Intersections and Insights: Unraveling the Complex Relationship Between Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder

Sam Goldstein, Ph.D.
Assistant Clinical Professor
University of Utah School of Medicine
Clinical Director
Neurology, Learning and Behavior Center

www.samgoldstein.com
info@samgoldstein.com
@drsamgoldstein
@doctorsamgoldstein
@CommonSenseScience

MHS
Beyond Assessments

1

Relevant Disclosure

- Comprehensive Executive Functioning Inventory
- Handbook of Executive Functioning
- Autism Spectrum Rating Scales
- Cognitive Assessment System –Second Edition
- Assessment of Autism Spectrum Disorders 1st & 2nd Editions
- Treatment of Autism Spectrum Disorders
- Practitioner's Guide to Assessment of Intelligence and Achievement
- Editor in Chief: Journal of Attention Disorders
- Managing Attention Disorders in Children – 2nd Edition
- Managing Attention and Learning Disorders in Late Adolescence and Adulthood
- Compensated Speaker

Comprehensive Executive Function Inventory

AUTISM SPECTRUM RATING SCALES (ASRS)

RSI™ Rating Scale of Impairment™

2

Learning Objectives

After participating in this presentation, participants will be able to:

- Define and explain the evolution, current diagnostic conceptualizations and complex relationship of Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder
- Explain a framework for assessment and differential diagnosis
- Utilize assessment data to plan and monitor treatment in clinical and educational settings

3

Presentation Outline

- Context of the problem
- What is ADHD
- What is Autism
- Conceptual Differences of ADHD and Autism
- The largest epidemiological study of typical children and those with ASD
- Neuropsychological data for examining ASD and ADHD symptom overlap
- Assessment for differential diagnosis
- Strategies for Treatment Planning

4

Why Address This Issue?

- Some symptoms overlap.
- Some behaviors associated with both disorders overlap.
- Some impairments overlap.
- Some short term outcomes are similar.
- Some treatments are equally effective for both disorders.

5

5

However. . . . .

- Most symptoms of ASD are not associated with ADHD.
- Most impairments in ASD are not associated with ADHD.
- The life course, associated risks and outcome are very different between the two conditions.

6

6

Differential diagnosis

Accurate differential diagnosis is critical because:

- School placements and services will vary.
- Treatment focus will be different.
- Access to services will vary.
- Work with families will be different.

7

7

Is it Really that Difficult to tell the Difference in the DSM 5 TR?

ASD	ADHD
• Unusual behavior	• Inattentive
• Poor communication	• Impulsive
• Limited language	• Hyperactive
• Lack of empathy	• Disorganized
• Poor eye contact	• Procrastination
• Failure to establish friends.	• Forgetful
• Poor perspective taking	• Tasks left unfinished.

8

8

Differential diagnosis with the DSM may not be that difficult. . . .if the application of the DSM diagnostic criteria is complete and correct.

9

9

Why Address This Issue?

Autism and ADHD: Overlapping and discriminating symptoms

Susan Dickerson Mayes *, Susan L. Calhoun, Rebecca D. Mayes, Sarah Molitoris

Department of Psychiatry, Penn State College of Medicine, Hershey, PA, United States

ARTICLE INFO

Article history:
Received 17 May 2011
Received in revised form 19 May 2011
Accepted 23 May 2011
Available online 17 June 2011

Keywords:
Autism
ADHD
Differential diagnosis

ABSTRACT

Children with ADHD and autism have some similar features, complicating a differential diagnosis. The purpose of our study was to determine the degree to which core ADHD and autistic symptoms overlap in and discriminate between children 2–16 years of age with autism and ADHD. Our study demonstrated that 847 children with autism were easily distinguished from 158 children with ADHD. All children with autism had 15 or more of the 30 Checklist for Autism Spectrum Disorder symptoms (mean 22), and none of the children with ADHD did (mean 4). Three of the symptoms were present only in children with autism. Almost all 30 symptoms were found in over half of the children with autism, whereas none were present in the majority of children with ADHD-Inattentive type (ADHD-I) or in children with ADHD-Combined type (ADHD-C) without comorbid oppositional-defiant disorder. In contrast, ADHD symptoms were common in autism. Children with low and high functioning autism and ADHD-C did not differ on maternal ratings of attention deficit, impulsivity, and hyperactivity. For children with normal intelligence, nonsignificant differences were found between children with autism, ADHD-C, and ADHD-I on neuropsychological tests including measures of attention, working memory, processing speed, and graphomotor skills.

© 2011 Elsevier Ltd. All rights reserved.

10

Why Address This Issue?

J Abnorm Child Psychol (2009) 37:443–453
DOI 10.1007/s10802-008-9282-0

PDD Symptoms in ADHD, an Independent Familial Trait?

