together 0: Less than Six 1: Six or more</p>	<input type="text" value="0"/>
<p>6. Does/ did your child have any of these problems? 0: No 1: Yes</p> <p>A. Significant delay in development of language of the child? (Not spoken single words by 2 years and communicative phrases by 3 years)</p> <p>B. Difficulty in using language in daily activities or during interaction with other people?</p> <p>C. Started participating in varieties of pretend play at a later age/not started pretend play?</p> <p>D. <u>ANY</u> of the following (Tick (✓) the problems present in the child)</p> <ul style="list-style-type: none"> - To be separate and indifferent from other children - No/few friends - Difficulty in school (due to behavior or studies) - Less understanding regarding societal norms 	<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="1"/>
<p>7. Did your child have these symptoms before three years ? 0: No 1: Yes/Do not know/ Not sure</p>	<input type="text" value="1"/>
<p>8. Does the child fulfill <u>all</u> the following criteria for diagnosis of Rett disorder?</p> <ul style="list-style-type: none"> • Female Child • Loss of purposeful hand skills between 5-30 months age and development of stereotyped hand wringing, hand washing or hand to mouthing movements • Loss of social engagement early in course during 9-29 months (although often social interaction develops later) • Severely impaired expressive and receptive language development with severe psychomotor retardation <p>0: No 1: Yes</p>	<input type="text" value="0"/>

<p>9. Does the child fulfill <u>all</u> the following criteria for diagnosis of Childhood Disintegrative Disorder?</p> <ul style="list-style-type: none"> • Normal development till 2 years age, by the presence of age appropriate verbal and nonverbal communication, social relationships, play and adaptive behavior • After 2 years of age, loss of previously acquired milestones (before age 10 years) in 2 or more of the following areas (Tick (✓) the areas in which milestones are lost) <ul style="list-style-type: none"> - Expressive/receptive language - Social skills/Adaptive behavior - Bowel or bladder control - Play skills - Motor skills • Abnormalities of functioning in at least two of the following areas: <ul style="list-style-type: none"> - Qualitative impairment in social interaction - Qualitative impairment in communication - Restricted, repetitive and stereotyped patterns of behavior <p style="text-align: right;">0: No 1: Yes 0</p>		
<p>10. There is no clinically significant delay in any of the following?</p> <ul style="list-style-type: none"> • Language development (single words used by age 2 years, communicative phrase used by age 3 years) • (Cognitive Development or Development of age-appropriate self-help skills) • Adaptive behavior (Other than in social interaction) <p style="text-align: right;">0: No 1: Yes 0</p>		
<p>11. Summary assessment of ASD</p> <p>0: No ASD (Response to 4 is “0”)</p> <p>1: Autism (Response to ALL of 1 to 7 is “1” and 8,9 is “0”)</p> <p>2: Asperger disorder (Response to 4 is “1”, 6D is”1” and 10 is “1”)</p> <p>3: PDD-NOS (Response to 4 is “1” and either 5 or 7 or both is”0”)</p> <p>4: Rett disorder (Response to 4 is “1” and 8 is “1”)</p> <p>5: CDD (Response to 4 is “1” and 9 is “1”)</p> <p>9.Indeterminate (Criteria not fulfilled, too many unsure responses, could not be tested in appropriate condition)</p> <p style="text-align: right;">3</p>		
<p>12. Can these symptoms be solely explained by Intellectual Disability?</p> <p style="text-align: right;">0: No 1: Yes </p> <p>If yes, refer to TAG review</p>		
Name of the Assessor	Signature of the Assessor	Date of assessment

Answer: On analyzing the history it can be concluded that impairment exists in three domains (social interaction, language and symbolic play). Five criteria are fulfilled with at least one from each domain. Onset of symptoms is not known. In addition other pervasive developmental disorders are excluded for the following reasons: Autistic disorder (only 5 criteria are fulfilled - A1b, A1d, A2b, A3a, and A3c; Asperger disorder (ruled out as there was a delay in language); Rett disorder (ruled out as he is a boy and has a normal head circumference) and Childhood Disintegrative Disorder (ruled out as there is no regression of milestones). Hence Sachin fulfills the diagnostic criteria of Pervasive developmental disorder – Not Otherwise Specified.

