Autism Spectrum Disorder
Across the Lifespan
Evidence-Based Clinical Update from Neurobiology to Therapeutics

INTRODUCTION

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Disclosures

My spouse/partner and I have the following relevant financial relationship with a commercial interest to disclose:

**Research Support:**
- PI for Investigator-Initiated Studies:
  - National Institute of Mental Health (NIMH) grant Award #K23MH100450
  - Pfizer pharmaceuticals
- Site PI for Multi-Site Studies:
  - Simons Center for the Social Brain
  - Duke University
  - Forest Research Laboratories
  - Sunovion pharmaceuticals
- Co-Investigator for Clinical Trials:
  - U.S. Department of Defense
  - Merck Schering Plough Corporation
  - Pamlab LLC.

**Honoraria:**
- Governor’s Council for Medical Research and Treatment of Autism in New Jersey
- American Academy of Child and Adolescent Psychiatry
- Medical Society of Delaware
- Simons Foundation
# Features of Autism

## CORE Features

<table>
<thead>
<tr>
<th>Impaired Social-Emotional Competence</th>
<th>Restricted/Repetitive Behaviors (RRBs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Non-verbal communication (NVC)</strong></td>
<td></td>
</tr>
<tr>
<td>- Eye contact (joint-attention)</td>
<td></td>
</tr>
<tr>
<td>- Receptive and Expressive emotional NVC (facial expression, verbal tone, touch)</td>
<td></td>
</tr>
<tr>
<td><strong>II. Verbal communication</strong></td>
<td></td>
</tr>
<tr>
<td>- Level of verbal communication</td>
<td></td>
</tr>
<tr>
<td>- Atypical style of speech (pedantic, professorial)</td>
<td></td>
</tr>
<tr>
<td><strong>III. Emotional processing</strong></td>
<td></td>
</tr>
<tr>
<td>- Emotional awareness, recognition</td>
<td></td>
</tr>
<tr>
<td>- Emotional expression (verbal &amp; non-verbal)</td>
<td></td>
</tr>
<tr>
<td>- Empathy (ToM)</td>
<td></td>
</tr>
<tr>
<td><strong>IV. Social (inter-personal) processing</strong></td>
<td></td>
</tr>
<tr>
<td>- Social motivation &amp; awareness</td>
<td></td>
</tr>
<tr>
<td>- Sharing (activities, affect, back &amp; forth conversations)</td>
<td></td>
</tr>
<tr>
<td>- Contextual understanding (social adaptability)</td>
<td></td>
</tr>
<tr>
<td><strong>V. Abstracting ability</strong></td>
<td></td>
</tr>
<tr>
<td>- Black &amp; white/concrete/literal thinking</td>
<td></td>
</tr>
<tr>
<td>- Tolerance for ambiguity</td>
<td></td>
</tr>
<tr>
<td><strong>VI. Introspective/Introceptive ability</strong> (self awareness of cognitions, emotions, &amp; physiological state)</td>
<td></td>
</tr>
<tr>
<td>- Psychological mindedness</td>
<td></td>
</tr>
<tr>
<td><strong>VII. Executive Control</strong> (moderation of emotions, motivations, interests)</td>
<td></td>
</tr>
<tr>
<td>- All or none approach (lack moderation)</td>
<td></td>
</tr>
<tr>
<td>- Abnormal intensity of interests</td>
<td></td>
</tr>
<tr>
<td><strong>VIII. Cognitive/Behavioral Rigidity</strong></td>
<td></td>
</tr>
<tr>
<td>- Routines (routine-bound)</td>
<td></td>
</tr>
<tr>
<td>- Rituals (verbal &amp; motor)</td>
<td></td>
</tr>
<tr>
<td>- Resistance to change (transitional difficulties)</td>
<td></td>
</tr>
<tr>
<td>- Rigid pattern of thinking (rule-bound/highly opinionated)</td>
<td></td>
</tr>
<tr>
<td>- Lack spontaneity/tolerance for unstructured time</td>
<td></td>
</tr>
<tr>
<td>- Social inflexibility</td>
<td></td>
</tr>
<tr>
<td><strong>IX. Repetitive patterns</strong></td>
<td></td>
</tr>
<tr>
<td>- Speech (delayed echolalia, scripting, idiosyncratic phrases)</td>
<td></td>
</tr>
<tr>
<td>- Motor mannerisms (flapping, clapping, rocking, swaying)</td>
<td></td>
</tr>
<tr>
<td>- Interests (non-progressive, non-social)</td>
<td></td>
</tr>
<tr>
<td><strong>X. Atypical Salience</strong></td>
<td></td>
</tr>
<tr>
<td>- Interests (odd/idiosyncratic)</td>
<td></td>
</tr>
<tr>
<td>- Social-emotional stimuli</td>
<td></td>
</tr>
<tr>
<td>- Atypical fears</td>
<td></td>
</tr>
<tr>
<td><strong>XI. Sensory Dysregulation</strong></td>
<td></td>
</tr>
<tr>
<td>- Atypical sensory perceptions/responses</td>
<td></td>
</tr>
</tbody>
</table>

