Efficacy and Clinical Utility of the Diagnostic Scale for ASD

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Abstract

In recent years, lot of progress has been made in the earlier diagnosis of children with autism. Several factors have contributed to this decrease in the age of referral and diagnosis. While being welcome, this progress towards earlier referral and diagnosis presents new challenges to clinical practice. These include the accuracy and stability of early diagnosis, the utility of standardized assessment instruments with young pre-schoolers and the ability to indicate prognosis. The present study aimed at exploring the utility of one such scale called the Diagnostic Scale for Autism Spectrum Disorders on an autistic population. Results showed that the DSASD is an effective tool for the diagnosis of autism in these children and also bears scope for the profiling of these children.

Introduction

Autism and other Pervasive Developmental Disorders (PDDs) are a phenomenologically related set of neuropsychiatric disorders. These conditions are characterized by patterns of both delay and deviance in multiple areas of development; typically their onset is in the first months of life.

A substantial body of research has established the validity of autism as a diagnostic concept, e.g., on the basis its characteristics clinical features and course (Volkmar, 1998). Childhood autism is the prototypic disorder in the spectrum of autistic disorders (DSM-IV, APA, 1994; ICD–10, WHO, 1993). All disorders within the autistic spectrum are characterized by:

1. Qualitative impairments in social interaction.
2. Qualitative impairments in social communication.
3. A restricted repertoire of interests, behaviors and activities.

The assessment of the characteristics features in ASD/PDDs and of particular deficits in psychological development and functioning, using appropriate scales and tests is indispensable to the diagnosis.

Until recently many children were not diagnosed before 4 or 5 years of age or in many cases even later (Howlin & Asgharian, 1999). However, progress has recently been made in the earlier identification of children with autism and many children are now first identified in the preschool period (Howlin & Asgharian, 1999).

Several factors have contributed to the decrease in age of referral and diagnosis of autism. Firstly, there has been an increase in recognition of the early features of autism amongst primary healthcare practitioners and this has lead to earlier referral to pediatric and child development specialists (Baird, Charman, Baron–Cohen, Cox, Swettenham, Wheelwright & Drew, 2000).

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Secondly, attempts have been made to prospectively identify cases of autism using screening instruments (Charman & Baird, 2002). These have been applied both to general populations (Checklist for Autism in Toddlers, CHAT; Baird, Charman et al., 2000; Baron-Cohen, Wheelwright, Cox, Baird, Charman Swettenham, et al., 2000) and to referred populations (Modified-CHAT; Robins, Fein, Barton & Green, 2001). These studies have demonstrated that it is possible to identify some cases of autism by the age of 18 months. There is some evidence that screening for ASD in referred children where a concern about development has already been identified, may result in better sensitivity (Charman & Baird, 2002).

Thirdly, there is increasing evidence that appropriately targeted intervention improves outcome in children with ASD and although not uncontroversial, the benefits are early evident (Lovaas, 1987, cited in Charman & Baird, 2002). In addition some of the studies have also demonstrated positive outcomes in terms of IQ gains and reductions in symptom severity (Sheinkopf & Siegel, 1998).

Further, it is possible that early intervention might ameliorate the negative secondary consequences of the primary social orienting and communication deficits that characterize ASD. The growing recognition of the benefits of early intervention gives added impetus to the move towards early, accurate identification of the children with ASD. Another impetus for the promotion of earlier identification is the fact that the risk of having a subsequent child with autism is substantially high. The chances of a more general problem in social communication or cognitive development are several terms higher still (Lauritsen & Ewald, 2001, cited in Charman & Baird, 2002).

While being welcome, this progress towards earlier referral and diagnosis presents new challenges to clinical practice. These include the accuracy and stability of early diagnosis, the utility of standardized assessment instruments with young pre-schoolers and the ability to indicate prognosis.

Hence, the present study endeavored to explore the clinical utility of one such tool-the Diagnostic Scale for Autism Spectrum Disorders (Chakravarti, 2002) which has been developed for use in the Indian context.

Method

This study was aimed at probing into the efficacy and clinical utility of the Diagnostic Scale for Autism Spectrum Disorders in the Indian context.

