

Mental Health and Medical Challenges in Autism Spectrum Disorders

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April 27th, 2017

Objectives

At the conclusion of this presentation the participant should be able to:

- Discuss DSM-5 Criteria for Autism Spectrum Disorder (ASD)
- Describe Medical Comorbidities seen in those with ASD
- Describe Psychiatric Comorbidities seen in those with ASD
- Have a frame for whether an individual's functional impairment stems from mental illness or from ASD



DSM-5 Changes in Criteria for Autism Spectrum Disorders 299.00

- New Diagnosis: Autism Spectrum Disorder
 - Includes, and eliminates the distinctions between:
 - Autistic Disorder (Autism)
 - Asperger's Disorder (Asperger Syndrome)
 - Childhood Disintegrative Disorder
 - Pervasive Developmental Disorder, Not Otherwise Specified (PDD-NOS)
 - “PDD” not used
- Rett's Disorder removed (“Associated with known medical or genetic condition”)

DSM-5 Autism Spectrum Disorder

- Criteria for ASD
 - Two clinical domains (instead of the 3 in DMS-IV)
 - A-Deficits in social communication and social interaction (blends social with communication)
 - B-Restricted, repetitive patterns of behavior (includes insistence on sameness)
 - Symptoms must be present in early childhood
 - Symptoms must impair functioning



DSM-5 Autism Spectrum Disorder

- Specifiers:
 - Current severity in both domains – Level 1- 3 (“Requiring support to requiring very substantial support”)
 - With (or without) intellectual impairment
 - With (or without) accompanying language impairment
 - Associated with medical/ genetic condition/ environmental factor
 - Associated with another neurodevelopmental, mental, or behavioral disorder
 - With catatonia

Diversity in Autism Spectrum Disorders

- Intellectual level
- Communication level
- Behavioral level



Prevalence



1975: 1/5000

1985: 1/2500

1995: 1/500

2000: 1/150

2004: 1/125

2006: 1/110

2008: 1/88

2010: 1/68

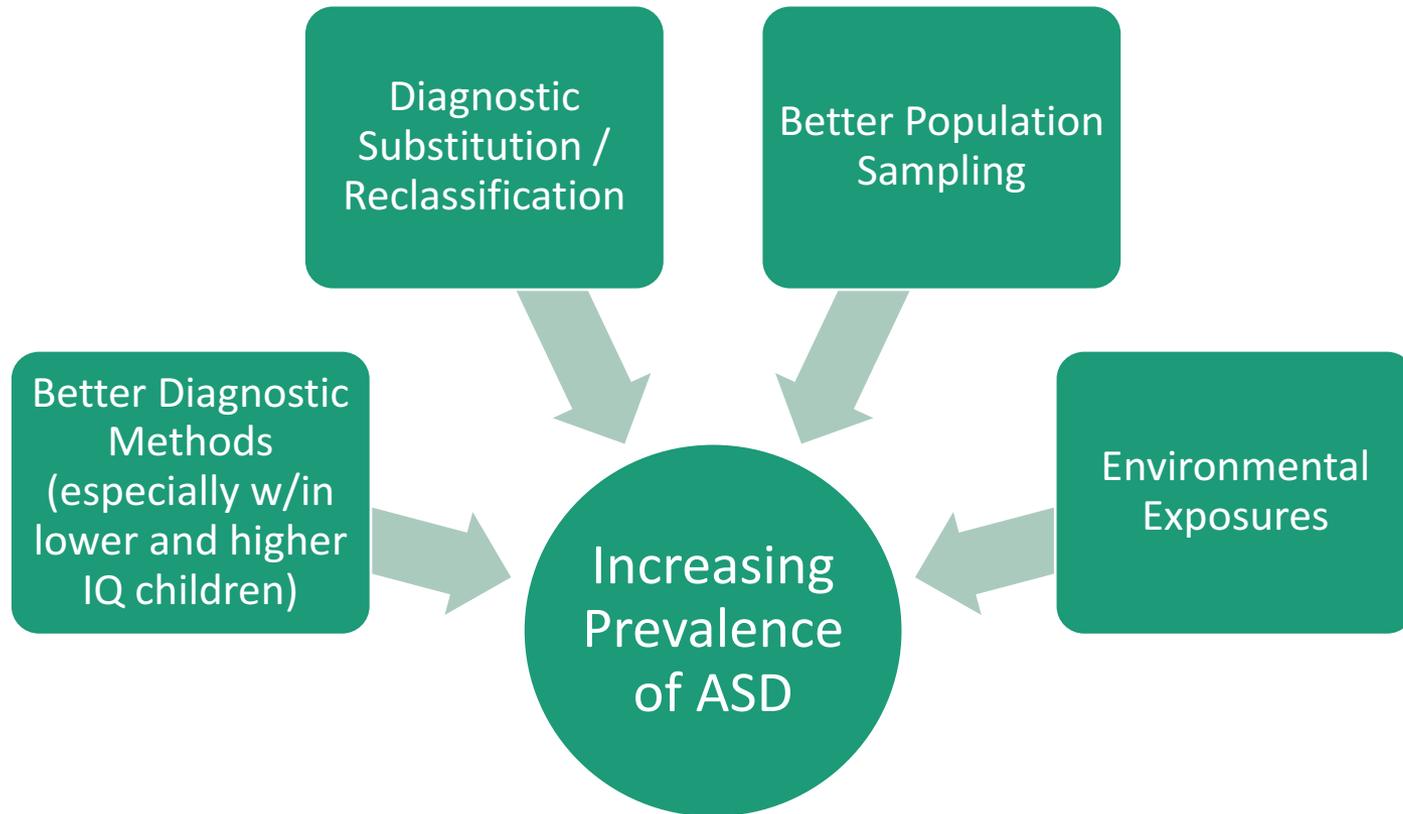
Prevalence by Race/Ethnicity

Prevalence of Autism Spectrum Disorder (ASD) in 8-year Olds (2012)

| | | About 1 in every "x" children |
|------|------------------------|-------------------------------|
| | Overall | 1 in 68 |
| Sex | Boys | 1 in 42 |
| | Girls | 1 in 189 |
| Race | White | 1 in 65 |
| | Black | 1 in 76 |
| | Asian/Pacific Islander | 1 in 88 |
| | Hispanic | 1 in 99 |