## ASSOCIATED Features

- Intellectual disability
- Novelty averse behaviors
- Poor motor co-ordination
DSM Criteria for Autism

Bressler Clinical & Research Program For Autism Spectrum Disorder

Schizophrenic reaction
- Childhood Type

Psychotic reaction

DSM-I
(1952)

Schizophrenia
- Childhood Type

Autistic, Atypical, &

DSM-II
(1968)

Infantile Autism

Infantile Autism

DSM-III
(1980)

Pervasive Developmental Disorders

Autistic

Pervasive Developmental Disorders

Autistic

Asperger's Disorder PDD-NOS

DSM-III-R
(1987)

Autism Spectrum Disorder

Autism Spectrum

PDD-NOS

DSM-IV-R

DSM-5
(2013)

DSM
-III
(1987)

DSM
-IV

DSM
-IV-R
(2013)
Population-based Prevalence of ASD

Children with ASD

ADDMM Network
- Children 8 years old
- Medical records reviewed by trained clinicians

Prevalence of ASD has more than DOUBLED between 2002 & 2012

Domains of Intelligence

Neurotypicals

Intellectual IQ
- Verbal ability
- Logical reasoning skills
- Problem solving skills
- Mathematical ability

Social-Emotional IQ
- Non-verbal communication
- Salience
- Empathy/ToM
- Cognitive flexibility
- Abstracting ability
- Executive control
- Introspective ability
- Contextual Understanding
Intelligence Profile in AUTISM

**Intellectual Disability [ID]**

- **Intellectual Intelligence**
  - Low
  - High

- **Social-Emotional Intelligence**
  - Non-verbal
  - Verbal

**Autism Spectrum Disorder**

- With ID [Low-Functioning]
  - Impaired IQ
  - Intellectual Intelligence
  - Social-Emotional Intelligence

- Without ID [High-Functioning]
  - Intact IQ
  - Intellectual Intelligence
  - Social-Emotional Intelligence

**Language skills**

- Non-verbal
- Verbal

**Social Needs**

- Low
- High

Bressler Clinical & Research Program For Autism Spectrum Disorder
Prevalence of ASD

Substantial rise in the prevalence of AUTISM in intellectually capable populations

Rising Prevalence of ASD in Intellectually Capable Populations

Growing proportion of children with HF-ASD

Autism & Developmental Disabilities Monitoring Network
Diagnostic Subtypes of ASD
Prevalence in Children 8 Years Old

Higher proportion with Broader Phenotype of ASD

Autistic Disorder [Narraw Phenotype]
Age at Diagnosis of ASD

By DSM-IV Diagnosis

(In Children 8 years Old)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Mean Age at Diagnosis (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autistic Disorder</td>
<td>4</td>
</tr>
<tr>
<td>PDD-NOS</td>
<td>4.5</td>
</tr>
<tr>
<td>Asperger's Disorder</td>
<td>6.25</td>
</tr>
</tbody>
</table>

By Age Range

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Age at Diagnosis (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3 years</td>
<td>20%</td>
</tr>
<tr>
<td>3 - 5 years</td>
<td>36%</td>
</tr>
<tr>
<td>6 - 8 years</td>
<td>17%</td>
</tr>
<tr>
<td>≥9 years</td>
<td>27%</td>
</tr>
</tbody>
</table>

† 80% more likely to have psychiatric comorbidity compared to cases identified at earlier ages (<9 years)