J. S. Nijmeijer · P. J. Hoekstra · R. B. Minderaa · J. K. Buitelaar · M. E. Altink · C. J. M. Buschgens · E. A. Fliers · N. N. J. Rommelse · J. A. Sergeant · C. A. Hartman

Published online: 3 December 2008
© The Author(s) 2008. This article is published with open access at Springerlink.com

Abstract The aims of this study were to investigate whether subtle PDD symptoms in the context of ADHD are transmitted in families independent of ADHD, and whether PDD symptom familiality is influenced by gender and age. The sample consisted of 256 sibling pairs with at least one child with ADHD and 147 healthy controls, aged 5–19 years. Children who fulfilled criteria for autistic disorder were excluded. The Children's Social Behavior Questionnaire (CSBQ) was used to assess PDD symptoms. Probands, siblings, and controls were compared using analyses of variance. Sibling correlations were calculated for CSBQ scores after controlling for IQ, ADHD, and comorbid anxiety. In addition, we calculated cross-sibling cross-trait correlations. Both children with ADHD and their siblings had higher PDD levels than healthy controls. The sibling correlation was 0.28 for the CSBQ total scale, with the CSBQ stereotyped behavior subscale showing the strongest sibling correlation (r=0.35). Sibling correlations remained similar in strength after controlling for IQ and ADHD, and were not confounded by comorbid anxiety. Sibling correlations were higher in female than in male probands. The social subscale showed stronger sibling correlations in older than in younger sibling pairs. Cross-sibling cross-trait correlations for PDD and ADHD were weak and not-significant. The results confirm that children

11

Why Address This Issue?

J Autism Dev Disord (2009) 39:395–404
DOI 10.1007/s10803-008-0636-9

ORIGINAL PAPER

Positive Effects of Methylphenidate on Social Communication and Self-Regulation in Children with Pervasive Developmental Disorders and Hyperactivity

Laudan B. Jahromi · Connie L. Kasari · James T. McCracken · Lisa S-Y. Lee · Michael G. Aman · Christopher J. McDougle · Lawrence Scahill · Elaine Tierney · L. Eugene Arnold · Benedetto Vitiello · Louise Ritz · Andrea Witwer · Erin Kustan · Jaswinder Ghuman · David J. Posey

Published online: 28 August 2008
© Springer Science+Business Media, LLC 2008

Abstract This report examined the effect of methylphenidate on social communication and self-regulation in children with pervasive developmental disorders and hyperactivity in a secondary analysis of RUPP Autism Network data. Participants were 33 children (29 boys) between the ages of 5 and 13 years who participated in a four-week crossover trial of placebo and increasing doses of methylphenidate given in random order each for one week. Observational measures of certain aspects of children's social communication, self-regulation, and affective behavior were obtained each week. A significant positive effect of methylphenidate was seen on

Keywords Methylphenidate · Pervasive developmental disorders · Hyperactivity · Autism spectrum disorder

Introduction

Children with pervasive developmental disorders (PDD) exhibit deficits in social interaction, language, and also show restrictive interests or stereotyped behaviors. Some 40–50% of children with PDD also display high levels of

12

What is ADHD?

- ADHD is a biopsychosocial condition characterized by core symptoms of inattention, hyperactivity and impulsivity leading to/interacting with cognitive deficits causing impairment in all walks of life.
- ADHD appears to primarily involve the basal ganglia, cerebellum and variably the frontal lobes, depending on associated learning difficulties.
- ADHD appears to primarily involve the neurotransmitter dopamine.

13

13

What is ADHD?

- ADHD is a condition stemming from inefficient self-regulation also closely involving planning and executive functioning.
- Co-morbidity with ADHD probably confounds findings from different study groups.
- The Symptoms of ADHD lead to a nearly infinite number of consequences.

14

14

Self-regulation

- The ability to inhibit
- The ability to delay
- The ability to separate thought from feeling
- The ability to separate experience from response
- The ability to consider an experience and change perspective
- The ability to consider alternative responses

15

Self-regulation

- The ability to choose a response and act successfully towards a goal
- The ability to change the response when confronted with new data
- The ability to negotiate life automatically
- The ability to track cues

16

16

Children with ADHD are typically cueless not clueless. They know what to do but fail to do so consistently, predictably and independently.

17

DSM 5 TR View of ADHD

Essential features:

- Persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and is more severe than is typically observed in individuals at comparable level of development (6 or more for kids; 5 or more for older teens and adults).
- Some hyperactive-impulsive or inattentive symptoms must have been present before seven years of age (6 or more for kids; 5 or more for older teens and adults).
- Some impairment (impaired functioning) from the symptoms must be present in at least two settings.

18

18

DSM 5 TR View of ADHD

Essential features:

- There must be clear evidence of interference with developmentally appropriate social, academic or occupational functioning (at least 2 settings).
- The disturbance does not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorders and is not better accounted for by another mental disorder.

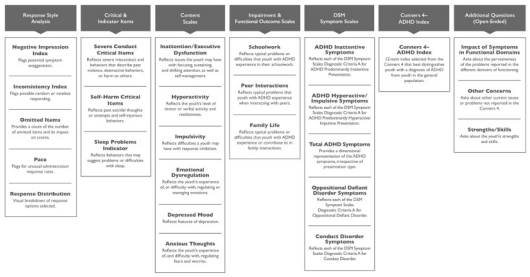
19

MHS
Beyond Assessments

CONNERS 4™
4th EDITION

20

Overview of Conners 4 and Key Areas Measured



21

Evidence Based Multidisciplinary Treatment forADHD

Psychosocial and Educational Treatments:

Chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://ccf.fiu.edu/research/_assets/psychosocial_fact_sheet-updated-1214.pdf

Medications

https://www.cdc.gov/ncbddd/adhd/treatment.html

22

What is ASD?

- Kanner, together with Hans Asperger, initiated the modern study of autism.
- He introduced the label *early infantile autism* in 1943 in his paper : Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 2,* 217-250.

Leo Kanner

23

23

What is ASD?