Data courtesy of CDC

Reasons for Increasing Prevalence

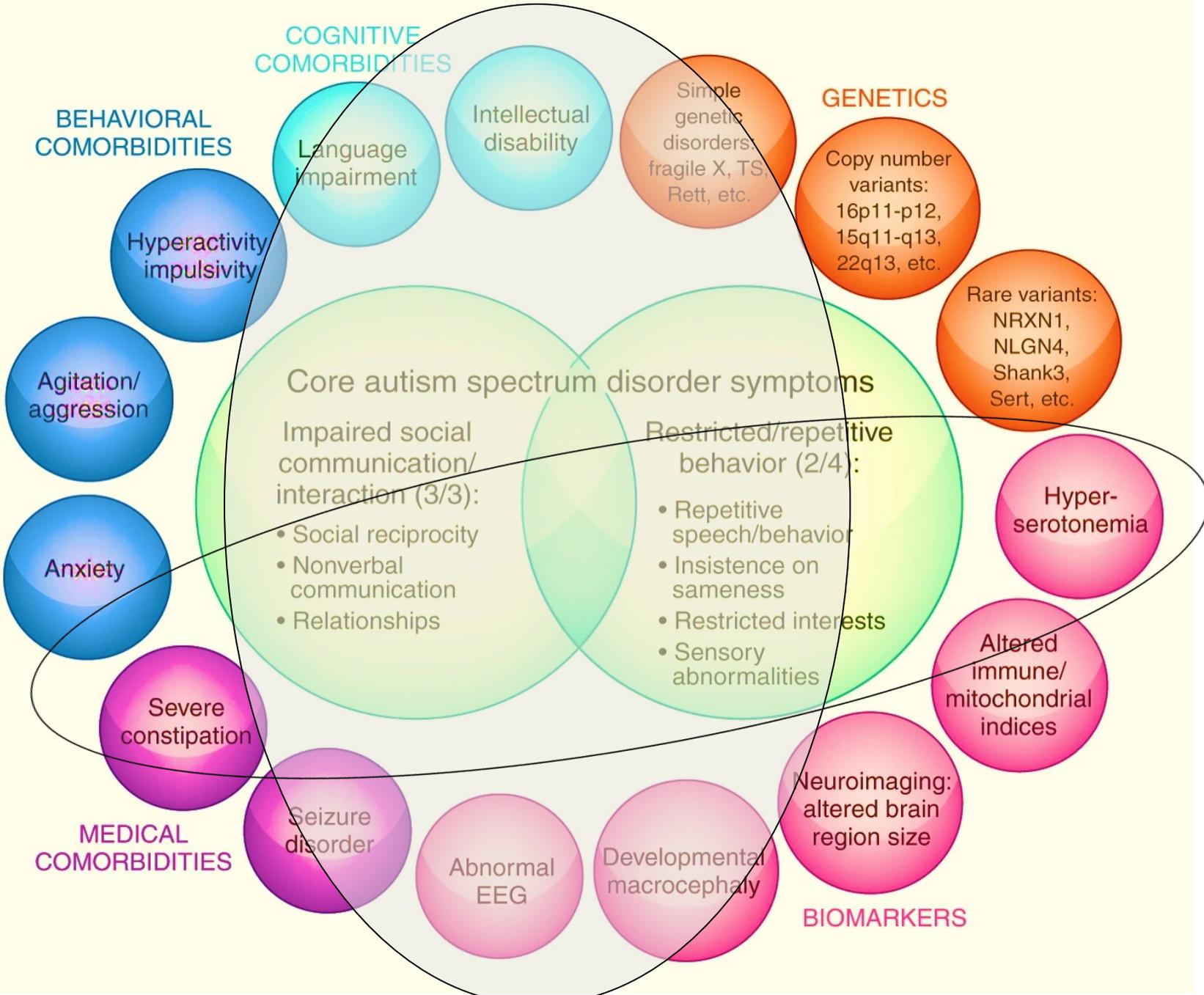


Prevalence and Extent of the Challenge

- Highly heritable yet etiology is elusive in 80% of cases
- **75%** of children with an ASD require treatment for emotional, physical or behavioral problems



- One of the most challenging disorders for families and providers



COGNITIVE COMORBIDITIES

- Language impairment
- Intellectual disability

BEHAVIORAL COMORBIDITIES

- Hyperactivity impulsivity
- Agitation/aggression
- Anxiety

MEDICAL COMORBIDITIES

- Severe constipation
- Seizure disorder
- Abnormal EEG
- Developmental macrocephaly

GENETICS

- Simple genetic disorders: fragile X, TS, Rett, etc.
- Copy number variants: 16p11-p12, 15q11-q13, 22q13, etc.
- Rare variants: NRXN1, NLGN4, Shank3, Sert, etc.

Core autism spectrum disorder symptoms

Impaired social communication/interaction (3/3):

- Social reciprocity
- Nonverbal communication
- Relationships

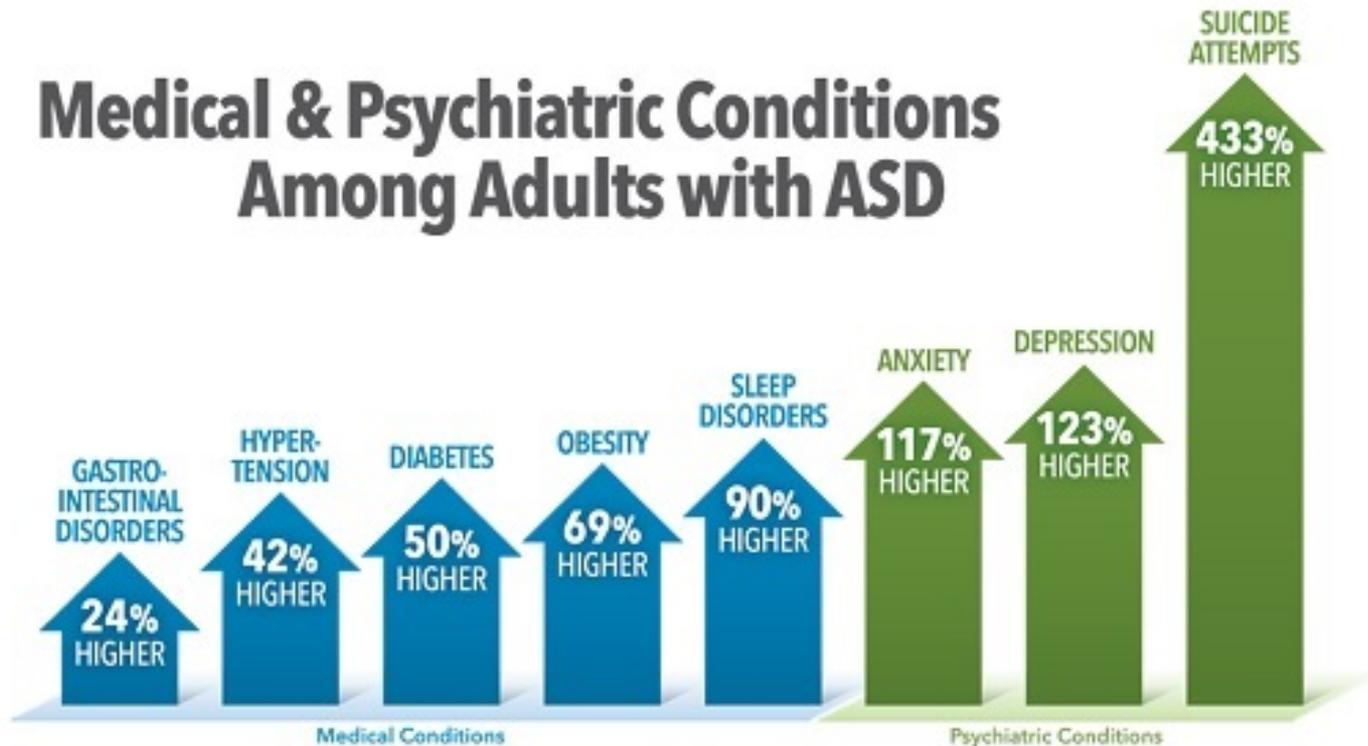
Restricted/repetitive behavior (2/4):

