

A Scale to Assist the Diagnosis of Autism and Asperger's Disorder in Adults (RAADS): A Pilot Study

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Abstract An empirically based 78 question self-rating scale based on DSM-IV-TR and ICD-10 criteria was developed to assist clinicians' diagnosis of adults with autism and Asperger's Disorder—the Ritvo Autism and Asperger's Diagnostic Scale (RAADS). It was standardized on 17 autistic and 20 Asperger's Disorder and 57 comparison subjects. Both autistic and Asperger's groups scored significantly higher than comparison groups with no overlap; sensitivity, specificity, and content validity equaled one. Cronbach's alpha coefficients of internal consistency of three subscales were satisfactory. Gender, age, and diagnostic categories were not significantly associated factors. The RAADS can be administered and scored in less than an hour and may be useful as a clinical scale to assist identification of autism and Asperger's Disorder in adults. The RAADS does not distinguish between autism and Asperger's Disorder.

Keywords Diagnosis · Autism · Asperger's Disorder · RAADS

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Diagnosis of autism and Asperger's Disorder in adults can be a daunting task. First, they share many symptoms with other DSM-IV-TR disorders, such as social anxiety disorder, obsessive–compulsive disorder, and schizoaffective disorder (Baron-Cohen and Wheelwright 2004; Fitzgerald and Corvin 2001; Klin et al. 2005; Ritvo 2006; Volkmar and Lord 1998). Second, the differentiation of autism from Asperger's Disorder according to DSM-IV-TR and ICD-10 criteria depends on the time of onset of language and cognitive functions, and this information is often lacking, especially in adults. Finally, there is no consensus among clinicians and researchers as to the relationship of the two disorders. Some consider them to be separate, and some as being on a continuum and differing only in their degree of severity (Baron-Cohen 1995; Frith 1991).

In 1944, Hans Asperger first described a group of individuals he labeled as having “autistic psychopathy.” He characterized these individuals as having problems in social integration and nonverbal communication. He also noted that they had idiosyncratic verbal communication, preoccupations with unusual interests, deficits with empathy and intuition, and were clumsy. He did not, however, provide specific diagnostic criteria (Frith 1991). Wing (1981), a British psychiatrist, translated Asperger's work from the original German into English and renamed the condition Asperger's Syndrome. She noted these subjects displayed a lack of normal interest in people, a lack of shared interests, delayed speech acquisition, impoverished speech content, and absence of imaginary play. Gillberg (1992) proposed diagnostic criteria closer to Asperger's original description. They included social impairments, narrowed interests, repetitive routines, speech and language peculiarities, nonverbal communication problems, and motor clumsiness.

Inclusion of Asperger's Syndrome in the ICD-10 (World Health Organization 1992) and DSM-IV (American

Psychiatric Association 1994) resulted in broad clinical recognition of the syndrome, which was renamed Asperger's Disorder. The DSM-IV-TR, however, excluded speech and language difficulties from the criteria, thus providing a broader definition than that previously used by Asperger, Wing, and Gillberg (Fitzgerald and Corvin 2001). DSM-IV diagnostic criteria distinguish Asperger's Disorder from autism by the time of language onset and cognitive development (i.e., for Asperger's Disorder there must be no delay). Also, for autism but not for Asperger's Disorder, qualitative impairment in communication must be evident. Currently, there is a growing consensus that Asperger's Disorder is a sub-group on the autistic spectrum (Baron-Cohen 1995; Frith 1991; Ritvo 2006; Wing 1981).

Several diagnostic scales have been developed for children and adolescents with autism and Asperger's Disorder (Attwood 1998; Ehlers et al. 1999; Williams et al. 2005) and their various strengths and weaknesses have been evaluated (Campbell 2005; Goldstein 2002). Only one scale, "The Autism-Spectrum Quotient" (AQ), was designed specifically for adults (Baron-Cohen et al. 2001). These authors emphasized that the AQ is not diagnostic, but serves as a useful instrument identifying the extent of autistic traits shown by an adult of normal intelligence. They recommended exploring its potential as a screening tool for autism-spectrum conditions in adults of normal intelligence. These investigators also proposed a diagnostic system, "The Adult Asperger's Assessment (AAA): A Diagnostic Method" (Baron-Cohen et al. 2005). It consists of a questionnaire that encompasses the DSM-IV-TR criteria and the administration of two scales, the AQ and the Empathy Quotient Scale (EQ) (Baron-Cohen and Wheelwright 2004).