- Inability to relate to others
- Disinterest in parents and people
- Language difficulties
- fascination with inanimate objects
- Resistance to change in routine
- Purposeless repetitive movements
  - A wide range of cognitive skills
  - Where they possess an innate inability for emotional contact

Leo Kanner

24

24

Lorna Wing

25

25

We are social beings.

2

26

What Benefits Do We Derive From Socialization?

- Support
- Survival
- Affiliation
- Pleasure
- Procreation
- Knowledge
- Friendship

27

The social development of autistic children is qualitatively different from other children.

28

In normal children perceptual, affective and neuroregulatory mechanisms predispose young infants to engage in social interaction from very early on in their lives.

29

Socialization Begins Early
Reina and Her Mother

3

30

A smile that lights up the right prefrontal cortex.

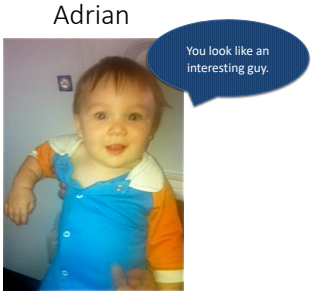
31

31

Adrian, my seatmate on a recent flight.

32

Adrian



33

Adrian

34

Pointing is instinctual.

35

35

Observation is how we learn.

36

36

DSM 5 TR View of Autism Spectrum Disorder

- The term past use of PDD emphasized the pervasiveness of disturbances over a wide range of different domains affecting the development.
- Onset in infancy or early childhood.
- Those with PDDs (ASD, Asperger, Rhetts, CDD, PDD NOS) share certain clinical features but appear to have diverse etiologies and clusters of symptoms.
- For these reasons the category of PDD was eliminated in the DSM 5

37

DSM 5 TR View of ASD

- Combined Social and Communication categories from DSM IV.
- Tightened required criteria reducing the number of symptom combinations leading to a diagnosis.
- Omits Retts and Childhood Disintegrative Disorder.
- Clarify co-morbidity issues
- Eliminate PDD NOS and Aspergers in favor of Autism Spectrum Disorder.

38

38

DSM 5 TR View of ASD

- Five criteria.
- Seven sets of symptoms in the first two criteria – Social/Communication and Restrictive/Repetitive behaviors, interests or activities.
- All three symptoms are required to meet the first criteria (although a typo omits this).
- Two out of four are needed for the second criteria.
- Some symptoms have been combined. Sensory sensitivity has been added.

39

39

Core DSM and ICD Autistic Symptoms

- Impaired social relations.
- Impaired communication skills.
- Impaired behavior.

40

ADHD vs. Autism Symptoms

European Child & Adolescent Psychiatry
October 2000, Volume 9, Issue 3, pp 168-179

How unspecified are disorders of children with a pervasive developmental disorder not otherwise specified? A study of social problems in children with PDD-NOS and ADHD

E. F. Lutejn, M. Serra, S. Jackson, M. P. Steenhuis, M. Althaus, F. Volkmar, R. Minderaa

» Look Inside » Get Access

Abstract

This study examines possible differences and similarities between social behaviour problems in children with problems classified as pervasive developmental disorder not otherwise specified (PDD-NOS) and a group of children with problems classified as ADHD, as measured by parent questionnaires. The instruments involved were the CBCL (Child Behaviour Checklist), the ABC (Autism Behaviour Checklist) and a new instrument: the CSBQ (Children's Social Behaviour Questionnaire). In comparing the PDD-NOS group and the ADHD group, the results show that, according to parent reports, both groups have severe problems in executing appropriate social behaviour, but the PDD-NOS group can be distinguished from the ADHD group by the nature and the extent of these problems. The PDD-NOS group had significantly more social problems (as

In addition, although the descriptions of the social problems are global, i.e. on scale level, the results also show that the social problems of PDD-NOS children can be positively formulated and described as at least including severe social interaction problems, withdrawn behaviours and communication problems.

41

41

Social Development and Autism

- Social competence is an ability to take another's perspective concerning a situation and to learn from past experience and to apply that learning to the ever changing social landscape.
- The social development of autistic children is qualitatively different from other children.
- In normal children perceptual, affective and neuroregulatory mechanisms predispose young infants to engage in social interaction from very early on in their lives.
- Children with ADHD may know how to socialize but not engage successfully due to inattention and impulsivity.

42

42

Social Information Processing

- Encoding of relevant stimuli.
- Interpretation of cues (both cause and intent).
- Goal setting.
- Comparison of the present situation to past experience.
- Selection of possible responses.
- Acting on a chosen response.

Crick and Dodge (1994)

43

Young Children with Autism

- Have little interest in the human face.
- Lack differential preference for speech sounds.
- Lack imitative capacity.
- Lack interest in physical comfort.
- Don't attach to caretakers well.

44

Symptoms Present Before 24 Months

Failure To:

- Orient to name
- Attend to human voice
- Look at face and eyes of others
- Imitate
- Show objects
- Point
- Demonstrate interest in other children

45

Symptoms Present Before 36 Months

- Use of other's body to communicate or as a tool
- Stereotyped hand/finger/body mannerisms
- Ritualistic behavior
- Failure to demonstrate pretend play
- Failure to demonstrate joint attention

46

Joint Attention

- Behaviors that focus the attention of the self and others on the same object (e.g. pointing, sharing emotion, etc.)
- Develops between 6 and 9 months
- Precursor of more advanced social and communication skills

47

Joint Attention

- This abnormality thought to be one of the earliest signs of autism
- Present in children with developmental delays absent autism
- This ability when present in preschoolers with autism predicts better prognosis for language development

48

Pretend Play in Autism

- Limited, often absent
- When present usually characterized by: repetitive themes, rigidity, isolated acts, one-sided play, limited imagination.

