

Tier Two Screening for High-Functioning Students with ASD

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Background

Up to one percent of school-age children may be diagnosed with an Autism Spectrum Disorder (Kogan et al., 2009). While many children with ASD are diagnosed during preschool years, there is a proportion, especially those with Asperger's Disorder and those who might be described as individuals with "high-functioning autism," who are not identified before school entry and often not until well after school entry. In a survey of age at time of diagnosis (Howlin and Asgharian, 1999), the average age for a diagnosis of Autistic Disorder was 5.5 years, while the average age for a diagnosis of Asperger's Disorder was 11. The proportion of students with ASD who are never identified is not known, but it is reasonable to suggest a) that at least some children are not identified, and never receive the support that might assist them in developing and learning to their potential, and b) that some children are mis-identified and receive treatment that is inappropriate or inadequate. Many children who eventually receive a diagnosis of high-functioning ASD or Asperger's Disorder are often initially diagnosed with another disorder, such as ADHD or anxiety (Attwood, 2007). Although in some cases there may be co-morbid conditions, in many cases the diagnosis is inaccurate or incomplete, and the reasons for attention difficulties, hyperactivity, and anxiety, for example, are due to underlying ASD. Until the correct diagnosis is determined, appropriate interventions, stemming from an understanding of the characteristics and needs of a student with ASD, may not be implemented.

Objectives

The investigators sought to develop a screening scale, completed by teachers and parents, that would be compatible with the “Case Finding” system described by Brock, Jimerson and Hansen (2006) in which “Looking,” “Listening” and “Questioning” of anecdotal and historical information leads to deliberate screening using norm-referenced instruments to identify students who might be usefully referred for diagnostic assessment, especially those “average” students with ASD who have been able to cope with social and educational issues until they enter the complex world of formal schooling at age five. The SAASI-HFS was conceived to be a portion of the second tier of a three-tier “funnel” that may be used to direct the process of identification and diagnosis of ASD (below, p. 3). It would be administered after results from Tier One (Looking, Listening and Questioning) alert a practitioner to the possibility of atypical development and after a broad screening scale, such as the BASC or ASEBA or SSIS, is administered, and concerns of atypicality or ASD become evident. Tier Two includes a comprehensive psychoeducational assessment, audiological assessment, a blood test for the presence of lead, a broad screening for behaviour issues, and, if appropriate, administration of a scale such as the SAASI-HFS to help practitioners determine if a . (Tier 3) diagnostic assessment of ASD should be performed. In British Columbia, Tier 3 is performed by a multi-disciplinary team and involves administration of the ADOS and the ADI-R, as well as a mental status exam and medical examination.

case finding

Adapted from "Identifying, Assessing, and Treating Autism at School" by Brock, Jimerson & Hansen.

Given the fact that not all instances of autism will be identified before children enter school, all school professionals should be expected to engage in case finding.

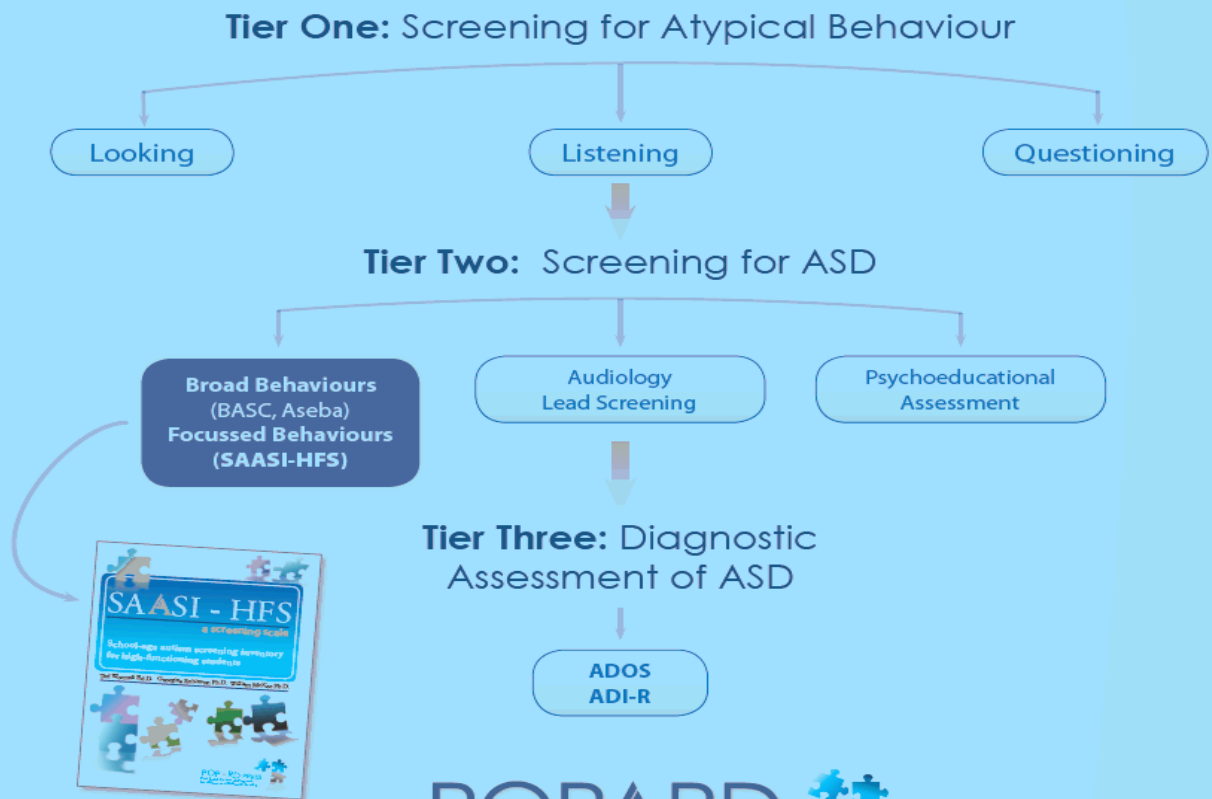
Looking to identify risk factors in children, e.g., lack of facial expression by 9 months, becoming very upset with changes in routine or environment, unusual attachments to objects, loss of language or social skill at any age. This may involve school-wide screening and staff training.