Methods

Subjects

Four groups of subjects were recruited and compressed into two groups for the purpose of evaluation and analysis as follows:

Group 1 consisted of 20 volunteers with Asperger's Disorder and Group 2 of 17 volunteers with autistic disorder. They were grouped together because of difficulties ascertaining age of language onset in three cases. Two independent psychiatrists diagnosed these subjects using DSM-IV-TR criteria for Asperger's Disorder or autism (American Psychiatric Association 2000). Evaluations consisted of reviewing prior medical records when available, obtaining a developmental history, conducting an interview, and a mental status examination. They were recruited from (a) diagnosed patients of clinicians known to the authors throughout the country, (b) national autism and Asperger's Disorder support groups known to the authors, (c) referrals from Asperger's and autism diagnostic clinics

who were familiar with the project, and (d) advertisement in websites for adults with Asperger's Disorder. The subjects were enrolled in the order they volunteered. They were judged clinically (via mental status exam) to be functioning in the non-retarded range of intelligence, had been educated in regular schools, were reported to have an average IQ, had a driver's license, and obtained a high school diploma, college, or graduate school education. All subjects were in good general health between the ages of 18–65.

A first group of comparison subjects, called the "other diagnoses" group (Group 3), consisted of 16 adults with DSM-IV-TR Axis I diagnoses other than autism or Asperger's Disorder. They were recruited from psychiatric outpatient clinics in Los Angeles. Two clinicians also confirmed their diagnoses with clinical interviews and mental status examinations. They had the following Axis I disorders: schizophrenia ($n = 3$), psychosis NOS ($n = 1$), schizoaffective ($n = 2$), bipolar ($n = 1$), ADHD ($n = 1$), generalized anxiety ($n = 2$), obsessive compulsive ($n = 2$), social phobia ($n = 2$), dysthymic ($n = 1$), and post traumatic stress ($n = 1$). Initially, the authors sought a comparison group large enough with social phobia and schizoid personality disorder—as they are often confused with Asperger's Disorder—in order to allow separate statistical analyses. However, because the sample size was small and the diagnoses were diverse, this group was combined with Group 4 for statistical analyses to increase the statistical power.

A second group of comparison subjects (Group 4), called the "no diagnosis" group, consisted of 41 volunteers who did not have, and never reported having had, a DSM-IV-TR Axis I diagnosis. They were recruited from associates of the investigators, two colleges, and two graduate schools in the Los Angeles area. Similar to the autistic and Asperger's Disorder subjects, Groups 3 and 4 were combined to form one group of 57 comparison subjects. These comparison subjects were all in good general health, were clinically judged to be in the average range of intelligence, had a driver's license, were literate, and educated in regular schools with no special education. They were between the ages of 18–65 years and all were desirous of cooperating (see Table 1).

Informed Consent

The California Institutional Review Board, Inc., located in Pasadena, California, approved the consent form and scale (IRB #06-001, January 27, 2006). After complete description of the study to the subjects, written informed consent was obtained.

Development of the Scale

One hundred questions were initially formulated on an empirical basis to detect symptoms (behaviors and thought

Table 1 Subject demographics

Subject Group	Number	Male: female	Mean age	Education high school (%)	Education college (%)	Married (%)
Asperger's Disorder	20	11:9	37	30	70	20
Autistic disorder	17	11:6	33	47	43	12
No diagnosis	41	16:25	45	0	100	61
Other diagnosis	16	9:7	37	12.5	87.5	38
Full sample	94	47:47	38	17	83	39

patterns) in the three main areas of disturbances noted in the ICD-10 and DSM-IV-TR criteria for autism and Asperger's Disorder. These three areas are (a) qualitative impairments in social interaction; (b) qualitative impairments in communication; and (c) restricted repetitive and stereotyped patterns of behavior, interests, and activities (American Psychiatric Association 2000; World Health Organization 1992). The authors utilized the above criteria and relabeled them into three simplified representational categories of (a) social relatedness, (b) language and communication, and (c) sensorimotor and stereotypies. Each question was worded from the patient's point of view (i.e., in the first person as the scale is of the self-rating type). Each question was then assigned to one of the three domains above.