INCLIN Diagnostic Tool for Autism Spectrum Disorder: Development and Validation

Name of the Child: _____	Sex: (Male-1; Female-2)
Date of Birth: DD/MM/YYYY	Age (in months):
Complete Address:	
Phone Number:	
Date of Assessment: DD/MM/YYYY	
Name of the Assessor:	Respondent:

INSTRUCTIONS FOR EVALUATION

- **Primary caregiver** must be present with the child
- These behaviors are to be assessed in the context of children of **same age**
- Explain to parents that the answers should be based on the child's **behavior most of the time**
- Follow the age directions given along with the question. For questions where no age cut-off is given, they should be asked for all children i.e. all ages (2-9 years)
- Ask the questions **verbatim**
Question can be **repeated** if the respondent cannot understand
Still, if the respondent cannot understand, give **example** for the particular behavior;
No further elaboration is allowed
- The questionnaire should be **supplemented by observations** for the suggestive behavior in the child **throughout** the assessment.
- Observe the behavior of the child during the entire interview to confirm the presence or absence of a particular behavior (First ask, then observe if observation is discrepant, then re-ask the question and recheck the observation also).
- When there is discrepancy between parental response and your observation, * indicates whether parent report or observation should take precedence, and marked accordingly
- When parent's response is "**Unsure**", your observation of the particular behaviour will be given weightage even when asterisk (*) is on parental response. In case you are also unable to observe the behavior, then only mark the response as "**Unsure**"
- Some criteria have multiple questions. **While scoring**, consider the criteria fulfilled even if response to **any one** of the questions is abnormal. For example, the criterion A1a is considered fulfilled if any one of i, ii, iii, or iv is abnormal in the child

INCLIN Diagnostic Tool for Autism Spectrum Disorder (INDT-ASD)

SECTION A

	Ask (Tick ✓ in the box if response is based on answer)	Observe (Tick ✓ in the box if response is based on observation)	Encircle the appropriate response		
A1a	i) * <i>For children aged less than 4 years:</i> Does your child usually enjoy being taken in the lap or hugged? <i>For children aged 4 years or more:</i> When your child was a baby/toddler, did he/she enjoy being taken in the lap or hugged? <input type="checkbox"/>	In children below 4 years age: Response to being touched and cuddled by parent: enjoys/tolerates/squirms/ stiffens/ gets upset/ Indifferent <input type="checkbox"/>	Yes	No	Unsure
	ii) Does your child usually make eye contact with you or other people? <i>E.g. While playing, asking for things, talking to you.</i> <input type="checkbox"/>	* Quality of eye contact <input type="checkbox"/>	Yes	No	Unsure
	iii) * Does your child usually use various gestures appropriately during social interactions? <i>E.g. Namaste, Salaam, waving bye-bye, hello, touching feet etc.</i> (At least sometimes spontaneously) (use appropriate example as required) <input type="checkbox"/>	Use of these gestures in response to your greeting and while departing <input type="checkbox"/>	Yes	No	Unsure
	Further elaborate if required about inappropriate gestures like repeatedly greets anybody without knowing				
	iv) Does your child usually show appropriate facial expressions according to the situation? <i>E.g. being happy, sad, afraid etc.</i> <input type="checkbox"/>	*Appropriateness of facial expressions while interacting with parents, with you (stranger), while playing, when given toy/favorite food or when scolded. <input type="checkbox"/>	Yes	No	Unsure
A1b	i) * Does your child usually enjoy the company of other children? <input type="checkbox"/>	Child's interaction with other children <input type="checkbox"/>	Yes	No	Unsure

	<p>ii) * For children aged 4 years or more: Does your child have friends of his/her age (In school and neighborhood) with whom he/she loves to chat, share food or play together? <input type="checkbox"/></p>	<p>Quality of child's interaction with other children of his/her age <input type="checkbox"/></p>	Yes	No	Unsure or NA
	<p>iii) * For children aged 4 years or more: Does your child play mostly with children who are much older or much younger than him/her? <input type="checkbox"/></p>	<p>Quality of child's interaction with other children <input type="checkbox"/></p>	Yes	No	Unsure or NA
A1c	<p>i) * For children aged less than 4 years: Does/did your child ever point with his/her index finger to bring your attention to show the things that interest him/her? <i>E.g. kite, plane flying in the sky, cow/dog on the road etc.</i> For children aged 4 years or more: Does your child usually bring things to show you on his/her own he/she has made painted or new toy/gift? <input type="checkbox"/></p>	<p>Observe how the child draws attention toward a toy/object of interest; Look for coordinated pointing <input type="checkbox"/></p>	Yes	No	Unsure
	<p>ii) * For children aged 4 years or more, and are able to speak: Does your child talk to you about things he/she likes or has achieved without being asked about them? <input type="checkbox"/></p>		Yes	No	Unsure Or NA
A1d	<p>i) * Does your child usually prefer to play alone and gets irritated/moves away when his/her sibs or other kids try to play with him/her? <input type="checkbox"/></p>	<p>Quality of play activity in a group of children or with siblings <input type="checkbox"/></p>	Yes	No	Unsure
	<p>ii) * Does your child play games involving turn taking or rule based with other children properly? <i>E.g. Cricket, Hide and seek/I-spy, Ludo,Stapoo, Ring-a- ring roses etc.</i> <input type="checkbox"/></p>	<p>Quality of child's involvement in rule-based games or games involving taking turns <input type="checkbox"/></p>	Yes	No	Unsure
	<p>iii) * Does your child usually share his/her happiness with you or come to you for comfort when hurt or upset? <input type="checkbox"/></p>	<p>Sharing happiness or distress with the parents <input type="checkbox"/></p>	Yes	No	Unsure