- Repetitive speech/behavior
- Insistence on sameness
- Restricted interests
- Sensory abnormalities

BIOMARKERS

- Neuroimaging: altered brain region size
- Altered immune/mitochondrial indices
- Hyper-serotonemia

Medical & Psychiatric Conditions Among Adults with ASD



Figures as compared to adults without ASD.

DIVISION OF RESEARCH
AUTISM RESEARCH PROGRAM

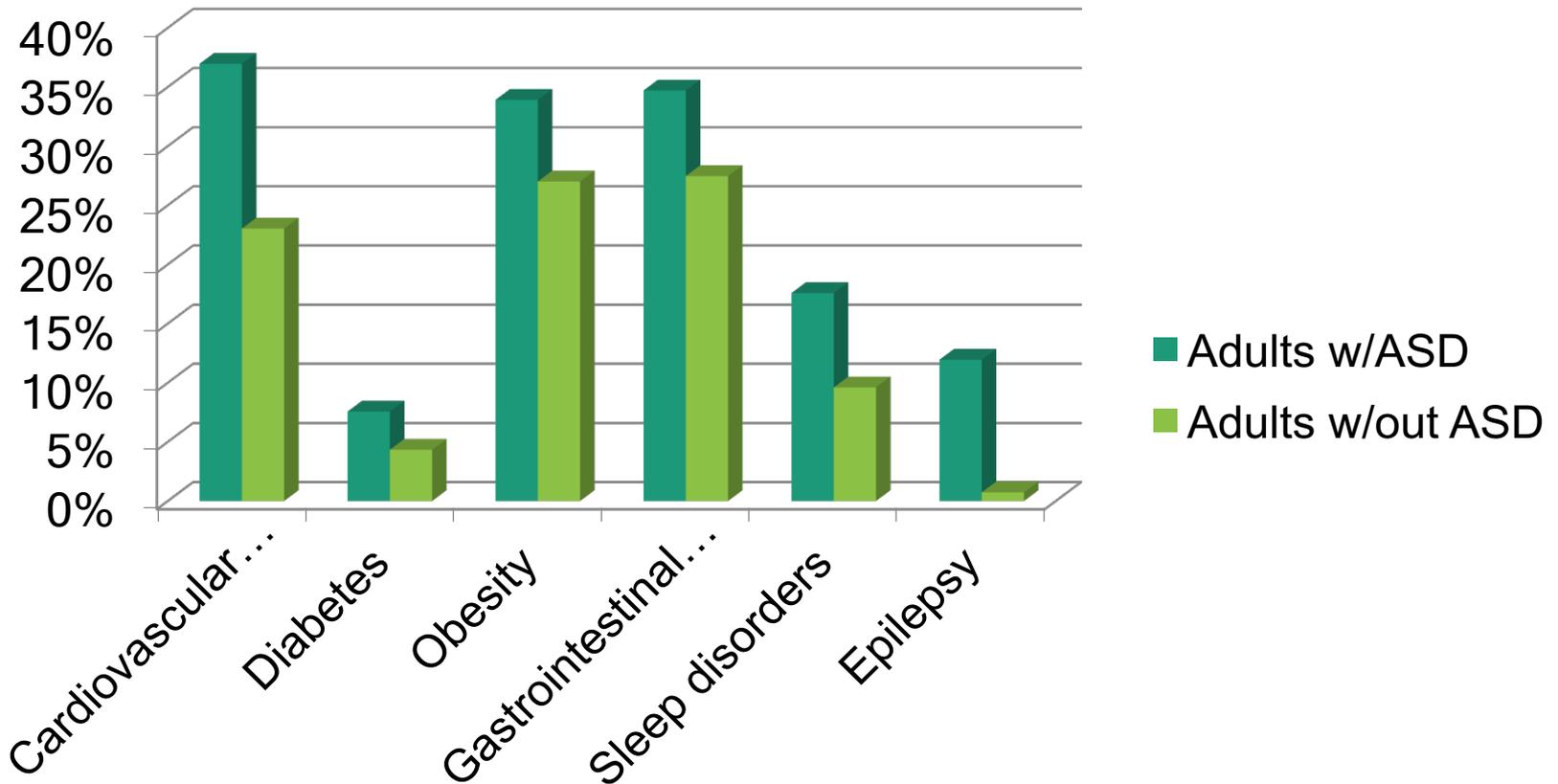
Croen, L. A., et al. "Psychiatric and medical conditions among adults with ASD." *14th Annual Meeting of the International Society for Autism Research (INSAR)*. Atlanta, GA. 2014.

Medical Comorbidity and Psychopathology

- Poor ability to report physical symptoms and sources of distress
- Unusual pain tolerance
- Missed medical problems may drive surface features that resemble psychiatric disorder
 - Irritable
 - Lowered threshold for baseline externalizing behaviors
 - Poor appetite and sleep
 - Motor restlessness

Charlot, L., Abend, S., Ravin, P., Mastis, K., Hunt, A., & Deutsch, C. Non-psychiatric health problems among psychiatric inpatients with Intellectual Disabilities. *Journal of Intellectual Disability Research* doi:10.1111/j.1365-2788.2010.01294.x

Prevalence of medical conditions in adults with ASD vs. adults without ASD



Data taken from: Croen, Lisa A., et al. "The health status of adults on the autism spectrum." *Autism* 19.7 (2015): 814-823.