Two types of questions were developed: (a) 60 "positively worded questions," identifying specific symptoms as listed in DSM-IV-TR and ICD-10; and (b) 18 "negatively worded questions," which identify "normally expected answers." Though these questions also address areas relevant to the diagnosis of autism and Asperger's Disorder, they are negatively worded to avoid a response bias. These were also included to ascertain whether certain skills (such as social skills) were acquired over the developmental span. These questions are scored in reverse order from the positively worded questions. Three expert judges, clinicians who specialize in autism spectrum disorders, reviewed all questions. Questions were revised based on their recommendations.

An initial field trial was undertaken by administering the scale to 8 Asperger's Disorder, 8 autistic, and 16 volunteers with no DSM-IV-TR diagnosis. After administration of the questionnaire, each question was reviewed with these 32 individuals. Evaluating and reviewing their comments led to the elimination of 17 questions due to redundancy, ambiguity, or lack of clarity. A second field trial was then undertaken by administering the scale to another set of 5 autistic, 5 Asperger's Disorder, and 10 comparison subjects, and again reviewing each question with them. After evaluating their comments, five additional questions were eliminated due to redundancy or lack of clarity, leaving 78 questions for the final version of the scale.

Each of the final 78 questions was assigned to one of the three domains previously described:

1. Social relatedness, total of 31 questions: 1, 3, 5, 6, 9, 11, 12, 13, 14, 18, 19, 21, 22, 31, 34, 40, 41, 42, 46, 50, 51, 56, 57, 58, 59, 63, 66, 70, 71, 74, 78.
2. Language and communication, total of 23 questions: 2, 7, 8, 15, 23, 24, 25, 26, 27, 32, 37, 39, 43, 44, 45, 47, 48, 53, 55, 64, 68, 72, 77.
3. Sensorimotor and stereotypies, total of 24 questions: 4, 10, 16, 17, 20, 28, 29, 30, 33, 35, 36, 38, 49, 52, 54, 60, 61, 62, 65, 67, 69, 73, 75, 76.

These assignments were made by consensus among the investigators. Three expert judges then reviewed the questions again. If there was consensus, the question remained in its assigned domain; if not, it was reevaluated and reassigned.

A 4-point Likert scale for answers to each question was designed to allow for subsequent statistical comparisons of factors such as time of onset, duration, and frequency of specific symptoms and subsets of symptoms. The two types of questions were scored in reverse order:

1. "Positively worded questions" were scored: Present now and when young (before 16 years) = 3, Only now = 2, Only when young (before 16 years) = 1, Never true = 0.
2. "Negatively worded questions" (identified on the scale by an asterisk next to their numbers) were scored: Present now and when young = 0, Only now = 1, Only when young = 2, Never true = 3.

Instructions for scoring each question and a sample score sheet are presented in the appendix. They can be downloaded from the online version of the Journal. Translations into languages other than English are available on request.

The categories showed a developmental profile indicating which symptoms the subjects outgrew naturally or with treatment and which symptoms persisted. The category of "Only now" evaluated skills learned over time either naturally or with treatment. This answer category is designed for the 18 "negatively worded questions."

Procedure

An investigator accompanied each subject during administration of the scale. This was to assure that they attended to the questions and to provide a short answer if a subject asked for clarification.

Subjects' identifying information was coded to preserve anonymity and entered together with their responses into Excel spreadsheets and then transferred to SAS for statistical analyses. The internal consistency of the items in each of the three subscales was calculated and Cronbach's alpha coefficients were determined. A factor analysis was then carried out to determine the most discriminatory questions. Lastly, ANCOVAs for age and sex and for comparisons of group means were conducted.

Results

Subjects' demographics are shown in Table 1. An age-adjusted ANCOVA of total scores (over all 78 questions) across diagnostic and gender groups showed group differences, but age was not statistically significant as a covariate ($p = 0.141$). Gender was statistically significant as a main effect ($p = 0.0177$), but the gender-diagnosis effect was not significant ($p = 0.5532$). We therefore concluded that gender and diagnosis were additive effects.

Post-hoc unequal variance t -tests were performed for pair-wise comparisons of each of the 78 questions. The autistic and Asperger's Disorder subjects significantly differed from the comparison groups on 77 questions (i.e., for these questions, $df = 39.1$ vs. 92 , $t = 3.64$ vs. 13.83 , all p values < 0.002). Only one question, 28 ("I am more sensitive to smells than anyone I know"), was not significant between groups ($t = 1.65$, $df = 92$, $p = 0.1031$).