49

Theory of Mind

A line of research has proposed that the social deficits in autism represent a specific, innate cognitive capacity to attribute mental states to others and oneself and use these to explain and predict another person's behavior.

50

How can we through a valid and reliable method understand the factor differences between ASD and ADHD?

One way to accomplish this is to conduct discrete sample studies as well as large size, census matched studies examining the the factor structure of these conditions.

51

Factor Structure of ADHD and ODD

A Confirmatory Factor Analysis on the *DSM-IV* ADHD and ODD Symptoms: What is the Best Model for the Organization of These Symptoms?

G. Leonard Burns,[1,6] Brian Boe,[2] James A. Walsh,[3] Rita Sommers-Flanagan,[4] and Lisa A. Teegarden[5]

Journal of Abnormal Child Psychology, Vol. 29, No. 4, 2001, pp. 339–349

52

Factor Structure of ADHD and ODD

Confirmatory factor analysis (CFA) was used to evaluate five different models for the organization of the *DSM-IV* ADHD and oppositional defiant disorder (ODD) symptoms (Model 1: a single factor model; Model 2: an ADHD and ODD two factor model; Model 3a: an inattention (INA), hyperactivity/impulsivity (HYP/IMP), and ODD three factor model; Model 3b: an INA, HYP/IMP, and ODD three factor model where the three IMP symptoms cross-load on the ODD factor; Model 4: an INA, HYP, IMP, and ODD four factor model). To evaluate these models, maternal ratings of ADHD and ODD symptoms were obtained at outpatient pediatric clinics on 742 children not in treatment and 91 children in treatment for ADHD. Model 3a resulted in a good fit as well as a significantly better fit than Model 2. Model 3a was also equivalent across treatment status, gender, and age groupings for the most part. Though Models 3b and 4 provided a statistically better fit than Model 3a, the improvement in fit was small and other model selection criteria argued against these more complex models.

The best fit was two factors for ADHD and one factor for ODD with some Impulsive symptoms loading on both disorders.

53

Factor Analysis for 2-5 Years For ASD From The ASRS Normative Sample

- A two-factor solution was best for parent and teacher raters
  - **Factor I:** included primarily items related to both socialization and communication (e.g., keep a conversation going, understand how someone else felt) - **Social/Communication**
  - **Factor II:** included items related to behavioral rigidity (e.g., insist on doing things the same way each time), stereotypical behaviors (e.g., flap his/her hands when excited), and overreactions to sensory stimulation (e.g., overreact to common smells)- **Unusual Behaviors**

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com. 54

54

Social/Communication Factor

Table 8.18. Exploratory Factor Analysis Results: ASRS (2–5 Years) Parent Ratings

Item		Social/Communication
29.	keep a conversation going?	**-.916**
28.	start conversations with others?	**-.909**
3.	understand how someone else felt?	**-.908**
40.	respond when spoken to by other children?	**-.873**
54.	share his/her enjoyment with others?	**-.865**
50.	show an interest in the ideas of others?	**-.859**
14.	understand the point of view of others?	**-.831**
4.	play with others?	**-.830**
16.	share fun activities with others?	**-.829**
52.	understand age-appropriate humor or jokes?	**-.820**
49.	seek the company of other children?	**-.816**

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

55

55

Factor Analysis for 2-5 Years For ASD From The ASRS Normative Sample

- A two-factor solution was best for parent and teacher raters
  - **Factor I:** included primarily items related to both socialization and communication (e.g., keep a conversation going, understand how someone else felt) - **Social/Communication**
  - **Factor II:** included items related to behavioral rigidity (e.g., insist on doing things the same way each time), stereotypical behaviors (e.g., flap his/her hands when excited), and overreactions to sensory stimulation (e.g., overreact to common smells)- **Unusual Behaviors**

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

56

56

Unusual Behaviors Factor

Item		Unusual Behaviors
27.	focus too much on details?	.735
8.	insist on doing things the same way each time?	.730
56.	insist on certain routines?	.698
9.	need things to happen just as expected?	.698
10.	have a strong reaction to any change in routine?	.689
70.	repeat or echo what others said?	.683
39.	become fascinated with parts of objects?	.660
12.	overreact to common smells?	.653
47.	focus on one subject for too much time?	.651

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

57

57

Factor Analysis for 6 to 18 Years For ASD From The ASRS Normative Sample

- A three-factor solution was best for both parent and teachers versions of the ASRS
  - **Factor I:** included primarily items related to both socialization and communication -**Social/Communication**
  - **Factor II:** included items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory -**Unusual Behaviors**
  - **Factor III**: included items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) -**Self-Regulation**.

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

58

Social / Communication Factor

Table 8.20. Exploratory Factor Analysis Results: ASRS (6–18 Years) Parent Ratings

Item	Social/Communication
28. start conversations with others?	**-.925**
29. keep a conversation going?	**-.912**
19. care about what other people think or feel?	**-.899**
3. understand how someone else felt?	**-.877**
14. understand the point of view of others?	**-.860**
16. share fun activities with others?	**-.828**
50. show an interest in the ideas of others?	**-.824**
54. share his/her enjoyment with others?	**-.821**
61. show good peer interactions?	**-.801**
49. seek the company of other children?	**-.782**
21. respond when spoken to by adults?	**-.770**
52. understand age-appropriate humor or jokes?	**-.766**

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

59

Factor Analysis for 6 to 18 Years For ASD From The ASRS Normative Sample

- A three-factor solution was best for both parent and teachers versions of the ASRS
  - **Factor I:** included primarily items related to both socialization and communication -**Social/Communication**
  - **Factor II:** included items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory -**Unusual Behaviors**
  - **Factor III**: included items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) -**Self-Regulation**.