Two-thirds of Broader Phenotype identified after age 5 years

Psycdric Referral to Bressler Program for ASD

Referral by Age (N=863)

Half of the referrals between ages 8 & 17 years
Social-emotion Competence Across the Lifespan

**Areas of Social-emotional Development**
- Non-verbal communication skills
- Social skills
- Empathy
- Abstracting ability
- Cognitive Flexibility
- Executive Control
- Introspective ability

**Development of Social Competence (%)**

**Preschool (0–5 years)**
- Minimal social-emotion demands
- \(\pm\) Superior intellectual capacity
- Sensory Dysregulation

**Latency (6–12 years)**
- Socially isolated
- Bullied
- Impaired intellectual functioning
- Present with ADHD

**Teenage (13–18 years)**
- Social difficulties (friends, prom, dating)
- Impaired intellectual performance
- At risk for depression, anxiety, psychosis

**Young Adult (19–35 years)**
- \(\pm\) Intellectual success
- Challenges:
  - Social & relationship
  - Transition to adulthood
- At risk for drug abuse

**Adult (≥36 years)**
- Delayed social milestones (marriage, children)
- Social-emotional isolation
- Suffer from anxiety & mood dysregulation

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Bressler Clinical & Research Program For Autism Spectrum Disorder

Social phase Professional Phase
Factors Associated with Delay in Identification of ASD

- Broader phenotype*
- High-functioning* (intact language skills)
- Intact eye contact
- Socially curious (intact social orientation & initiation)***
- Presence of comorbidity (psychiatric/medical)*
- Female gender
- Intact intense non-verbal communication
- Absence of idiosyncratic speech (echolalia, scripting)
- ASD features more cognitive than motor (repetitive behaviors [rocking/flapping])
- Developmental masking of social deficits (until demands exceeds capacity)

Autism & Developmental Disabilities Monitoring Network Surveillance Year 2002, 2006; *Shattuck et al., 2009; **Levy et al., 2010; ***Maenner et al., 2013
Institutional Factors / Myths

• Lack awareness of social challenges
• Diagnosed early in life
• Diagnosis of ASD requires:
  - Diagnostic tools: ADIR/ADOS
  - Neuropsychological assessment
  - Genetic work-up

• Psychiatric disorders are uncommon with AUTISM
• ASD Training related Issues
Training of child and adolescent psychiatry fellows in autism and intellectual disability

Natasha Marrus\textsuperscript{1}, Jeremy Veenstra-VanderWeele\textsuperscript{2}, Jessica A Hellings\textsuperscript{3}, Kimberly A Stigler\textsuperscript{4}, Ludwik Szymanski\textsuperscript{5}, Bryan H King\textsuperscript{6}, L Lee Carlisle\textsuperscript{6}, Edwin H Cook Jr\textsuperscript{7}, The American Academy of Child Adolescent Psychiatry (AACAP) Autism and Intellectual Disability Committee and John R Pruett Jr\textsuperscript{1}

Abstract
Patients with autism spectrum disorders and intellectual disability can be clinically complex and often have limited access to psychiatric care. Because little is known about post-graduate clinical education in autism spectrum disorder and intellectual disability, we surveyed training directors of child and adolescent psychiatry fellowship programs. On average, child and adolescent psychiatry directors reported lectures of 3 and 4 h per year in autism spectrum disorder and intellectual disability, respectively. Training directors commonly reported that trainees see 1–5 patients with autism spectrum disorder or intellectual disability per year for outpatient pharmacological management and inpatient treatment. Overall, 43\% of directors endorsed the need for additional resources for training in autism spectrum disorder and intellectual disability, which, coupled with low didactic and clinical exposure, suggests that current training is inadequate.
Editorial

Are there lessons to be learned from the prevailing patterns of psychotropic drug use in patients with autism spectrum disorder?