Comparison of the mean RAADS scores of the combined autistic and Asperger's group to the combined comparison subject group revealed they were significantly different ($F = 256.49$, $p < 0.0001$). Inspection of the ranges of the combined groups revealed that there were no overlapping scores. This indicates that the sensitivity, specificity, and content validity of the RAADS each equal one (Table 2).

Cronbach's alpha coefficients were computed for each of the three subscales described previously: (a) social relatedness, $\alpha = 0.86$; (b) language and communication, $\alpha = 0.60$; and (c) sensorimotor and stereotypies, $\alpha = 0.70$. Analysis of the frequency of responses for questions 2, 8, and 10 revealed that internal consistency could be

Table 2 One-way ANOVA comparisons and statistical characteristics of subject groups

Group	Mean Scores for 78 Questions	SD	Range of RAADS Scores
Autistic & Asperger's Disorder ^a	138.243	29.585	77–204
Comparison Controls ^b	27.701	19.282	1–64

^a $n = 37$; ^b $n = 57$

$F = 256.49$; $df = 2$; $*p < 0.0001$

improved without them. Removing questions 2 and 8 increased alpha to 0.65 for the language and communication subscale, and removing question 10 increased the alpha for the sensorimotor and stereotypies subscale to 0.73.

Although sample sizes were small, we conducted factor analyses to attempt to identify meaningful subscales within our data. This was intended to suggest patterns within the present data rather than to imply a specific factor structure. The procedure involved four steps:

1. Identification of three groups of questions with similar semantic content.
2. Computing principal component factor analyses with varimax rotation.
3. Examining factor loadings in order to select variables to represent the factors.
4. Computing subscale scores by adding the reported values of the selected variables after computing internal consistency reliability (Cronbach's alpha) and eliminating variable found to be inconsistent.

These subscale scores, together with the overall total across all 78 questions, were then compared between the autistic and Asperger's Disorder group and the comparison group.

The first group of questions, named "Social Relatedness," produced two factors accounting for 33.8% of the multidimensional variance; subscales derived from these factors had reliability of 0.909 and 0.820 respectively. Two factors from the second group, "Language," accounted for 25.3% of the variance and had reliability of 0.819 and 0.817. Two factors from the third group, "Sensorimotor," accounted for 35.6% of the variance and had reliability of 0.785 and 0.761. While these results suggest adequate structure, it should be recognized that our samples were small.

ANOVAs of the subscales reveal statistically significant differences ($p < 0.0001$) on each of the three subscales (see Table 3).

Table 3 Statistical analysis of subscales

Group ^a	Subscale	<i>M</i>	<i>SD</i>	<i>F</i>
Autistic & Asperger's Disorder	Social Relatedness	150.466	45.415	66.56
Comparison Controls	Social Relatedness	34.894	50.425	
Autistic & Asperger's Disorder	Language	135.270	44.976	83.54
Comparison Controls	Language	25.315	38.565	
Autistic & Asperger's Disorder	Sensorimotor	148.094	52.898	57.14
Comparison Controls	Sensorimotor	31.851	51.146	

^a $n = 37$ for Autistic & Asperger's Disorder; $n = 57$ for Comparison Controls

$*p < 0.0001$

Clinical Utility of the RAADS

The means, standard deviations, and ranges of scores of each diagnostic group are shown in Table 2. Based on this information:

1. A score of 64 or less indicates that it is highly unlikely that a patient *has* autism or Asperger's Disorder.
2. A score of 77 or higher indicates that it is highly likely that the patient *has either autism or Asperger's Disorder*. To differentiate Asperger's Disorder from high-functioning autism, the clinician must examine patient's early developmental history (i.e., diagnostic criteria of DSM-IV-TR regarding time of onset of language cognitive development).
3. None of the 94 subjects in the study scored in the 65–76 range. An increased sample size of all of the groups will ultimately reveal a statistically significant cut-off point between autistic and Asperger's Disorder patients and comparison subjects. At this time, due to the limited sample size, it appears best to consider that a score between 65 and 76 could be due to misreading or misunderstanding questions, errors when marking answers on the scale, language processing difficulties, or other confounding factors which rendered the scale non discriminatory at that point in time.