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com

60

Unusual Behaviors Factor

Table 8.20. Exploratory Factor Analysis Results: ASRS (6–18 Years) Parent Ratings

Item	Unusual Behaviors
51. insist on certain routines?	.842
24. insist on doing things the same way each time?	.785
63. become upset if routines were changed?	.755
22. become obsessed with details?	.745
40. focus too much on details?	.736
49. need things to happen just as expected?	.722
62. overreact to loud noises?	.680
13. have a strong reaction to any change in routine?	.677
54. line up objects in a row?	.670
26. repeat or echo what others said?	.637
21. repeat certain words or phrases out of context?	.637
29. overreact to common smells?	.636

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com.

61

61

Factor Analysis for 6 to 18 Years From The ASRS Normative Sample

- A three-factor solution was best for both parent and teacher versions of the ASRS
  - **Factor I:** included primarily items related to both socialization and communication -**Social/Communication**
  - **Factor II:** included items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory -**Unusual Behaviors**
  - **Factor III**: included items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) -**Self-Regulation**.

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com.

62

62

Self-Regulation Factor

Table 8.20. Exploratory Factor Analysis Results: ASRS (6–18 Years) Parent Ratings

Item	Self-Regulation
57. fail to complete tasks?	.852
44. leave homework or chores unfinished?	.847
35. have problems paying attention when doing homework or chores?	.800
36. make careless mistakes in school work?	.783
30. become distracted?	.743
1. appear disorganized?	.728
18. get into trouble with adults?	.681
60. interrupt or intrude on others?	.647
71. appear fidgety when asked to sit still?	.609
7. have problems waiting his/her turn?	.595
58. ask questions that were off-topic?	.545
6. argue and fight with other children?	.476

ASRS, Copyright © 2010 Multi-Health Systems Inc. All rights reserved. No part of this may be reproduced, stored, or transmitted in any form or by any means, without the prior written permission of MHS Inc. For inquiries please contact - permissions@mhs.com.

63

63

Factor Consistency

- The consistency of the ASRS scale structure across several demographic groups (gender, age group, race, and clinical status) was studied
- The factor loadings for the groups were correlated using the coefficient of congruence
  - results revealed a very high degree of consistency between all groups
  - indicating that the factor structure of the forms generalized across the demographic groups
  - See ASRS Manual for details

64

64

Factor Consistency Ages 2-5

Table 8.22. Factor Congruence Analyses Results: ASRS (2–5 Years)

Demographic	Form	Coefficient of Congruence			
		SC	UB	Level	Level
Gender	Parent	.98	.97	Male	Female
	Teacher	.98	.96		
Age Group	Parent	.97	.96	2–3 Years	4–5 Years
	Teacher	.98	.95		
Race	Parent	.98	.96	White	Non-White
	Teacher	.98	.96		
Clinical Status	Parent	.95	.94	Non-Clinical	Clinical
	Teacher	.95	.87		

Note. SC = Social/Communication; UB = Unusual Behaviors.

65

65

Factor Consistency Ages 6-18

Demographic	Form	Coefficient of Congruence				
		SC	UB	SR	Level	Level
Gender	Parent	.98	.98	.98	Male	Female
	Teacher	.99	.99	.98		
Age Group	Parent	.89	.9	.93	6–11 Years	12–18 Years
	Teacher	.94	.96	.96		
Race	Parent	.97	.97	.98	White	Non-White
	Teacher	.98	.99	.98		
Clinical Status	Parent	.96	.96	.97	Non-Clinical	Clinical
	Teacher	.97	.97	.97		

66

66

Validity for ASD & ADHD

- Factor analysis is a valuable tool to understand how items group
- But we also need to know if the items have validity
- Discriminating children with ASD from the regular population is important
- Discriminating children with ASD from those who are not in the regular population but not ASD is very important – especially ASD vs ADHD

67

67

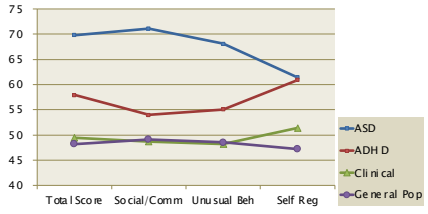
Clinical Case Verification

- Cases were used only if the following criteria were met:
  - a single primary diagnosis was indicated
  - a qualified professional (e.g., psychiatrist, psychologist) had made the diagnosis
  - the diagnosis made according to the DSM-IV-TR (APA, 2000) or ICD-10 (WHO, 2007)
  - appropriate methods (e.g., record review, rating scales, observation, interview) were used during diagnosis
- See ASRS Manual (pg. 49) for more details

68

68

ASRS Validity: Parents 6-18

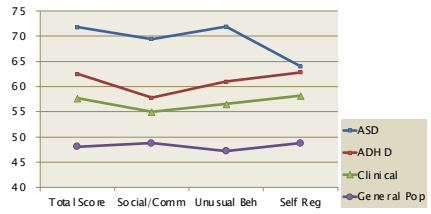


Note: Values from ASRS Manual (Goldstein & Naglieri, 2009) page 67.