Medical Conditions in Autism

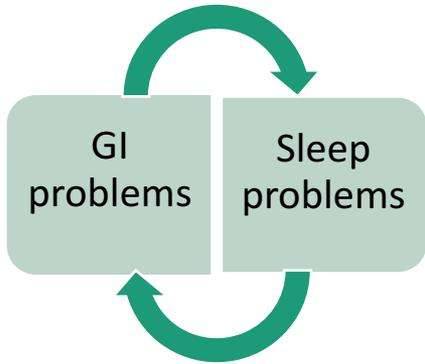
- Higher rates of all medical conditions studied including:
 - Eczema
 - Allergies
 - Asthma
 - Ear and respiratory infections
 - Gastrointestinal problems (GI)
 - Severe Headaches and Migraines
 - Seizures (Kohane et al, 2012)
- 81% of parents of youth with ASD state their health concerns for their child had not be adequately investigated by professional (Treating Autism Survey, 2009)



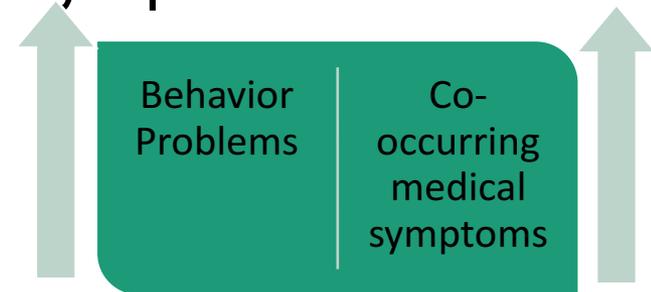
Treatment Refractory Cases

- Re-Evaluate
 - Compliance with intervention (Duration, Dose)?
 - Environment
 - Medical Comorbidities and Work-Up
 - Consider Mitochondrial issues
 - GI
 - Sleep Disorder
 - Seizures
 - Asthma
 - Allergies
 - Medication Side Effects
 - Cytochrome-P450 assessment
 - Psychiatric Comorbidities

Associations between ASD, medical problems, and Behavioral Profile

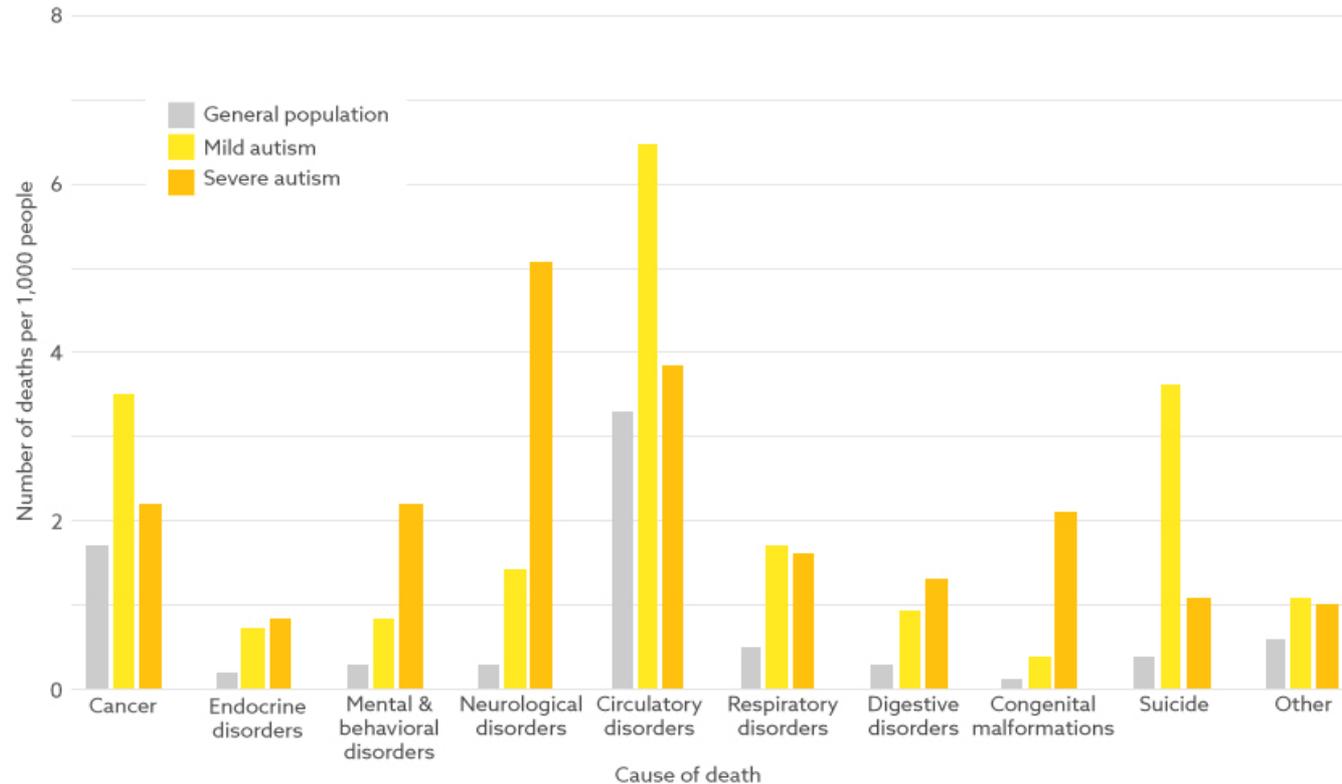


- ASD + history of depression more likely to have co-occurring medical problems (seizures and GI)
- GI problems predict sleep problems and vice versa
- More youth with ASD –have high extreme Body Mass Index. Stereotyped and repetitive behaviors were significantly associated with high extreme BMIs
- Behavioral problems increase as number of co-occurring medical symptoms increase



Greenlee et al, 2016; Karekas et al, 2015; Aldinger et al, 2015

Premature Deaths in ASD



Hirvikoski, Tatja, et al. "Premature mortality in autism spectrum disorder." *The British Journal of Psychiatry* 208.3 (2016): 232-238.

Mortality Rate

- Increased in ASD
- Typically Gastrointestinal, Respiratory, Seizures
- The elevated mortality rate is related to the comorbid medical conditions and intellectual disability rather than to ASD
- Coordinated medical care for this population is critical

Bilder et al, 2012'Excess Mortality and Causes of Death In Autism Spectrum Disorders

What Challenges Does the Community ASD Population Have?