Subject criteria

- Subjects were 25 children (21 males, 4 females) ranging in age from 2 to 7 years.
- All the subjects had been diagnosed as having delayed speech and language with autistic features (based on the DSM-IV criteria).
- Mental retardation was ruled out in all the subjects based on the results of standardized IQ measures.
- No other associated problems were present.
- The duration of therapy did not exceed two years in any of the subjects.

Procedure

The DSASD was administered on each of the subjects individually with the help of the parent/caregivers' report as well as direct observation of the child.

The subjects were scored on the various domains, as per the scoring criteria provided in the scale. The scores obtained were then subjected to appropriate statistical analysis.

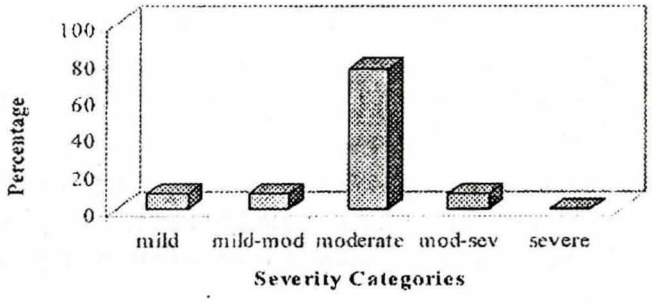
Results and Discussions

This study was aimed at exploring the clinical utility of the DSASD in the Indian context. The subjects chosen for the study were 25 children, ranging in age from 2-7 years; all of whom had been diagnosed as having autism/autistic features. The checklist was administered on each child individually and was scored on the four domains:

Social Domain:

It is evident from figure.1 that 76% of the total subjects (i.e. 19 out of 25) fell in the moderate category and 8% each (i.e. 2 out of 25) in the mild, mild-moderate and moderate-severe category. None of the subjects fell in the severe category. The lowest and highest scores in this domain were 14 and 48 respectively.

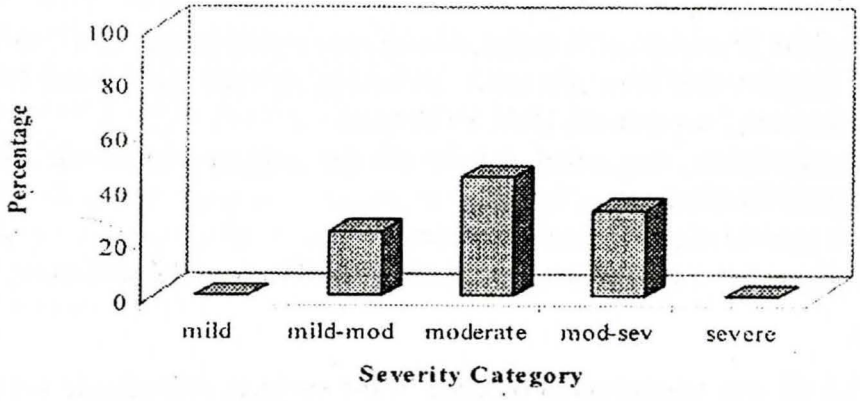
Figure 1: Percentage of subjects in the various severity categories in the Social Domain



Cognitive Domain:

In the Cognitive Domain, 44% of subjects (i.e. 11 out of 25) fell in the moderate category followed by 32% (i.e. 8 out of 25) in the moderate-severe category. From the figure-2 it is also evident that 24% of the subjects (i.e. 6 out of 25) fell in the mild-moderate category. There were no extreme scores in this domain as evident from the figure. The lowest and the highest scores in this domain were 10 and 38 respectively with no subjects in the mild or severe categories.