69

69

ASRS Validity: Teachers 6-18

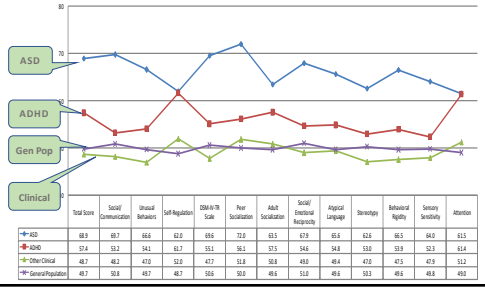


Note: Values from ASRS Manual (Goldstein & Naglieri, 2009) page 67.

70

70

ASRS Validity: Ages 6-18 Parents



	Total Score	Social/ Communication	Unusual Behaviors	Self-Regulation	DSM-IV-TR Scale	Peer Socialization	Adult Socialization	Social/ Emotional Reciprocity	Atypical Language	Stereotypy	Behavioral Rigidity	Sensory Sensitivity	Attention
ASD	68.9	69.7	66.6	62.0	69.6	72.0	63.5	67.9	65.6	62.6	66.5	64.0	61.5
ADHD	57.4	53.2	54.1	61.7	55.1	56.1	57.5	54.6	54.8	53.0	53.9	52.3	61.4
Other Clinical	48.7	48.2	47.0	52.0	47.7	51.8	50.8	49.0	49.4	47.0	47.5	47.9	51.2
General Population	49.7	50.8	49.7	48.7	50.6	50.0	49.6	51.0	49.6	50.3	49.6	49.8	49.0

71

71

ADHD and ASD Symptom Overlap

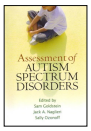
- These data demonstrate that children with ADHD and ASD have similar behavioral challenges with ***behaviors*** associated with Self-Regulation and Attention
- Do they also have similar challenges in their ***abilities*** to attend and self-regulate?

72

72

ASRS & Attention Difficulty

- Individuals with ASD have been described as having "***difficulties in disengaging and shifting attention***" (p. 214) (see Klinger, O'Kelley, & Mussey's chapter 8 in *Assessment of Autism Spectrum Disorders 2nd Edition* (Goldstein & Ozonoff, 2018)
- We tested this hypothesis using the Cognitive Assessment System-2



73

73

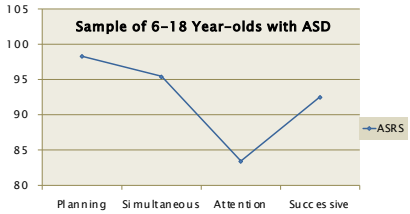
ASRS & Attention Difficulty

- The ASRS (6–18 Years) and Cognitive Assessment System (CAS; Naglieri & Das, 1997) was administered to children diagnosed with an ASD who were rated by a parent (N = 45) or a teacher (N = 47)
- The CAS provides measures of
  - Planning, Attention, Simultaneous, and
  - Successive cognitive abilities
- PASS is based on A. R. Luria's (1973) view of major brain functions

74

74

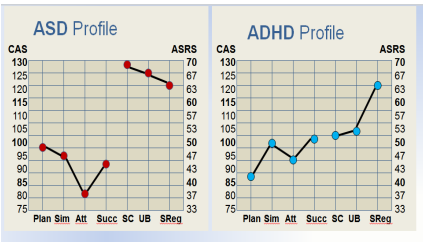
ASRS & Attention Difficulty



75

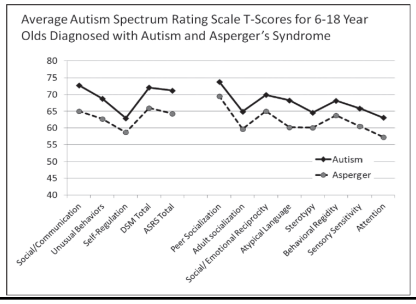
75

Differential Diagnosis: ADHD vs ASD



76

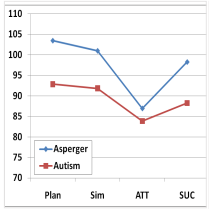
Autism & Asperger 6 to 18 Years



77

77

Autism & Asperger 6-18 Years



Descriptive Statistics and Comparisons Between Individuals with Autism (n = 20) and Asperger Syndrome (n = 23).

		Mn	*SD*	*F*	Sig	*d* -ratio
PLAN	Asperger	103.5	31.6	1.71	.20	0.40
	Autism	92.9	19.2			
SIM	Asperger	101.0	15.3	3.33	.08	0.54
	Autism	91.9	17.5			
ATT	Asperger	86.9	17.7	0.30	.59	0.17
	Autism	83.9	18.8			
SUC	Asperger	98.3	15.7	2.46	.12	0.47
	Autism	88.3	25.6			

78

78

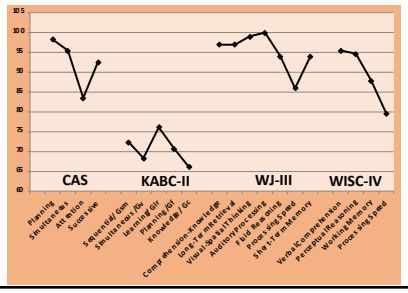
Ability Test Profiles for Children With Autism and ADHD