(Lecavalier, 2006)

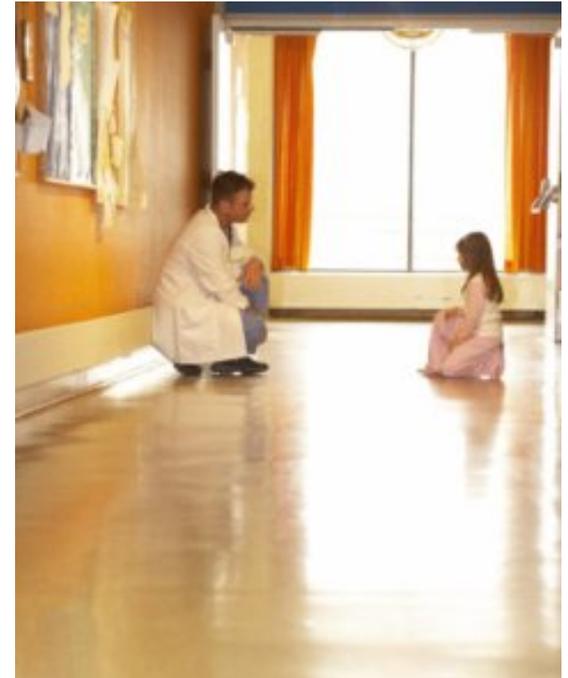


- Easily Frustrated (60%)
- Inattention (50%)
- Hyperactivity (40%)
- Temper tantrums (30%)
- Irritability (20%)
- Fearful/Anxious (13%)
- Harming self (11%)
- Destroying property (11%)
- Physical fighting (5%)



Most Common Chief Complaint on Inpatient Admission

- Aggression 28%
- Self Injurious Behavior 23%
- Property Destruction 17%
- Tantrums 16%
- Decreased Functioning 8%
- Sexualized Behavior 4%
- Elopement 4%



Rates of Psychiatric Disorders in Samples of Individuals with Autism Spectrum Disorders

- Rates vary widely across studies
- Sample selection
- Methods for case ascertainment
 - Chart reviews or counting from existing databases
 - Informant based
 - Direct patient evaluation
- Critical source of problems relate to symptom identification
- Rating Scales Validated in ASD population

Evaluation of Emotional and Behavioral Challenges

- Inventory of Symptoms
- Detailed Developmental History
- Medical History
- Detailed History about Changes in Environment
- Ask about use of vitamins, supplements or oral chelating agents

Diagnostic Interviews and Tools Used to Measure Outcomes of Treatment

- Autism Comorbidity Interview Present and Lifetime Version (ACI-PL)
- Clinical Global Impressions Scale
- Aberrant Behavior Checklist
- Children's Psychiatric Rating Scale
- Children's Yale-Brown Obsessive Compulsive Scale Modified for Pervasive Developmental Disorder

Psychiatric Comorbidities in ASD

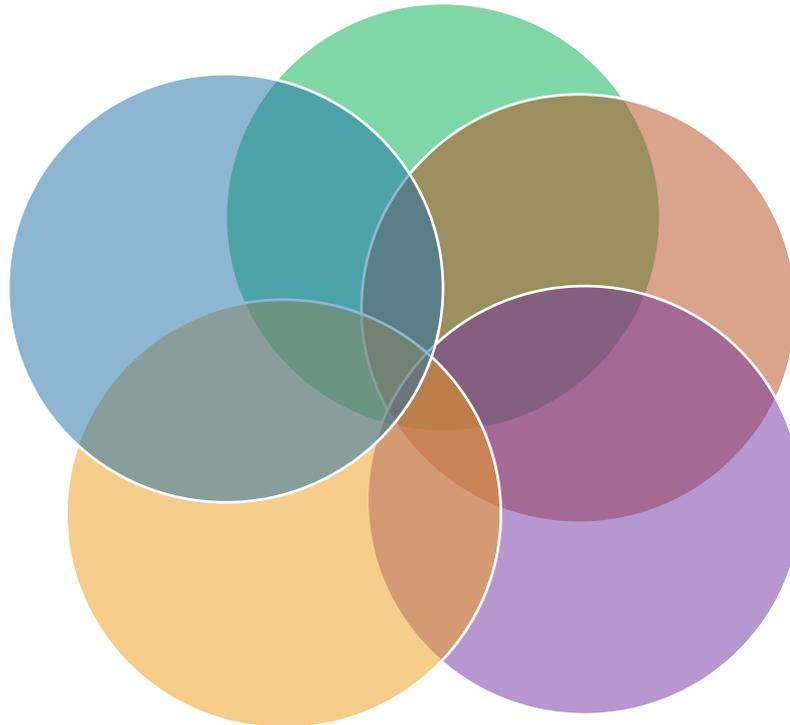
ADHD (Executive Dysfunction, Hyperactivity, Impulsivity, Inattention)

Communication Disorders (thought Disorders, Disordered Pragmatics)

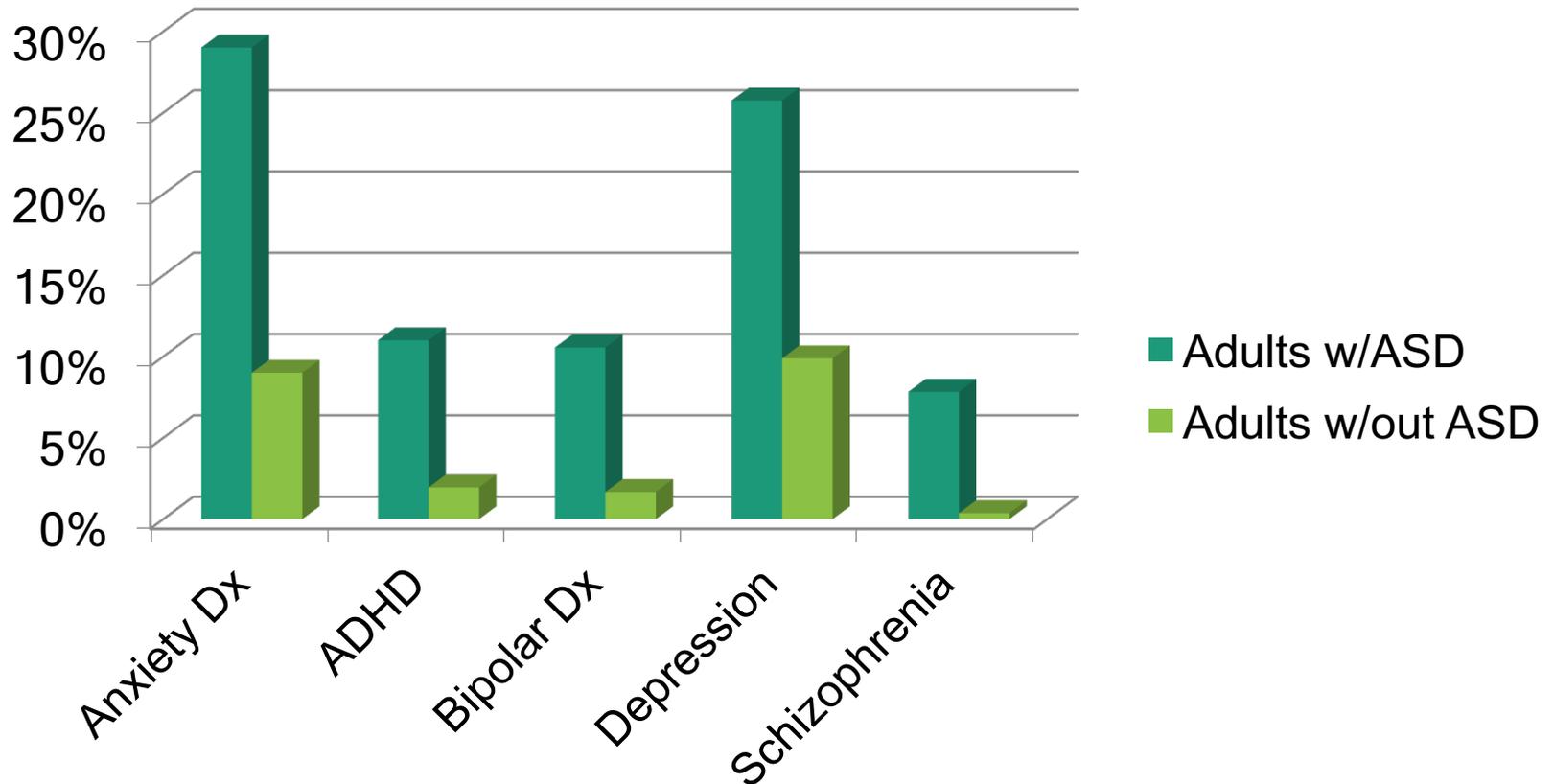
Mood Disorders (Mood Dysregulation, Anxiety, Depression, Mania)