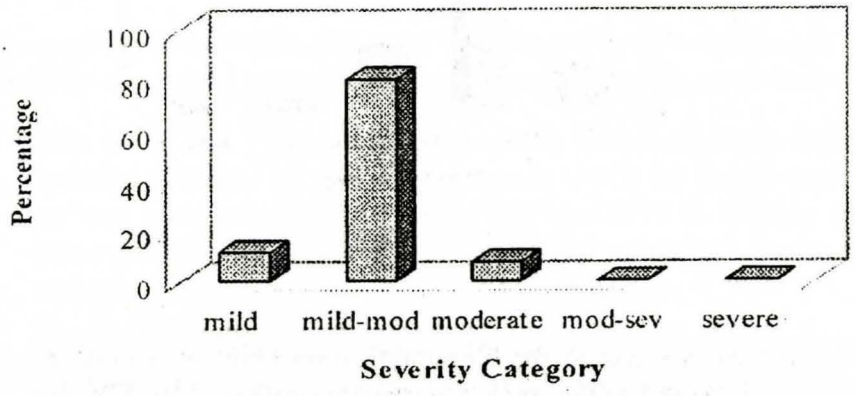
Figure 2: Percentage of subjects in the various severity categories in the Cognitive Domain



Behavioral Domain:

In the Behavioral domain a majority of 80% of the subjects (i.e. 20 out of 25) fell in the mild-moderate category. From the figure-3 it is also evident that 12% of the subjects (i.e. 3 out of 25) fell in the mild category followed by 8% (i.e. 2 out of 25) in the moderate category. The lowest and highest scores in this domain were 23 and 52 respectively, and none of the subjects fell in the moderate-severe or the severe category.

Figure 3: Percentage of subjects in various severity categories in the Behavioral Domain



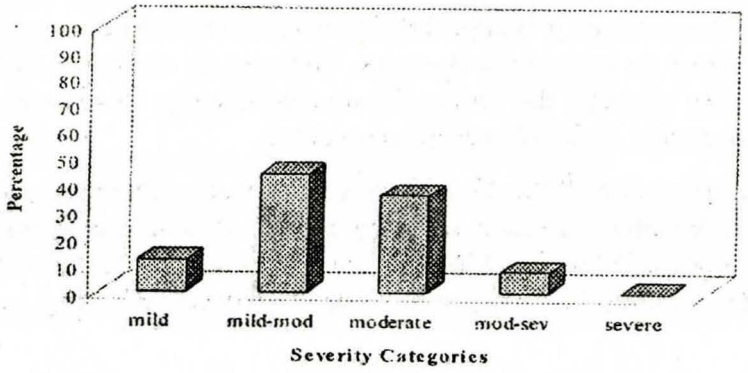
Communication Domain:

This Domain has been divided into 3 subsections with independent scoring scales in each. The 3 subsections are: Prelingiuistic, Non-verbal and Verbal.

Prelinguistic:

In the Prelinguistic Subsection, the subjects were scattered across the various categories with a maximum of 44% (i.e. 11 out of 25) in the mild-moderate category, followed by 36% (i.e. 9 out of 25) in the moderate category. 12% of the subjects (i.e. 3 out of 25) fell in the mild category and 8 %(i.e. 2 out of 25) in the moderate-severe category. As evident from figure-4, none of the subjects fell in the severe category with the lowest and highest scores being 8 and 37 respectively.

Figure 4: Percentage of subjects in various severity categories in the Prelinguistic subsection

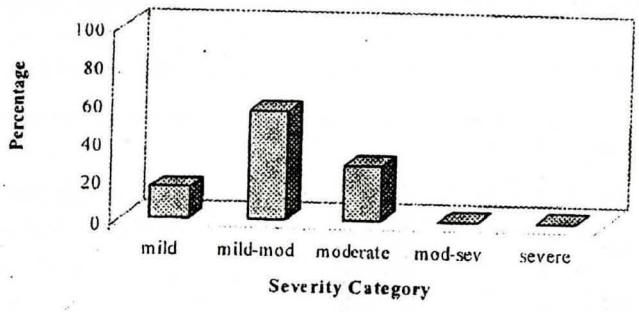


Non-Verbal:

In this subsection a majority of 56% of the subjects (i.e. 14 out of 25) fell in the mild-moderate category. As evident from the figure-5, 28% of the subjects (i.e. 7 out of 25) fell in

the moderate category followed by 16% (i.e. 4 out of 25) in the mild category. The lowest and the highest scores were 4 and 20 respectively with no subjects falling in the moderate-severe and severe category.