	iv) * For children aged 4 years or more: Does your child usually share your happiness or try to comfort you when you are upset / sad? <input type="checkbox"/>	Sharing of parent's happiness or distress by the child <input type="checkbox"/>	Yes	No	Unsure or NA
A2a	* Does your child speak normally for his/her age? <i>If the child cannot speak normally:</i> Can he/she communicate with you by using gestures? <i>E.g. pointing with index finger, nodding/ shaking head for yes/no etc.</i> <i>If the child can not speak at all AND can not communicate by appropriate gestures, then only mark as "NO".</i> <i>If the child can not speak BUT can communicate by appropriate gestures, then mark as "YES".</i> <input type="checkbox"/>	Use of age-appropriate language (words and phrases); Spontaneous use of gestures for communication; *Quality/maturity of pointing (Mature or immature pointing and 'hand over hand' pointing) <input type="checkbox"/>	Yes	No	Unsure
<p><i>Ask A2b only if child is speaking at 2-3 word sentences level</i></p> <p><i>Ask A2c only if the child is speaking at few words level</i></p>					
A2b	i)* Does your child initiate a conversation with you? <input type="checkbox"/>	Quality of child's conversation with parents or yourself <input type="checkbox"/>	Yes	No	Unsure or NA
	ii)* For children aged 4 years or more: Can you have conversation with your child during which he/she not only answers your questions, but also adds something new to continue the conversation? <input type="checkbox"/>	Quality of child's conversation with parents or yourself <input type="checkbox"/>	Yes	No	Unsure or NA
A2c	i) Does your child usually repeat words or phrases regardless of meaning (in part or whole) that he/she has heard? <i>E.g. If you say 'toffee' he will also say 'toffee' if you say 'come' he will also say 'come' and if you ask "what is your name", he/she also says "what is your name".</i> <input type="checkbox"/>	* Immediate echolalia (words or phrases) <input type="checkbox"/>	Yes	No	Unsure or NA
	ii) Does he/she incessantly repeat things/T.V serial dialogue regardless of meaning/ context, whatever he/she has heard later on ? <input type="checkbox"/>	* Delayed echolalia <input type="checkbox"/>	Yes	No	Unsure or NA

	<p>iii) For children aged 4 years or more: Does your child usually use “I for me” and “me for you” incorrectly? <i>E.g., when you ask “do you want milk?” he/she says “yes, you want milk” or “Rohit wants milk” (referring to him self).</i></p> <p style="text-align: right;"><input type="checkbox"/></p>	* Pronoun reversal	Yes	No	Unsure or NA
	<p>iv) For children aged 4 years or more: During conversation does your child often speak ‘out of context’ or irrelevantly?</p> <p style="text-align: right;"><input type="checkbox"/></p>	Out-of-context speech and neologisms	Yes	No	Unsure or NA
	<p>v) * For children aged 6 years or more: Does your child understand that somebody is making fun of him/her or can he/she understand jokes?</p> <p style="text-align: right;"><input type="checkbox"/></p>	Child’s response to an age-appropriate joke	Yes	No	Unsure or NA
A2d	<p>Does your child participate in games like “Pat-a-cake”, “Peek-a-boo”, “Ring-a-ring rose”, “Akkad bakkad bambe po”, “Posam paa”, “Chal chameli baag mein” and “Totaa ud-maina ud” etc.?</p> <p style="text-align: center;">OR</p> <p>Does your child play variable imaginative play with toys like For girls:- kitchen set/ dolls/clay or dough For boys:- telephone/ toy gun/motor car?</p> <p style="text-align: center;">OR</p> <p>Has your child played different games like “ghar-ghar”, “teacher-student” (school-school), “chor-police” etc. with other kids interactively</p> <p style="text-align: right;"><input type="checkbox"/></p>	Quality of child’s play with toys or other objects Look for any form of variable pretend play	Yes	No	Unsure
<p>(May add age appropriate regional examples of variable pretend play as necessary)</p> <p>Note for interviewer: If <u>any</u> one is positive will be marked as “Yes”</p>					
A3a	<p>i)* Does your child have excessive interest in odd things/activities which other children do not have? <i>E.g., collecting toffee wrappers, polythene, bags, piece of string or rope, pulling thread and rubber band etc.</i></p> <p style="text-align: right;"><input type="checkbox"/></p>	Any unusual interests i.e. unusual for child’s age	Yes	No	Unsure