Listening to parents' concerns, especially concerns that involve atypical development in both communication and socialization.

Questioning parents and teachers with regard to concerns about socialization, communication and behaviour. For example, "Does your child/student smile in response to a smile from others?" or "Is pretend play limited or absent?"

Tier Two Screening:

- Lead Screening
- Audiological Assessment
- Behavioural Screening
- Psychoeducational Assessment



Methods

To create the SAASI-HFS, an initial item pool was constructed, based on criteria in DSM-IV-TR and on a review of literature. After a pilot study of 164 items, involving 60 students, was completed, seventy-four items were discarded. Ninety items were administered to a clinical ASD sample, obtained from both large and small municipalities. At the same time as the clinical sample, stratified by geography, age and gender distribution, was identified, a matching sample of non-referred children was obtained (participation rate for the NonASD sample was 66 % of the ASD sample). After analysis of the norming results, one more item was deleted, leaving 89 items, grouped into 12 “characteristics” that are intended to represent qualities of ASD that have been described both in the DSM-IV-TR and in the literature. Raw scores for the 12 characteristics are not intended to be used for screening but are converted into quartiles to provide examiners with an additional perspective to describe a student who may be referred to Tier 3 assessment.

Results

The key screening indicator obtained from administration of the SAASI-HFS is the Total Raw Score, which may be converted into a standard score and a percentile. Internal consistency reliability for total scores exceeded .9 for both groups of respondents for the clinical sample. A small group of behaviour-disordered students (without ASD) was also rated by teachers. Analysis of variance showed significant differences between all three teacher-rated groups. Mean scores of parents and teachers of the ASD students also differed significantly from each other.

**Total Raw Score Analysis of Variance
for ASD, NonASD and BD Groups by Respondent**

<i>Respondent</i>	<i>Group (n)</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>	<i>P</i>
<i>Parent</i>	ASD (96)	228.52	43.038	499.71	.000*
	NonASD(67)	103.39	18.722		
<i>Teacher</i>	ASD (102)	210.98	46.285	211.14	.000*
	NonASD(84)	100.21	17.801		
	BD (11)	159.53	41.798		

*Significant at $\alpha = .01$

Discriminant function analysis showed overall correct classification rates that exceeded 90 %, using total scores. The sensitivity of the SAASI-HFS ranges from 87 to 89 percent across raters. Some ASD students were not “correctly classified” in the analysis. This is not unexpected in the context of changing standards for differential diagnosis in the last decade: students in the ASD group were identified by a plethora of procedures that involved different instruments and different practices, as well as different criteria: in the DSM-IV-TR, published in 2000 and probably not widely employed until 2001 or 2002, diagnostic text for Autistic Disorder and Asperger’s Disorder was “extensively revised” (DSM-IV-TR, p. 830). In this context, it would be surprising if there were not some “error” in the classification rate, in addition to the error that is inherent in any measurement that is less than perfectly reliable.

Total Raw Score Teacher Classification Summary

Actual Group	Predicted Membership		
	ASD	NonASD	N
ASD	89	13	102
NonASD	3	81	84
Overall percentage of cases correctly classified: 91.4			

Total Raw Score Parent Classification Summary

Actual Group	Predicted Membership		
	ASD	NonASD	N
ASD	85	11	96
NonASD	3	64	67
Overall percentage of cases correctly classified: 91.4			

The specificity of the SAASI-HFS in this research is high (96%) across both groups of raters. Although a small percentage of NonASD students was misclassified as ASD students, this is appropriate, considering that the purpose of the scale is to screen students who might be appropriately referred for further (diagnostic) assessment. The principal investigators suggest that these results support the use, by qualified practitioners, of the SAASI-HFS as an aid to deciding whether or not Tier 3 assessment is appropriate.

References

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