Comparisons of profiles for CAS, K-ABC-II, WJ-III, and WISC-IV

79

79

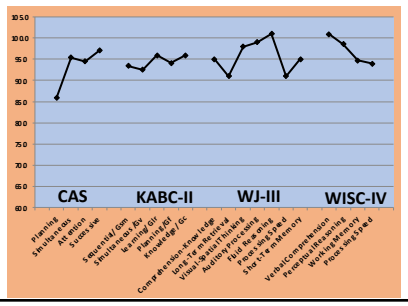
Autism Spectrum Disorder



80

80

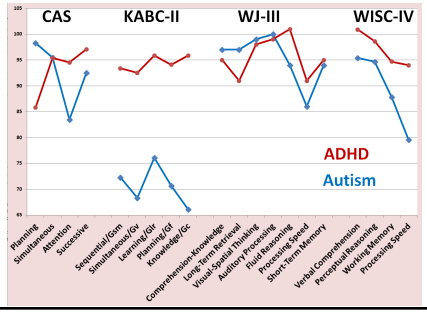
ADHD



81

81

ADHD and ASD



82

82

Important Conclusions

- Autism Spectrum Disorder represents a unique, measurable condition distinct from normal behavior and development.
- ASD is best represented by a 3-factor model with associated symptoms and behaviors.
- ADHD is best represented by a two-factor model with associated symptoms and behaviors.
- ASD and ADHD **overlap** on one of these factors.

83

Comprehensive Assessment For Any Complex Childhood Disorder Like ASD or ADHD

- History
- Record review
- Standardized Observer Measures
- ASD/ADHD Specific Assessment Measures
- Ability, Knowledge and Achievement Measures
- Efforts to assess coping/camouflage behaviors.

84

Assessment begins by taking a basic developmental history.

85

For ASD: Autism Diagnostic Interview-Revised

- Qualitative Abnormalities in Reciprocal Social Interactions
- Qualitative Abnormalities in Communication
- Restrictive, Repetitive and Stereotyped Patterns of Behavior

86

Autism Diagnostic Observation Schedule (ADOS)

- Age range toddlers to adults.
- No speech to those who are verbally fluent.
- Semi-structured assessment.
- Four modules requiring 45 minutes to administer.
- A module is chosen depending upon expressive language and age.
- Non-verbal teens and adults can't be evaluated.
- Autism and Autism Spectrum cut off scores are provided for two domains (will be Social Affective and Restricted Repetitive Behaviors).

87

Autism Diagnostic Observation Schedule

Current	New
• Social Domain	• Social Affect Domain
• Communication Domain	• Restrictive Repetitive Behaviors Domain

88

Qualitative Abnormalities in Reciprocal Social Interactions

- Failure to use non-verbal behaviors to regulate social interaction.
- Failure to develop peer relationships.
- Lack of shared enjoyment.
- Lack of social emotional reciprocity.

89

Qualitative Abnormalities in Communication

- Spoken language delays or impairments.
- Lack of make believe and imitative play.
- Poor conversational interchanges.
- Stereotyped, repetitive or idiosyncratic speech.

90

Restrictive, Repetitive and Stereotyped Patterns of Behavior.

- Circumscribed interests.
- Adherence to non-functional routines or rituals.
- Stereotyped and repetitive motor movements.
- Preoccupation with parts of objects.

91

Areas of Observation: Play Skills

- Nonfunctional use of play materials
- Developmental level of play
- Self-awareness
- Aggression

92

Areas of Observation: Social Development

- Interest in social interaction
- Patterns of gaze and eye contact
- Differential attachments
- Style of social interaction

93

Areas of Observation: Communication

- Receptive language
- Expressive language
- Non-verbal communication
- Pragmatics
- Communicative intent
- Echolalia
- Joint attention

94

Areas of Observation: Response to the Environment

- Motor stereotypies
- Idiosyncratic responses
- Resistance to change

95

Behavioral Observation During Assessment

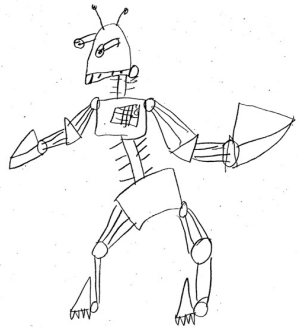
- Compliance
- Motivation
- Focus
- Activity level
- Understanding routines
- Rate and pacing of work
- Response to instructions and cues
- Conversational style and topics
- Odd mannerisms or movements
- Response and relatedness to examiner

96

Assessment of Ability, Achievement and Skill

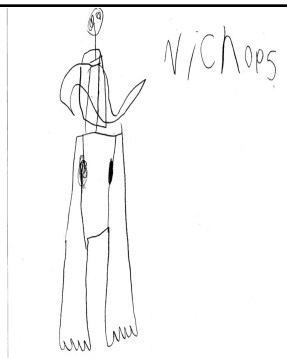
- IQ test such as WISC or RAIS
- Cognitive Assessment System (or other full neuropsychological measure.
- Expressive and receptive vocabulary tests
- Measures of non-verbal reasoning
- Discrete Neuropsychological measures: executive functions, speed of processing, motor functions, etc.
- Achievement measure such as Woodcock or Kaufman.

97



Nate's drawing when Asked to draw a "person"!

98



Nicholas called this Picasso man!

99

Differentiating between Eligibility under State, Federal or Provincial Guidelines and making a Diagnosis under DSM or ICD.