Discussion

A self-rating diagnostic scale for adults that can assist clinicians is presented. It can be administered and scored in less than one hour and it is highly sensitive and specific. All subjects completed the scale without difficulty. Many of the autistic and Asperger's Disorder subjects used it as a springboard to discuss their life experiences and specific symptoms. For many it also fostered a discussion of treatment options. For example, one subject with Asperger's Disorder stated, "Taking the scale gave me an opportunity to look at my feelings. I hardly ever get to do that. I also had a chance to talk about things I love." Another subject with autism said, "Many questions applied to me. Every time I encountered a question I'd go, 'Yeah, that's me alright!' or 'Nope, not at all.'" Although the questions are specific and empirically based, most of the subjects in the autistic and Asperger's Disorder group made spontaneous comments while they marked the answers. The qualitative data as described above may also be useful to the clinician in understanding the patient and designing the appropriate treatment plan.

As noted in Table 1, the male to female ratios were 11:6 in the autistic group and 11:9 in the Asperger's Disorder group. Although subjects were enrolled in the order they volunteered with no prescreening gender criteria, these ratios

indicate that more women were included than is usual in studies of autism and Asperger's Disorder. However, statistical analysis revealed gender was not a significant factor.

Two unavoidable methodological issues were encountered while developing the scale. First was the dilemma facing the clinicians and researchers dealing with the differential diagnosis of autism versus Asperger's Disorder when a subject's early developmental history was unavailable. DSM-IV-TR diagnostic criteria for Asperger's Disorder states: "There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases by age 3 years)" (criterion D). It also states, "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" (Criterion E) (American Psychiatric Association 2000). Fortunately, only 3 subjects were unable to confirm their early developmental histories. One recalled having had difficulties "for as long as I can remember, from my earliest memories on," and his family dated his symptoms to his infancy. He was assigned to the autism group. The other two recalled never having been told of early developmental problems, and did not recall having symptoms until grammar school. These two were assigned to the Asperger's Disorder group. When dealing with adult subjects, it is often difficult to obtain an accurate developmental history and this problem is encountered frequently. We combined the Asperger's Disorder and autistic subjects into one group to correct for this; thus, our statistical analyses were not affected by this limitation.

A second methodological issue was that the two clinicians were not blind to subjects' prior diagnoses. However, each of the autistic and Asperger's Disorder subjects and those with other DSM-IV-TR diagnoses had medical histories, psychological and/or educational testing, and current mental status examinations that made diagnosis easily apparent to an experienced clinician.

As noted in the introduction, a literature review revealed only one similar self-rating scale designed for adults, the AQ (Baron-Cohen et al. 2001). Unlike the RAADS, it is not based on DSM-IV-TR and ICD-10 criteria. Rather, it has 50 questions that assess four different areas: social skills, attention switching, attention to detail, and imagination. Each item is answered on a 4-point Likert scale, ranging from definitely agree to definitely disagree. In contrast, the Likert scale used in the RAADS is developmentally based and the domains assess symptoms in the three DSM-IV-TR and ICD-10 areas. The two are also different in their method of administration. The AQ was standardized on scales that were completed at home and mailed back to the researchers, whereas the RAADS was standardized only on scales with the researcher sitting with each subject during its adminis-

tration. Additionally, results published on the AQ state that many of the scores on specific questions overlap between autistics and Asperger's Disorder and comparison groups (Baron-Cohen et al. 2001). The RAADS had only one question (#28) that did not significantly distinguish between the autistic and Asperger's Disorder subjects and the comparison groups as reported previously.

It should also be noted that the AAA is designed to be a complete diagnostic system (Baron-Cohen et al. 2005). In contrast, the RAADS is only intended to be an adjunct to assist clinicians diagnosing autism and Asperger's Disorder. Both scales use the DSM-IV-TR and ICD-10 criteria of time of onset of language and cognitive function to make the distinction between autism and Asperger's Disorder.

Further multi-center studies on a larger population are in the planning stage. A larger population of autistic and Asperger's Disorder subjects and comparison groups are indicated to increase statistical power. The future study will utilize other instruments such as the AQ and the adult version of the Social Responsiveness Scale (Constantino and Todd 2005) to assess convergent validity. Test-retest and interrater reliability will be carried out. Results of the factor analyses presented above provided an objective basis for improved subscale revisions. For example, questions 2, 8, and 10 will be replaced, and the third subscale will be expanded to include more items related to circumscribed interests and restricted behaviors. Also, questions that could differentiate between Asperger's Disorder and autism will be sought by appropriate statistical procedures.