	ii)* Does your child have excessive interest in typical things but the interest is so all encompassing that it interferes his/her activities? (Excluding T.V watching) <input type="checkbox"/>	Excessive and all-encompassing interest in activities that are typical for other child his/her age <input type="checkbox"/>	Yes	No	Unsure
	iii)* Does your child like lining or stacking objects/toys excessively ? (Excluding blocks) <input type="checkbox"/>	Excessive lining of objects or toys <input type="checkbox"/>	Yes	No	Unsure
A3b	Does your child unreasonably insist on doing things in a particular way and/or become upset if there is any change in the daily routine? <i>E.g., Taking exactly the same route to the school or market, insisting on food being served in the same pattern or sequence etc.</i> <input type="checkbox"/>	Child's insistence on any unusual routines or rituals <input type="checkbox"/>	Yes	No	Unsure
A3c	i) Does your child keep on repeating any of the followings, like <ul style="list-style-type: none"> • flapping hands, • hand wringing, • toe-walking, • rocking or spinning, • making unusual finger or hand movements near his/her face? <input type="checkbox"/>	* Any type of motor stereotypes, unusual finger/hand movements near face <input type="checkbox"/>	Yes	No	Unsure
<i>Note for interviewer: Ask with demonstration and answer yes if any one of above example is positive</i>					
	ii) * Does your child have inappropriate fascination with movement? <i>E.g. spinning wheels, opening and closing of doors, electric fan, running water and any other revolving object etc.</i> <input type="checkbox"/>	Child's inappropriate fascination with objects in motion <input type="checkbox"/>	Yes	No	Unsure
A3d	Does your child prefer to play with a particular part of a toy/object rather than the whole toy/object? <i>E.g. wheels of a toy rather than the whole toy</i> <input type="checkbox"/>	* Quality of child's play with different toys and objects <input type="checkbox"/>	Yes	No	Unsure

SECTION B

Complete this section (1-5) based on responses from section A and further history taking (6-12)

<p>1. No. of criteria fulfilled in A1 of the section A (Social Interaction) 0: Less than two 1: Two or more</p>	<input type="checkbox"/>
<p>2. No. of criteria fulfilled in A2 of the section A (Communication) 0: Nil 1: One or more</p>	<input type="checkbox"/>
<p>3. No. of criteria fulfilled in A3 of the section A (Restricted Interests) 0: Nil 1: One or more</p>	<input type="checkbox"/>
<p>4. Interpretation of questionnaire (1 to 3) 0: No ASD (If response to 2 or more of 1 to 3 is “0”) 1: ASD present (If response to 1 is “1” and response to either or both of 2 and 3 is “1”)</p>	<input type="checkbox"/>
<p>5. Total number of criteria fulfilled in A1, A2 and A3 together 0: Less than Six 1: Six or more</p>	<input type="checkbox"/>
<p>6. Does / did your child have any of following? 0: No 1: Yes</p> <p>A. Significant delay in development of language of the child? (Not spoken single words by 2 years and communicative phrases by 3 years)</p> <p>B. Difficulty in using language in daily activities or during interaction with other people?</p> <p>C. Started participating in varieties of pretend play at a later age/not started pretend play?</p> <p>D. ANY of the following (mark ‘1’ if any one of the following is ‘yes’) (Tick (✓) the problems present in the child)</p> <ul style="list-style-type: none"> - To be separate and indifferent from other children - No/few friends - Difficulty in school (due to behavior or studies) - Less understanding regarding societal norms 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>7. Did your child have these symptoms before three years ? 0: No 1: Yes/Do not know/ Not sure</p>	<input type="checkbox"/>
<p>8. Does the child fulfill <u>all</u> the following criteria for diagnosis of Rett’s Disorder?</p> <ul style="list-style-type: none"> • Female Child • Loss of purposeful hand skills between 5-30 months age and development of stereotyped hand wringing, hand washing or hand to mouthing movements • Loss of social engagement early in course during 9-29 months (although often social interaction develops later) • Severely impaired expressive and receptive language development with severe psychomotor retardation <p>0: No 1: Yes</p>	<input type="checkbox"/>