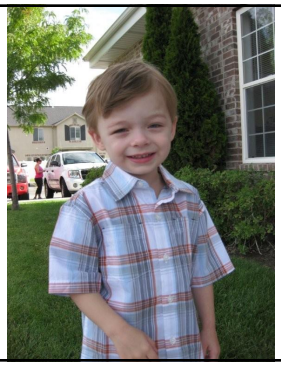
100

Addressing Co-Occurrence/Comorbidity

Dx	ASD	ODD	CD	Anx	Dep	LD
ADHD	59%	47%	22%	35%	41%	45%
ASD		4% to 37%	1% to 10%	42%	1.4% to 38%	70%+
ODD			42%	62%	39%	55%+

101

Making the Diagnosis of ASD



102

Intervention

- Despite strong claims no curative treatment has been studied vigorously.
- "In the absence of a definitive cure there are a thousand treatments" (Klin).
- Behavior modification, educational intervention and pharmacology have been studied.

103

Components of an Effective Treatment Program

- Structured behavioral treatment (ABA)
- Parent involvement
- Multi-disciplinary treatment at an early age
- Intensive intervention
- Social skill development
- Focus on generalization of skills
- Appropriate school setting
- Symptom targeted use of medication

104

Evidence-Based Practices and Autism

autism © 2011 SAGE Publications and The National Autistic Society Vol 15(1) 114–133; 348070 1362-3613(2011)

GARY B. MESIBOV Division TEACCH, Carolina Institute for Developmental Disabilities, University of North Carolina at Chapel Hill, United States

VICTORIA SHEA Division TEACCH, Carolina Institute for Developmental Disabilities, University of North Carolina at Chapel Hill, United States

ABSTRACT Interventions for autism are increasing being held to standards such as 'evidence-based practice' in psychology and 'scientifically-based research' in education. When these concepts emerged in the context of adult psychotherapy and regular education, they caused considerable controversy. Application of the concepts to autism treatments and special education has raised additional concerns. An analysis of the benefits and limitations of current approaches to empiricism in autism interventions is presented, and suggestions for future research are made.

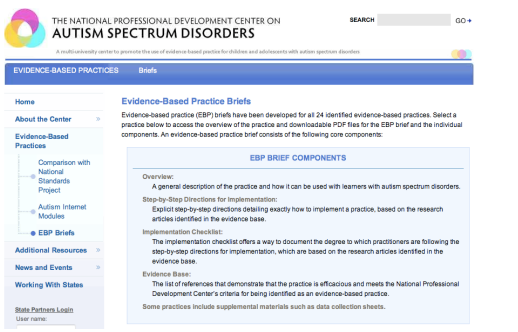
KEYWORDS Evidence-Based Practice, Scientifically-Based Research

ADDRESS Correspondence should be addressed to: GARY B. MESIBOV, Ph.D., Director, Division TEACCH, CB # 7180, Chapel Hill, North Carolina 27599–7180, USA. e-mail: Gary_Mesibov@med.unc.edu

105

105

http://autismpdc.fpg.unc.edu/content/briefs



106

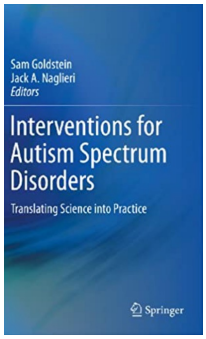
EVIDENCE-BASED PRACTICES FOR CHILDREN AND YOUTH WITH ASD

- Antecedent-Based Interventions (ABI)
- Computer-Aided Instruction
- Differential Reinforcement
- Discrete Trial Training
- Extinction
- Functional Behavior Assessment
- Functional Communication Training
- Naturalistic Intervention
- Parent-Implemented Interventions
- Peer-Mediated Instruction and Intervention
- Picture Exchange Communication System (PECS)
- Pivotal Response Training
- Prompting
- Reinforcement
- Response Interruption/Redirection
- Self-Management
- Social Narratives
- Social Skills Groups
- Speech Generating Devices/VOCA
- Structured Work Systems
- Task Analysis
- Time Delay
- Video Modeling
- Visual Supports

http://autismpdc.fpg.unc.edu/content/briefs

107

Our text book devoted to proven and promising treatments for ASD.



108

The "Prime Directive" is Independence

- Reduce reliance on prompts.
- Help individuals predict and control. environment and behavior.
- Increase self-esteem and self-efficacy.
- Develop independence through a "learning to swim" mindset.

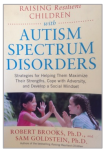
109

Concluding Thoughts

Were They but There at Night

There is a boulder field where every stone
Is a glazed, glittering gem, like stars fallen from the sky.
All except one, a plain grey rock alone in the center
Feeling excluded and shunned.
People come, tourists, painters, photographers, collectors
To view each shining boulder, a pleasure to the beholder.
Ooh! Ahh! Look at this one! Come quick!
Pockets bulge with fragments and paint cans run dry
But the grey rock remains ignored
An ugly blotch on a sweeping mural.
The sun sets, everyone leaves,
And they miss the centerpiece of the field.
For when night falls, the grey rock in the center
It glows in the dark.

—Devin Teichert

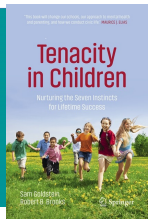


110

Questions?

www.samgoldstein.com
info@samgoldstein.com
@drsamgoldstein
@doctorsamgoldstein

TEDx: https://www.youtube.com/watch?v=isfw8JJ-eWM



Comprehensive Executive Function Inventory

AUTISM SPECTRUM RATING SCALES (ASRS)

RSI™
Rating Scale of Impairment™

111