Conclusion

Based on preliminary data presented, the Ritvo Autism Asperger's Diagnostic Scale (RAADS) appears to be a useful clinical scale that can assist clinicians in identifying autistic disorder and Asperger's Disorder in adults. However, this is a cautionary statement. Though initial results demonstrated it is highly sensitive and specific and can be administered and scored in less than one hour, further studies to determine reliability and validity are indicated.

The RAADS is neither intended nor able to distinguish between Asperger's Disorder and autistic disorder because the DSM-IV-TR and ICD-10 criteria require that diagnosis depends on the time of onset of language and cognitive functions. Further multi-center studies are underway to expand the sample and test several hypotheses concerning the nature of autism and Asperger's Disorder.

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Appendix

The Ritvo Autism Asperger's Diagnostic Scale (RAADS) and Instructions for Scoring

The scale contains two types of questions: (a) 60 "positively worded questions" describing specific symptoms of autism and Asperger's Disorder, and (b) 18 "negatively worded questions" to elicit "normally expected responses." The longer a symptom has been present, it is considered more serious and will receive a higher score. To assess longevity and severity, each question can be answered: "True now and when I was young," "True only now," "True only when I was young," or "Never true." The "negatively worded questions" are identified by an asterisk by their number and are scored in reverse order, reflecting acquired social and language skills in the "True Only Now" column. Scores for each answer are:

Table A1 Scores for the Four Possible Answers

Question	Answer checked by the subject			
	True now and when I was young	Only true now	True only when I was young	Never
true				
Positively Worded ^a	3	2	1	0
Negatively Worded ^b	0	1	2	3

^a $n = 60$ (No asterisk after question number). Example: 73. "The same sound sometimes seems very loud or very soft, even though I know it has not changed."

^b $n = 18$ (Asterisk after question number). Example: 13* "I like to have close friends."

Determining a patient's score: In order to identify the 60 positively worded questions and the 18 that are negatively worded, we have devised a simple code:

1. Each of the 60 positively worded questions has a regular period after its number on the scale (e.g., 70. I cannot tell if someone is interested or bored with what I am saying).
2. Each of the 18 negatively worded questions has an asterisk (*) after its number (e.g., 1* I am a sympathetic person).

To score the scale, first write a number from 0 to 3 by the side of each question, depending on which box the patient checked. Second, enter the total for that page on the bottom of the page. Third, add the totals of each page to determine the total score for all 78 questions.

Clinical implications of a patient's total score: Based on the statistical parameters described in the results section, the following conclusions can be drawn as shown in the following table.

Table A2 Using the Total Scale Score to Aid in Differential Diagnoses of Autism and Asperger’s Disorder

Patient’s total score	Clinical implications
77 or higher	High probability that the patient <i>HAS</i> autism or Asperger’s Disorder (depending on DSM-IV-TR criteria regarding early development of language and cognition)
Between 65–76	<i>NO DIAGNOSTIC INFORMATION</i> can be drawn from the scale at this time
Less than 64	High probability that the patient <i>DOES NOT HAVE</i> autism or Asperger’s Disorder

RAADS ©

Ritvo Autism-Asperger’s Diagnostic Scale

All information on this scale is strictly confidential

*1. Your name _____

*2. Your address _____

*3. Your phone number (_____) _____ *4. Today’s date _____

*5. Your age in years _____

Your gender: *6. male *7. female

Marital status: *8. single *9. married *10. divorced

*11. not married but in a significant relationship

Do you have children? *12. yes *13. no

*14. If yes, list their sexes, ages, and any psychiatric or neurological disabilities they might have including autism and Asperger’s Disorder:

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

Do you have or have you ever had a driver’s license? *15. yes *16. no

*17. The highest grade passed or degree earned in school _____

*18. Was this in regular class

*19. Or special education

*20. Have you ever been diagnosed or labeled as having Autistic Disorder, Asperger’s Disorder, High Functioning Autism, Pervasive Developmental Disorder, Dyslexia, Mental Retardation, Learning Disability, or another psychiatric or neurological disorder? If so please, name the diagnosis or label, when it was given, and by whom (name the doctor, clinic, or a school).