OCD (Restricted Interests, Rigid behavior, Stereotyped behavior, Compulsions)

Anxiety Disorders
(Social Interaction/"Empathy", Shyness/Social Phobia, Disinterest/Schizoid, "Hostile Intent"/Schizotypal)

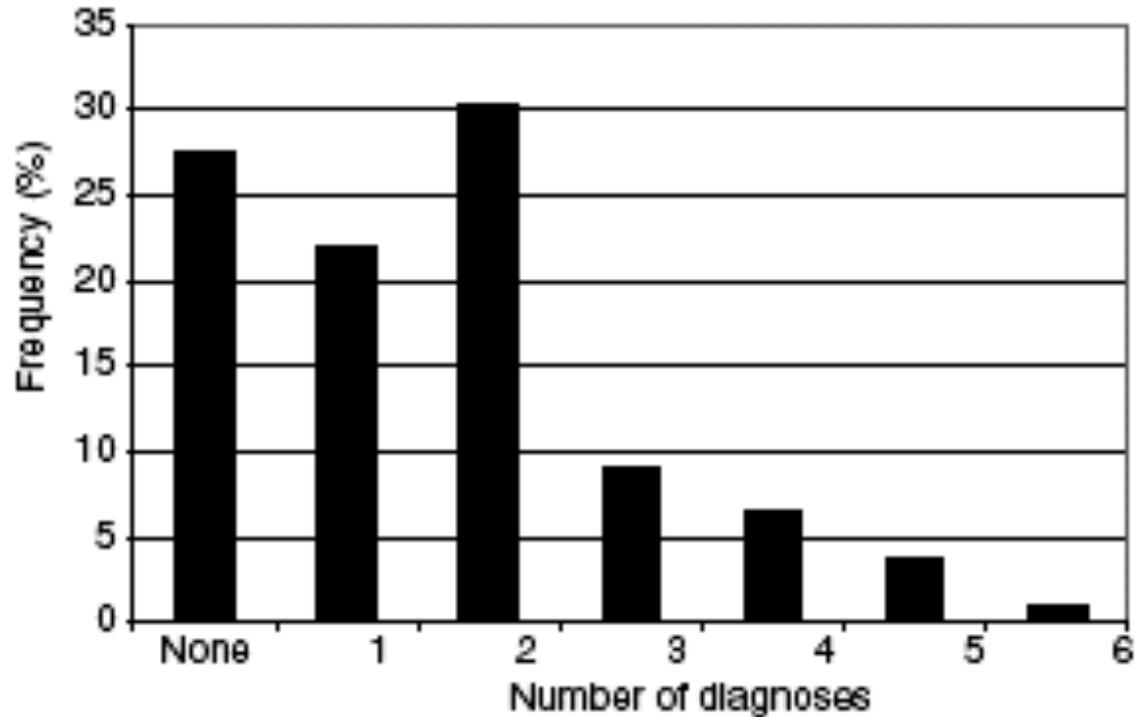


Prevalence of psychiatric conditions in adults with ASD vs. adults without ASD



Croen, Lisa A., et al. "The health status of adults on the autism spectrum." *Autism* 19.7 (2015): 814-823.

Comorbid Psychiatric Disorders in Autistic Children



Frequency of the number of comorbid lifetime DSM-IV psychiatric diagnoses per autistic child

Top 3: Specific Phobia (43%), OCD (37%), and ADHD (31%)