<p>9. Does the child fulfill <u>all</u> the following criteria for diagnosis of Childhood Disintegrative Disorder?</p> <ul style="list-style-type: none"> • Normal development till 2 years age, by the presence of age appropriate verbal and nonverbal communication, social relationships, play and adaptive behavior • After 2 years of age, loss of previously acquired milestones (before age 10 years) in 2 or more of the following areas (Tick (✓) the areas in which milestones are lost) <ul style="list-style-type: none"> - Expressive/receptive language - Social skills/Adaptive behavior - Bowel or bladder control - Play skills - Motor skills • Abnormalities of functioning in at least two of the following areas: <ul style="list-style-type: none"> - Qualitative impairment in social interaction - Qualitative impairment in communication - Restricted, repetitive and stereotyped patterns of behavior <p style="margin-left: 20px;">0: No 1: Yes <input type="checkbox"/></p>		
<p>10. There is no clinically significant delay in any of the following?</p> <p style="margin-left: 20px;">0: No 1: Yes</p> <ul style="list-style-type: none"> • Language development (single words used by age 2 years, communicative phrase used by age 3 years) • Cognitive Development OR Development of age-appropriate self-help skills • Adaptive behavior (Other than in social interaction) <p style="text-align: right;"><input type="checkbox"/></p>		
<p>11. Summary assessment of ASD</p> <p style="margin-left: 20px;">0: No ASD (Response to 4 is “0”)</p> <p style="margin-left: 20px;">1: Autism (Response to ALL of 1 to 7 is “1” and 8,9 is “0”)</p> <p style="margin-left: 20px;">2: Asperger’s Disorder (Response to 4 is “1”, 6D is”1” and 10 is “1”)</p> <p style="margin-left: 20px;">3: PDD-NOS (Response to 4 is “1” and either 5 or 7 or both is”0”)</p> <p style="margin-left: 20px;">4: Rett’s Disorder (Response to 4 is “1” and 8 is “1”)</p> <p style="margin-left: 20px;">5: CDD (Response to 4 is “1” and 9 is “1”)</p> <p style="margin-left: 20px;">9. Indeterminate (Criteria not fulfilled, too many unsure responses, could not be tested in appropriate condition)</p> <p style="text-align: right;"><input type="checkbox"/></p>		
<p>12. Can these symptoms be solely explained by Intellectual Disability?</p> <p style="margin-left: 20px;">0: No 1: Yes</p> <p>If yes, refer to TAG review</p> <p style="text-align: right;"><input type="checkbox"/></p>		
<p>13. Additional note and observation during the interview</p> 		
<p>Name of the Assessor</p>	<p>Signature of the Assessor</p>	<p>Date of assessment</p>

Annexure II

Observations to make during Assessment

Clinical features: What to look for?

What is important to remember during an evaluation is that these manifestations vary depending on the developmental level, chronological age and degree of impairment.

A) Social interaction: What to observe

- i) The quality of eye contact: absent/ present but ill sustained/ gaze avoidance
- ii) The quality of interaction with the examiner: indifferent/ interactive/ curious/ excessively scared
- iii) The quality of interaction with the parents: indifferent/ interactive/ curious/ excessively scared/ clingy
- iv) Presence of social smile: present and consistent/ inconsistent/ absent
- v) Facial expression: blank/ inappropriate expressions
- vi) Response to being touched and cuddled by parent: enjoys/ tolerates/ squirms/ stiffens/ gets upset
- vi) Response to being touched by the examiner: allows examination/ gets upset but allows examination/ starts screaming and does not allow examination

B) Verbal Communication: What to observe?

- i) The quality of language (vocabulary, sentence formation, use of appropriate pronouns and gender)
- ii) The ability to initiate and sustain a conversation
- iii) The pitch, intonation and rhythm of speech
- iv) Look for out-of-context speech, jargon, neologisms, echolalia, unusual sounds, etc

C) Non- verbal Communication: What to ask?

- i) Does the child understand gestures when used during communication?
- ii) Are the gestures used mature (pointing with index finger in appropriate direction) or immature (Pointing with hand without using index finger) or vague (aimlessly and not in the appropriate direction)?

Non-verbal Communication: What to observe?

- i) Can the child point to objects, when asked to?
- ii) Does the child look in the direction of the object when pointing at it?
- iii) Is the pointing mature or immature?
- iv) Does the child look at an object when you say 'look at that' and point to it?
- v) Does the child ever point out objects of interest to you?

D) Play: what to observe?

- i) Observe how the child plays with different objects and toys
- ii) See whether it is manipulative and functionless or appropriate
- iii) Any form of pretend play

