

ADOS-2 Module 4 Revised Algorithm

How to Cite:

APA: Hus, V., & Lord, C. (2014). The autism diagnostic observation schedule, module 4: revised algorithm and standardized severity scores. *Journal of autism and developmental disorders*, 44(8), 1996-2012.
Harvard: Hus, V. and Lord, C., 2014. The autism diagnostic observation schedule, module 4: revised algorithm and standardized severity scores. *Journal of autism and developmental disorders*, 44(8), pp.1996-2012.

Considerations

Although we have provided this resource, to use freely at your discretion, we reiterate the importance of accurately presenting the qualitative descriptions of the observed behaviours, as recommended in the ADOS-2 manual:

“In communicating with other professionals (with family’s consent), it is still recommended that the clinician provide descriptions of behaviors observed during the ADOS-2 along with the ADOS-2 Classification, rather than rely on scores to communicate meaningful information about the child’s diagnosis or particular strengths and difficulties. In general, examiners should avoid including assigned ratings or algorithm scores (i.e., item, domain, and Overall Total scores) in clinical or research reports because the specific scores may be misunderstood or disseminated in a way that is not helpful to the individual being evaluated. Similarly, ADOS-2 Comparison Scores should only be reported with caution, as they have distinct “pitfalls” in interpretation due to their narrow range (especially within those Overall Totals corresponding to an *autism spectrum* classification on the ADOS2), the lack of epidemiological samples on which to calibrate scores, and the scarcity of replication studies to date.” - The Autism Diagnostic Observation Schedule, Second Edition (ADOS-2; Lord, Luyster, Gotham, & Guthrie, 2012; Lord, Rutter et al., 2012)

References:

Lord C, Luyster RJ, Gotham K, Guthrie W. Autism Diagnostic Observation Schedule, Second Edition (ADOS-2) Manual (Part II): Toddler Module. Torrance, CA: Western Psychological Services, 2012.

Lord C, Rutter M, DiLavore PC, Risi S, Gotham K, Bishop S. Autism Diagnostic Observation Schedule, Second Edition (ADOS-2) Manual (Part I): Modules 1–4. Torrance, CA: Western Psychological Services; 2012.

Purpose of Revision

The Autism Diagnostic Observation Schedule, 2nd Edition manual includes revised diagnostic algorithms and standardized severity scores for modules used to assess children and adolescents of varying language abilities. However, comparable revisions for Module 4 are not available in the ADOS-2 manual. Hus & Lord (2014) revised the Module 4 algorithm and calibrated raw overall and domain totals to provide metrics of ASD symptom severity. Sensitivity and specificity of the revised Module 4 algorithm exceeded 80% in the overall sample. Module 4 calibrated severity scores provide quantitative estimates of ASD symptom severity that are relatively independent of participant characteristics. The revised algorithm increases comparability of ADOS scores across modules.

Algorithm Conversions

Converting Item Codes to Algorithm Scores

- **Convert** assigned ratings of 3 to algorithm scores of 2.
 - **Convert** assigned ratings other than 0,1,2,3 (i.e., 7,8 and 9) to algorithm scores of 0.
 - **Transfer** assigned ratings of 0,1, and 2 directly to the algorithm form (do not convert).
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Revised Algorithm (Hus & Lord, 2014)

ADOS-2	Module 4 Algorithm (Hus & Lord, 2014)	
Social Affect (SA)		
Conversation	(A-8)	<input type="text"/>
Empathic or Emotional Gestures	(A-10)	<input type="text"/>
Unusual Eye Contact	(B-1)	<input type="text"/>
Facial Expression Directed to the Examiner	(B-2)	<input type="text"/>
Communication of Own Affect	(B-5)	<input type="text"/>
Insight into Typical Social Situations and Relationships	(B-7)	<input type="text"/>
Quality of Social Overtures	(B-9)	<input type="text"/>
Quality of Social Response	(B-11)	<input type="text"/>
Amount of Reciprocal Social Communication	(B-12)	<input type="text"/>
Overall Quality of Rapport	(B-13)	<input type="text"/>
SA Total		<input type="text"/>
Restricted and Repetitive Behaviour (RRB)		
<i>Restricted and Repetitive Behaviours</i>		
Speech Abnormalities Associated with Autism	(A-2)	<input type="text"/>
Stereotyped/Idiosyncratic Use of Words or Phrases	(A-4)	<input type="text"/>
Unusual Sensory Interest in Play Material/Person	(D-1)	<input type="text"/>
Hand and Finger and Other Complex Mannerisms	(D-2)	<input type="text"/>
Excessive Interest in or References to Unusual or Highly Specific Topics or Objects or Repetitive Behaviours	(D-4)	<input type="text"/>
RRB Total		<input type="text"/>
Overall Total (SA + RRB)		<input type="text"/>
Classification	Choose an item.	
Severity Score	<input type="text"/>	

Recommended Cut-offs

Hus and Lord (2014) provide a single cut-off score that yields a good combination of sensitivity and specificity to differentiate between ASD and non-ASD classifications. In line with DSM-5, they do not provide separate cut-off scores for 'autism spectrum' and 'autism'. For further details on cut-off scores, we recommend reviewing the full publication.

Sensitivity and Specificity

Overall Total	Sensitivity	Specificity
Social Affect + Restricted and Repetitive Interests and Behaviours (Cut-off = 8)	90.5	82.2

Calibrated Severity Scores (CCS) for ages 9-39 year:

CCS	Overall Total
1	0-2
2	3-5
3	6-7
4	8
5	9
6	10-11
7	12-13
8	14-15
9	16-19
10	20-29