Leyfer O, Folstein S et al. *J Autism Dev Disord* (2006) 36:849-861

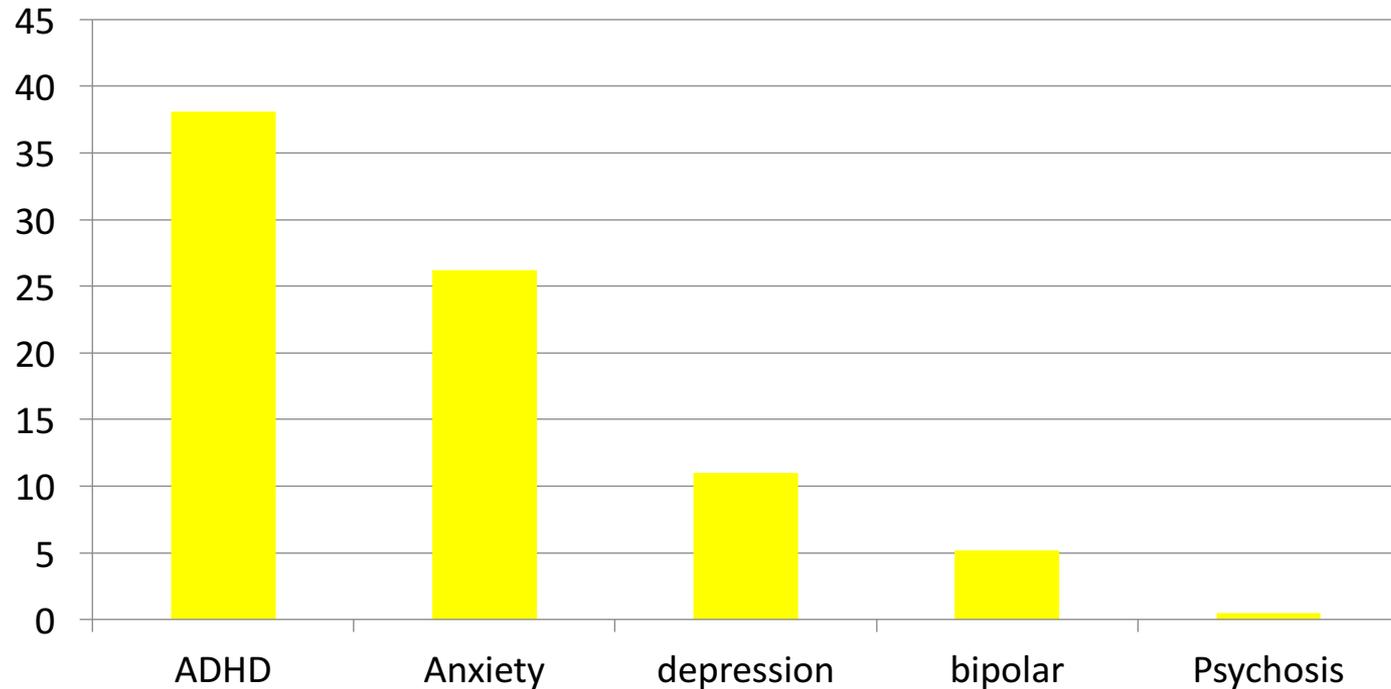
Comorbid Psychiatric Diagnoses Given by Community Providers Per Parent Survey

(Rosenberg et al, 2011)

- National on line registry established in 2006 - “Interactive Autism Network”
- Parent report
- 4,343 participants between ages 5-18 years
- Allowed for the assessment of community assigned comorbid diagnoses in ASD (rather than research assigned)
- Examined factors associated with comorbidity (e.g. age, gender type and severity of ASD)

Comorbid Psychiatric Diagnoses Given by Community Providers Per Parent Survey

(Rosenberg et al, 2011)



Anxiety in Individuals with Autism Spectrum Disorders

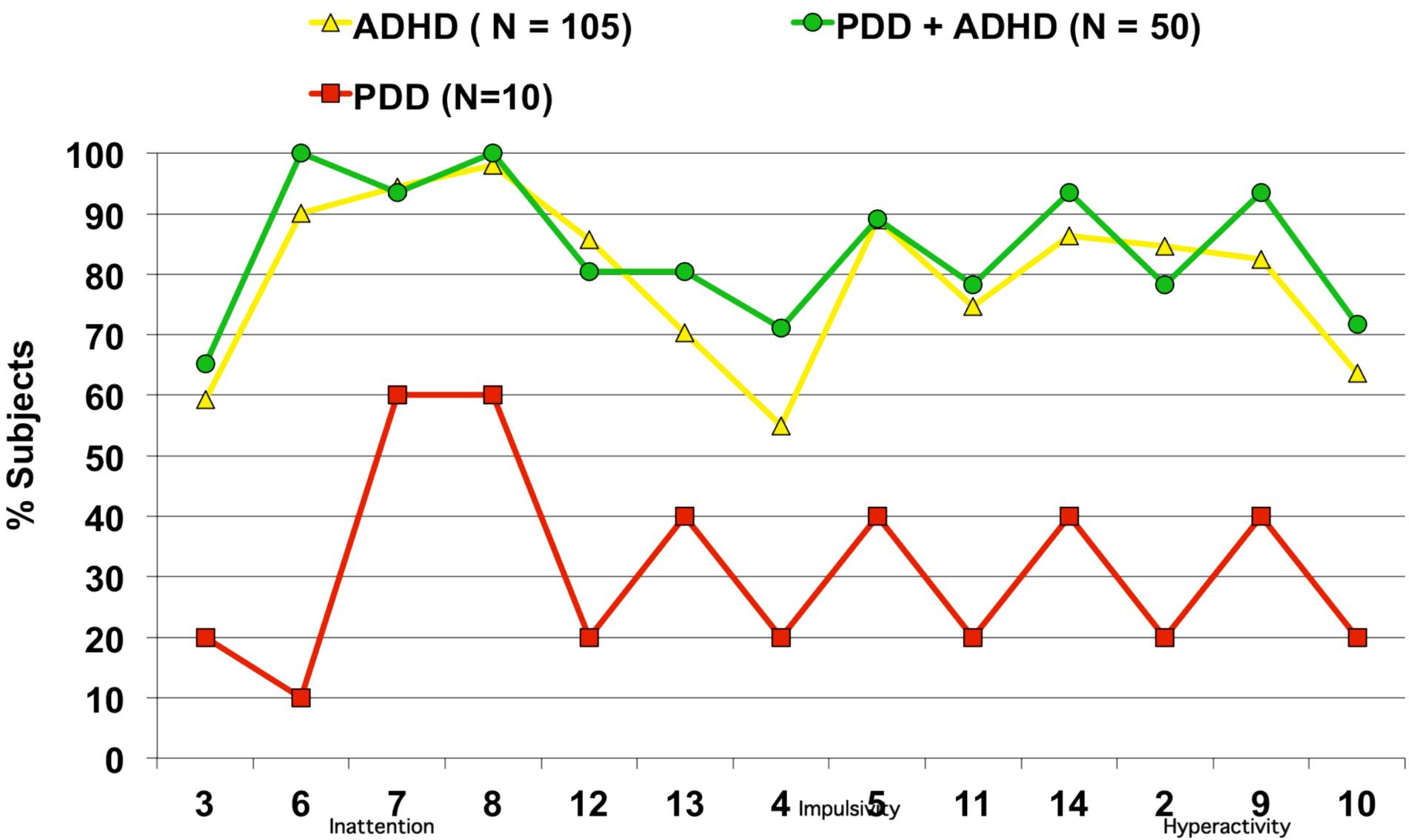
- There are multiple challenges:
 - Diagnostic overshadowing – are symptoms better explained by ASD?
- Breadth of prevalence of comorbid anxiety across studies is complicated due to:
 - Differences in sample ascertainment
 - Study sample size
 - How anxiety is operationalized and assessed (self report, parent report, clinician rated)