Please use other paper if necessary.

Diagnosis: _____

Name of doctor, clinic, other diagnostician: _____

Title of diagnostician: _____

Date of diagnosis: _____

When did you begin speaking?

*21. I began at the usual time (around my second birthday at 24 months of age)

*22. I began speaking late (at or later than age 2 ½ or 30 months)

*23. I have no information as to when I began speaking or early language problems

It will take you about an hour to answer all these questions.

Please stop if you become tired and start again when you are rested.

It is important to read each question completely and think of the answer carefully before checking only one of the four columns headed with these words:

1. **This is true or describes me now and when I was young.**
2. **This was true or describes me only now (refers to skills acquired, applies to negatively worded questions).**
3. **This was true only when I was young (16 years or younger).**
4. **This was never true and never describes me.**

Please answer the questions according to what is true for you and only what you feel is true and correct, not what you think others expect you to say or taught you to say.

Check only one column.

Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
1* I am a sympathetic person.	0	1	2	3
2. I keep many exact words and phrases from movies and television in my memory.	3	2	1	0
3* I understand when friends need to be comforted, and I always try to be helpful.	0	1	2	3
4. Sometimes I talk too loudly or too softly, and I am not aware of it.	3	2	1	0
5. I often don’t know how to act in social situations.	3	2	1	0
6* I can “put myself in other people’s shoes.”	0	1	2	3
7. I have a hard time understanding the meaning of the phrase: “He has skeletons in his closet.”	3	2	1	0
8. I don’t remember people’s faces. I am more likely to remember something about them that others may consider peculiar (like a person’s scent).	3	2	1	0

continued					continued				
Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true	Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
9* I would rather tell a “little white lie” than hurt someone’s feelings.	0	1	2	3	23. I get highly confused when someone interrupts me when I am talking about something I am very interested in.	3	2	1	0
10. I always notice how food feels in my mouth. This is just as important to me as how it tastes.	3	2	1	0	24. It is difficult for me to understand how other people are feeling when we are talking.	3	2	1	0
11* I miss my best friends or family when we are apart for a long time.	0	1	2	3	25* I don’t mind having a conversation with several people at the same time, for instance, around a dinner table, at school, or at work.	0	1	2	3
12. Sometimes I offend others by saying what I am thinking. I am not aware that I am doing that, and I am surprised when others tell me that I have been rude.	3	2	1	0	26. I have a hard time figuring out what some phrases mean, like: “You are the apple of my eye.”	3	2	1	0
13* I like to have close friends.	0	1	2	3	27. It is very difficult for me to understand some emotions (like lust, infatuation, empathy, or embarrassment).	3	2	1	0
14. I’d rather go out to eat in a restaurant by myself than with someone I know.	3	2	1	0	28. I am more sensitive to smells than anyone I know.	3	2	1	0
15. I cannot imagine what it would be like to be someone else.	3	2	1	0	29. Some ordinary textures that do not bother others feel very offensive when they touch my skin.	3	2	1	0
16. I have been told that I am clumsy and that my posture and gait are awkward.	3	2	1	0	30. I get extremely upset when the way I like to do things is suddenly changed.	3	2	1	0
17. I am very sensitive to the way my clothes feel when I touch them. How they feel is more important to me than how they look.	3	2	1	0	31. I never wanted or needed to have what other people call an “intimate relationship.”	3	2	1	0
18. I like to copy the way certain people speak and act. It helps me appear more normal.	3	2	1	0	32. It is difficult for me to start and stop a conversation. I need to keep going until I am finished.	3	2	1	0
19. It can be very intimidating for me to talk to more than one person at the same time.	3	2	1	0	33* I usually speak in a normal tone.	0	1	2	3
20. I have been told that sometimes I speak too loudly or too softly, even when my voice sounds fine to me.	3	2	1	0	34* I can chat and make small talk with friends and when I meet new people.	0	1	2	3
21. I have to “act normal” to please other people and make them like me.	3	2	1	0	35* I speak with a normal rhythm and tone.	0	1	2	3
22* Meeting new people is usually easy for me.	0	1	2	3					