Figure 5: Percentage of subjects in various severity categories in the Non-Verbal Domain

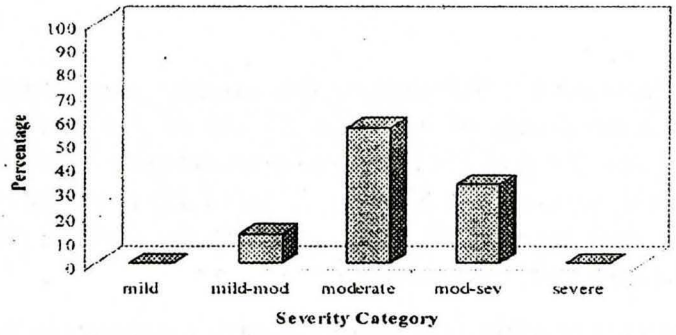


Subsection

Verbal:

In the Verbal Subsection of the Communication Domain a majority of 56% of the subjects (i.e. 14 out of 25) fell in the moderate category followed by 32% (i.e. 7 out of 25) in the moderate-severe category. From figure-6 it is also evident that the remaining 12% (i.e. 3 out of 25) fell in the mild-moderate category with no subjects falling in either the mild or the severe categories. The lowest and the highest scores were 29 and 59 respectively.

Figure 6: Percentage of subjects in the various severity categories in the Verbal Domain



From the above results it is apparent that none of the subjects chosen for the study fell in the severe category on any of the domains. This can be attributed to the scoring system used in the checklist whereby the scores are divided equally into the five scales i.e., mild, mild-moderate, moderate, moderate-severe and severe.

It is also evident that all the 25 subjects chosen were affected to some extent on all the domains studied although there was a variation in the extent of severity on these domains for all the subjects. As specified in the DSM-IVR (appendix-II) and ICD10 (appendix-II) criteria, all of these subjects satisfy the conditions to be diagnosed as having an Autism Spectrum Disorder.

Apart from this the DSASD was also found to have certain other advantages over other assessment tools reviewed and in current use:

1. The DSASD allows for quantifying the sevrity of the disorder, without compromising on the qualitativeness which is a very essential attribute of any assessment tool for ASD.
2. It also makes allowance for profiling of these children which is crucial before the planning of treatment strategies.
3. The checklist can also be used as a measure of the child's progress following intervention.

Based on the study and the results obtained the following observations were found to be pertinent:

1) Some of the items in the checklist were found to be redundant or ambiguous and could be eliminated or modified respectively. These items include:
   - Item (d) in the Verbal subsection of the Communication Domain. This item includes a further six items all of which check for the presence or absence of various types of echolalia. Since the item (c) has already checked for the presence of echolalia, the item (d) might be redundant. See Appendix-I in this context.
   - Items [n] (can the child answer simple questions?) in the Verbal subsection of the Communication Domain was found to be very subjective and parents found it difficult to answer in a "yes" or "no" for the same. So, instead of a polar scale [B#] this item can be placed in the directional scale of B.
   - Similar observations were made for items [o] (can the child name some common objects?), [p] (can the child name family members?), [q] (can the child carry out a simple series of 2 related commands?). All these items can be placed in the directional scale of B.
2) The checklist does not include items that could help to differentially diagnose the various disorders on the spectrum. Thus, it gives no information as to where the child is placed on the spectrum of PDD/ASD.

Based on the study it can be safely stated that the DSASD bears scope for both qualitative categorizations as well as for the profiling of symptoms to account for a more thorough diagnosis. Among the assessment tools and scales currently in use as well as those reviewed it was observed that they are either purely checklists or symptom-scales or profiles. The DSASD attempts to combine all of the above to make for a more effective tool for the assessment of the ASD.

Limitations of the Study

- The number of subjects taken up for the study was limited.
- Also the subjects undertaken for the study had undergone therapy for different durations which might imply that they have moved along the spectrum since their first diagnosis.
- This tool was not compared with any other existing assessment tool for ASD.

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