G. Joshi¹,²,³,⁴

¹ Alan and Lorraine Bressler Clinical and Research Program for Autism Spectrum Disorder, Massachusetts General Hospital, Boston, MA; ² Clinical and Research Program in Pediatric Psychopharmacology, Massachusetts General Hospital, Boston, MA; ³ Department of Psychiatry, Harvard Medical School, Boston, MA and ⁴ Department of Brain and Cognitive Sciences, McGovern Institute for Brain Research, Massachusetts Institute of Technology, Cambridge, MA, USA

E-mail: joshi.gagan@mgh.harvard.edu
Comorbidity Associated with ASD
Comorbidity in US population-based sample of ASD

(Medical records of children 8 years old reviewed by trained clinicians)
Prevalence of Psychopathology in Population-based Sample of ASD

Lifetime Psychiatric Comorbidity

(in children [10-14 yrs] per Structured Diagnostic Interviews [CAPA, ADI-R, & ADOS])

- Psychiatric Disorder: 71%
- Anxiety Disorder: 42%
- ADHD: 28%
- ODD: 28%
- Tic Disorder: 9%
- Conduct Disorder: 3%
- MDD: 1%
- Dysthymic Disorder: 0.5%
- Enuresis: 11%
- Encopresis: 6.5%

Simonoff et al., 2008
Emotional & Behavioral Difficulties in Children with Autism

A parent-reported survey (2003-04) in School-aged Children (4-17 years)

CDC Surveys (NHIS & NSCH)
Autistic Traits in Psychiatrically Referred Youth

Attending Psychiatry Outpatient Clinic

Total N: 303
Age Range: 4-18 years
IQ: Predominantly Intact

SRS Screen<sup>+</sup> for ASD: 34% (N=110)
(Raw score: ♂>70; ♀>65)

One-third of youth screened positive for ASD
The Heavy Burden of Psychiatric Comorbidity in Youth with Autism Spectrum Disorders: A Large Comparative Study of a Psychiatrically Referred Population

Gagan Joshi · Carter Petty · Janet Wozniak · Aude Henin · Ronna Fried · Maribel Galdo · Meghan Kotarski · Sarah Walls · Joseph Biederman

Published online: 23 March 2010
© Springer Science+Business Media, LLC 2010

Abstract The objective of the study was to systematically examine patterns of psychiatric comorbidity in referred youth with autism spectrum disorders (ASD) including autistic disorder and pervasive developmental disorder not otherwise specified. Consecutively referred children and adolescents to a pediatric psychopharmacology program were assessed with structured diagnostic interview and measures of psychosocial functioning. High levels of psychiatric comorbidity and dysfunction comparable to the referred population of youth without ASD. These findings emphasize the heavy burden of psychiatric comorbidity affecting youth with ASD and may be important targets for intervention.

Keywords Autism spectrum disorders · Psychiatric comorbidity · Children and adolescents
Prevalence of ASD in Psychiatrically Referred Youth

Total N: 2323
Total Duration: 15 years (1991-2006)
Male: 87%
Age (yrs): 9.7 ±3.6 (3-17)

ASD 9.3% [N=217]

Intellectual Ability & Language Skills: Clinically not impaired in majority of the referred youth

Joshi et al., 2010
B urden of Psychopathology in ASD

Lifetime Psychiatric Comorbidities

Statistical Significance: *p≤0.05, **p≤0.01, ***p≤0.001

Greater Burden of Psychopathology

Joshi et al., 2010
Psychopathology Associated with ASD

Lifetime Psychiatric Comorbidity

- Attention-deficit/Hyperactivity Disorder
- Oppositional Defiant Disorder
- Conduct Disorder
- Multiple (≥2) Anxiety Disorders
- Major Depressive Disorder
- Bipolar I Disorder
- Psychosis
- Substance Use Disorders

Statistical Significance: ***p≤0.001

Joshi et al., 2010
History of Prior Treatment in Psychiatrically Referred Youth with ASD

Treatment History

<table>
<thead>
<tr>
<th></th>
<th>NON-ASD</th>
<th>ASD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Counseling</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>Only Pharmacotherapy</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Counseling + Pharmacotherapy</td>
<td>62</td>
<td>74</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

Statistical Significance: *

\[ p \leq 0.05 \]

\[ ** p \leq 0.01 \]

\[ *** p \leq 0.001 \]

Joshi et al., 2010
Examining the Clinical Correlates of Autism Spectrum Disorder in Youth by Ascertainment Source

Gagan Joshi · Stephen V. Faraone · Janet Wozniak · Carter Petty · Ronna Fried · Maribel Galdo · Stephannie L. Furtak · Katie McDermott · Cecily Epstein · Rosemary Walker · Ashley Caron · Leah Feinberg · Joseph Biederman