continued

Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
36. My sensations can suddenly change from very sensitive to very dull.	3	2	1	0
37. When I am shopping, I get very nervous at the checkout. I have calculated the amount of what I bought in my head, and I worry it will not come out right.	3	2	1	0
38. Sometimes the sound of a word or a high-pitched noise can be painful to my ears.	3	2	1	0
39. The phrase "I've got you under my skin" makes me very uncomfortable.	3	2	1	0
40* I am an understanding type of person.	0	1	2	3
41. I do not connect with characters in movies and cannot feel what they feel.	3	2	1	0
42. I cannot tell when someone is flirting with me.	3	2	1	0
43. I can see in my mind a whole page that I have read, recall an entire long conversation, or remember travel routes in detail, even if these occurred years ago.	3	2	1	0
44. I memorize lists of things that interest me, even when they have no practical use (for example, sports statistics, train schedules, calendar dates, historical facts and dates).	3	2	1	0
45* I can tell when someone says one thing but means something else.	0	1	2	3
46* I like to talk things over with my friends.	0	1	2	3
47. Sometimes I keep talking and do not notice when others want to say something or are getting bored.	3	2	1	0

continued

Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
48. It can be very hard to read someone's face, hand, and body movements when we are talking.	3	2	1	0
49. The same thing (like clothes, or temperatures) can feel very different to me at different times.	3	2	1	0
50* I feel comfortable with dating and being in social situations with others.	0	1	2	3
51* I try to be as helpful as I can when other people tell me their personal problems.	0	1	2	3
52. I have been told that I have an unusual voice (for example, flat, monotone, childish, or high-pitched).	3	2	1	0
53. Sometimes a thought or a subject gets stuck in my mind and I have to talk about it even if no one is interested.	3	2	1	0
54. I do certain things with my hands over and over again (like flapping, twirling sticks or strings, waving things by my eyes).	3	2	1	0
55. I have never been interested in what most of the people I know consider interesting.	3	2	1	0
56* I am considered a compassionate type of person.	0	1	2	3
57. I get along with other people by following a set of specific rules that help me to look normal.	3	2	1	0
58. It is almost impossible for me to work and function in groups.	3	2	1	0
59. I am considered a loner by those who know me best.	3	2	1	0

continued

Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
60. Sometimes I have to cover my ears to block out painful noises (like vacuum cleaners or people talking too much or too loudly).	3	2	1	0
61. Sometimes things that should feel painful are not (for instance, when I hurt myself or burn my hand on a stove).	3	2	1	0
62. Sometimes when I feel overwhelmed by my senses, I have to isolate myself to shut them down.	3	2	1	0
63. Sometimes when talking to someone, I cannot tell when it is my turn to talk or to listen.	3	2	1	0
64. When I am talking to someone, it is hard to change the subject. If the other person does so, I can get very upset and confused.	3	2	1	0
65. I like things to be exactly the same day after day and even small changes in my routines upset me.	3	2	1	0
66. How to make friends and socialize is a mystery to me.	3	2	1	0
67. It calms me to spin around or to rock in a chair when I am feeling stressed.	3	2	1	0
68. The phrase, "He wears his heart on his sleeve," does not make sense to me.	3	2	1	0
69. If I am in a place with many smells, textures to feel, noises, or bright lights; I can get overwhelmed with sensations and feel panicky, anxious, or frightened.	3	2	1	0
70. I cannot tell if someone is interested or bored with what I am saying.	3	2	1	0
71. I like to be by myself as much as I can.	3	2	1	0

continued

Some life experiences and personality characteristics that may apply to you	True now and when I was young	True only now	True only when I was young	Never true
72. I keep my thought stacked in my memory like they are on filing cards, and I pick out the ones I need by looking through the stack and finding the right one.	3	2	1	0
73. The same sound sometimes seems very loud or very soft, even though I know it has not changed.	3	2	1	0
74* I enjoy spending time eating and talking with my family and friends.	0	1	2	3
75. I can't tolerate things I dislike (like smells, textures, sounds, or colors).	3	2	1	0
76. I don't like to be hugged and held.	3	2	1	0
77. When I go somewhere, I have to follow a familiar route or I can get very confused and upset.	3	2	1	0
78. It is difficult to figure out what other people expect of me.	3	2	1	0

***24. Which questions did you like the best and why?**

Pick your three favorite questions. Write down the question number and explain what you liked best about the question:

- a. _____
- b. _____
- c. _____

***25. Which questions did you dislike and why? Pick three favorite questions that you disliked most. Write down the question number and explain why you didn't like the question:**

- a. _____
- b. _____
- c. _____

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