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Abstract  To examine whether presentation of autism spectrum disorder (ASD) and associated patterns of psychiatric comorbidity and dysfunction vary by referral source. ASD youth referred to a specialized ambulatory program for ASD (N = 143) were compared to ASD youth referred to a general child psychiatry clinic (N = 217). More ASD clinic youth met criteria for a more robust form of ASD (autistic disorder); more youth referred to the psychiatry clinic met criteria for broader spectrum ASD (pervasive developmental disorder not otherwise specified). General psychiatry clinic youth with ASD suffered from a greater burden of psychopathologies and higher levels of dysfunction. The presentation of ASD in psychiatrically referred youth differs between general and ASD-specialized clinics, though both referral populations have high levels of comorbidity and dysfunction.

Keywords  Autism spectrum disorder · Psychiatric comorbidity · Youth

Introduction

Autism spectrum disorder (ASD) refers to a developmental disorder characterized by impairments in socialization and communication in the presence of restricted, repetitive behaviors and is estimated to affect up to 2 % of children and adolescents in the general population (Blumberg et al. 2013). Psychiatric referrals of children with ASD are frequently driven by emotional and behavioral difficulties (RUPP 2002, 2005; Gadow et al. 2004; Vickerstaff et al. 2007; Sterling et al. 2008). Up to 14 % of children referred to general psychiatric clinics have diagnoses of ASD, and a
Diagnostic Subtypes of ASD in Youth Attending Specialty and General Psychiatry Clinics

ASD Specialty Clinic Referred ASD

Psychiatry Clinic Referred ASD

- 62% Autistic Disorder [Narrow Phenotype]
  - Intellectually capable
  - Intact language skills
- 89%

Joshi et al., 2014
Psychiatric Comorbidity and Functioning in a Clinically Referred Population of Adults with Autism Spectrum Disorders: A Comparative Study

Gagan Joshi · Janet Wozniak · Carter Petty · Mary Kate Martelon · Ronna Fried · Anela Boldek · Amelia Kotte · Jonathan Stevens · Stephannie L. Furtak · Michelle Bourgeois · Janet Caruso · Ashley Caron · Joseph Biederman

© Springer Science+Business Media New York 2012

Abstract To systematically examine the patterns of psychiatric comorbidity and functioning in clinically referred adults with autism spectrum disorders (ASD). Psychiatrically referred adults with and without ASD were compared on measures assessing for psychiatric comorbidity and psychosocial functioning. Sixty-three adults with ASD participated in the study (mean age: 29 ± 11 years). Adults with ASD in their lifetime suffered from a higher burden of psychiatric disorders (6 ± 3.4 vs. 3.5 ± 2.7; p < 0.001) including major depressive disorder and multiple anxiety disorders, and were functionally more impaired with a significant proportion having received both counseling and pharmacotherapy. Adults with ASD have high levels of psychiatric comorbidity and dysfunction comparable to a clinically referred population of adults without ASD.

Keywords Autism spectrum disorders · Psychiatric comorbidity · Adults

Introduction

Autism spectrum disorders (ASD) are characterized by a variable presentation of problems with socialization, communication, and behavior, and are estimated to affect more than 1% of children and adolescents in the general population (Diagnostic and Statistical Manual of Mental Disorders 1994; Kogan et al. 2009). Although ASD is well characterized in pediatric populations (Joshi et al. 2010; de Bruin et al. 2007; Wozniak et al. 1997; Simonoff et al. 2008), the prevalence and clinical characteristics of this lifelong
Diagnostic Subtypes of ASD in Psychiatrically Referred Adults

- Total N: 63
- Male: 65%
- Age (yrs): 29 ±11 (18-63)
- IQ: 104 ±17 (55-136)
- Intact IQ (>70): 97%

Joshi et al., 2013
Characteristics of Adults Attending Specialized Clinic for ASD

Joshi et al., 2013
Burden of Psychopathology in Psychiatrically Referred Adults with ASD

Load of Psychiatric Comorbidities

Mean # of Psychiatric Comorbidities

<table>
<thead>
<tr>
<th></th>
<th>Lifetime</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD</td>
<td>3 ±2.3</td>
<td>6 ±3.4</td>
</tr>
<tr>
<td>Non-ASD</td>
<td>1.5 ±1.6</td>
<td>3.5 ±2.7</td>
</tr>
</tbody>
</table>

Statistical Significance: *p≤0.05, **p≤0.01, ***p≤0.001

Joshi et al., 2013
Psychopathology Associated with ASD in Psychiatrically Referred Populations

Lifetime Psychiatric Comorbidity

Youth

- Attention-deficit/Hyperactivity Disorder
- Oppositional Defiant Disorder
- Conduct Disorder
- Multiple (≥2) Anxiety Disorders
- Major Depression
- Bipolar I Disorder
- Psychosis
- Substance Use Disorders

Adults

- Attention-deficit/Hyperactivity Disorder
- Oppositional Defiant Disorder
- Conduct Disorder
- Multiple (≥2) Anxiety Disorders
- Major Depression
- Bipolar I Disorder
- Psychosis
- Substance Use Disorders

Statistical Significance: ***p≤0.001

Joshi et al., 2010, 2013
Anxiety Disorders in Psychiatrically Referred Adults with ASD

Lifetime Psychiatric Comorbidity: Anxiety Disorders

- Multiple Anxiety Disorders
- Separation Anxiety Disorder
- Specific Phobia
- Agoraphobia
- Social Phobia
- Panic Disorder
- Generalized Anxiety Disorder
- Obsessive-compulsive Disorder
- Post Traumatic Stress Disorder

Statistical Significance: *p≤0.05, **p≤0.01, ***p≤0.001

Joshi et al., 2013
Substance Use Disorders in Psychiatrically Referred Adults with ASD

Lifetime Psychiatric Comorbidity: Substance Use Disorders

Substance Use Disorders
- Alcohol Abuse
- Alcohol Dependence
- Drug Abuse
- Drug Dependence
- Cigarette Smoking Percentage

Statistical Significance: *p≤0.05, **p≤0.01, ***p≤0.001

Joshi et al., 2013
**Emotional Dysregulation in ASD**

Child Behavior Checklist - Emotional Dysregulation Profile (CBCL-ED)

CBCL-ED profile based on the composite T-scores of CBCL subscales:
- Attention
- Aggression
- Anxious/Depressed

<table>
<thead>
<tr>
<th>CBCL-AAA Subscales Composite T-Score</th>
<th>Level of Emotional Dysregulation (ED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;180</td>
<td>Low/No ED</td>
</tr>
<tr>
<td>≥180</td>
<td>Presence of ED</td>
</tr>
<tr>
<td>≥180 &amp; &lt;210 (≥1SD &amp; &lt;2SD) (t-score of ≥60 on each CBCL-AAA subscales)</td>
<td>Deficient Emotional Self Regulation (DESR)</td>
</tr>
<tr>
<td>≥210 (≥2SDs)</td>
<td>Severe Emotional Dysregulation (SED)</td>
</tr>
</tbody>
</table>

High Prevalence of ED in Youth with ASD

Prevalence of ED:
- HC: 2%
- ADHD: 54%
- ASD: 83%

Positive correlation between severity of ED & autistic traits

p<0.001 [r=0.47, df=447]
Under-recognition of Co-occurring AUTISM & Psychopathology

Proper identification of both, AUTISM and PSYCHIATRIC CONDITIONS essential for providing disorder-specific treatment

Bressler Clinical & Research Program For Autism Spectrum Disorder

www.mghcme.org
# Implications of Unrecognized Reciprocal Comorbidity of ASD & Psychopathology

## Unrecognized ASD
- Increases risk of receiving inappropriately aggressive treatment for psychopathology
- Failure to recognize atypical precipitants negatively affecting psychopathology
- Failure to receive treatment specific for ASD
- Miss opportunity to implement early interventions for ASD

## Unrecognized Psychopathology
- Further worsens already compromised psycho-social functioning
- Interferes with ASD specific behavioral interventions
- Fails to receive disorder specific treatment
- Increases risk for developing other psychiatric conditions (disruptive behaviors, mood dysregulation, & substance abuse)

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**Recognition of comorbidity offers an opportunity to administer disorder specific treatment**

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**Bressler Clinical & Research Program For Autism Spectrum Disorder**

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**www.mghcme.org**
A c k n o w l e d g m e n t s

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