Anxiety in Youths with ASD

- Anxiety = most common presenting problem for school age youth (Ghaziuddin, 2002)
- Social disability may engender anxiety in higher functioning youth
- Prevalence across studies varies between 11- 84 % (White et al, 2009)
- Simple phobias, generalized anxiety, separation anxiety, obsessive-compulsive disorder and social phobia are common



Symptoms of Attention Deficit Hyperactivity Disorder (Frazier et al, 2001)



ASPERGERS ANXIETY AND DEPRESSION

6.9 Billion

Is the population of the planet



27 million

People have Aspergers Syndrome



65%

Of adults with Aspergers
suffer from anxiety and
depression

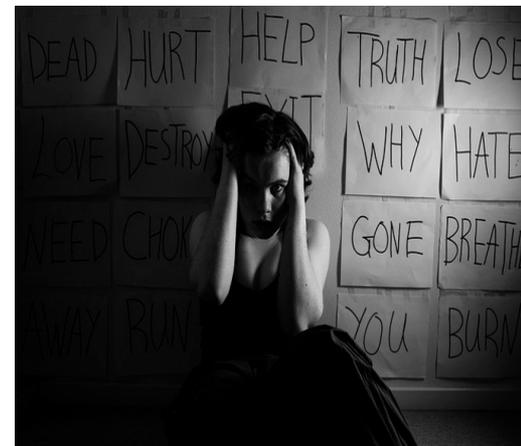


18%

Compared to 18% of
general population

Signs of Depression for ASD

- Deviation of autistic symptoms from baseline
 - Intensification or decrease
- Atypical affective changes
 - Increased aggression
 - Increased irritability
 - Increased agitation
 - Labile moods
 - Preoccupation with themes of death



Unique Suicide Risk Factors

- Personal relationship conflicts
 - Being the victim of bullying – 9 of 12 patients with PDD (Mikami, 2009)
- Poor interpersonal problem-solving skills
- Impulsive behavior
- Difficulty with perspective taking
- Older individuals with ASD may be exposed to more social pressures and expectations to conform and may be more aware of their differences than younger children, and therefore, more affected by them. (Mayes, et al., 2013; Gillberg, 2002)
- PDD may be an under-recognized risk factor (Mikami, 2009)



Suicide and Asperger's Syndrome

- Rate of suicidal behaviors of those with ASD appears to be similar to the rate among typically developing population (Hannon, 2013)
- Depression was the strongest single predictor of suicide ideation or attempts in children with autism.
 - 75% had suicide ideation or attempts (Mayes, et al, 2013)



ASD and Bipolar Disorder

- 27% (14/52) of youth with ASD also had BD or 12% of all children in the overall sample who had BD (Wozniak et al, 1997).
- Youth with ASD + family history of BD compared to those without a FH had extremes of affect, cyclicity, intense obsessive interests, neurovegetative symptoms, and regression (Herzberg, 1996; DeLong, 1994)

ASD and Bipolar Disorder

- Symptoms of Bipolar disorder may be masked by symptoms associated with ASD
- Baseline behaviors may become more intense or exaggerated during manic or depressive episodes
- The key is to look for a distinct change from baseline and for episodes

(Frazier et al, 2002)



Autistic Features in Childhood-Onset Schizophrenia (COS)

- Up to 55% of COS patients have prepsychotic developmental disorders with similarities to autism
 - Language delays
 - Motor development abnormalities (including transient motor stereotypies)
 - Deficits in communication and social relatedness
- NIMH study of COS – 28% had comorbid COS and ASD



Diagnostic Confusion – Where Does it Come from?



| | | |
|--|--|---|
| Impairment in nonverbal communication |  | Social withdrawal |
| Lack of social or emotional reciprocity |  | Affective flattening |
| Stereotyped use of language |  | Disorganized speech |
| Lack of varied, spontaneous play |  | Disorganized behavior |
| Abnormal preoccupation with stereotyped interests |  | Delusions |
| Stereotyped motor mannerisms |  | Disorganized/catatonic behaviors |
| General impairments in social communication |  | Negative symptoms |

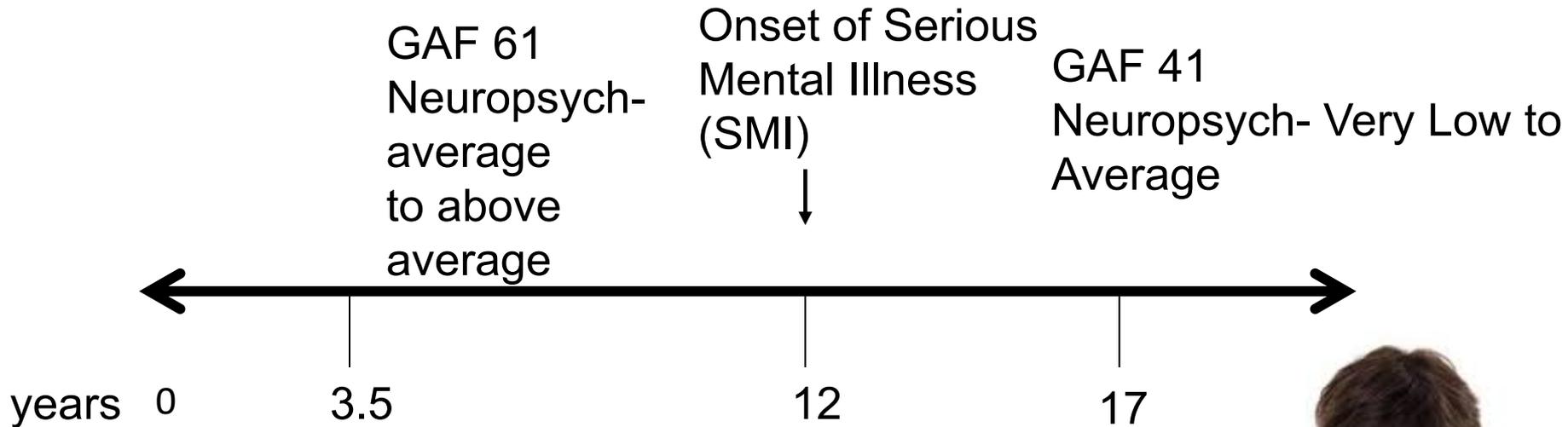
PSYCHOSIS

Starling & Dossetor (2009)

- Thought disorder and bizarre behavior – unreliable due to the fact that they are also core PDD symptoms.
- Delusions -more reliable but cautiously useful as “unusual world view” and idiosyncratic obsessions also seen commonly in ASDs
- Auditory hallucinations should be differentiated from self-talk or pseudo-hallucinations
- Delusions and Hallucinations= hallmark of psychosis

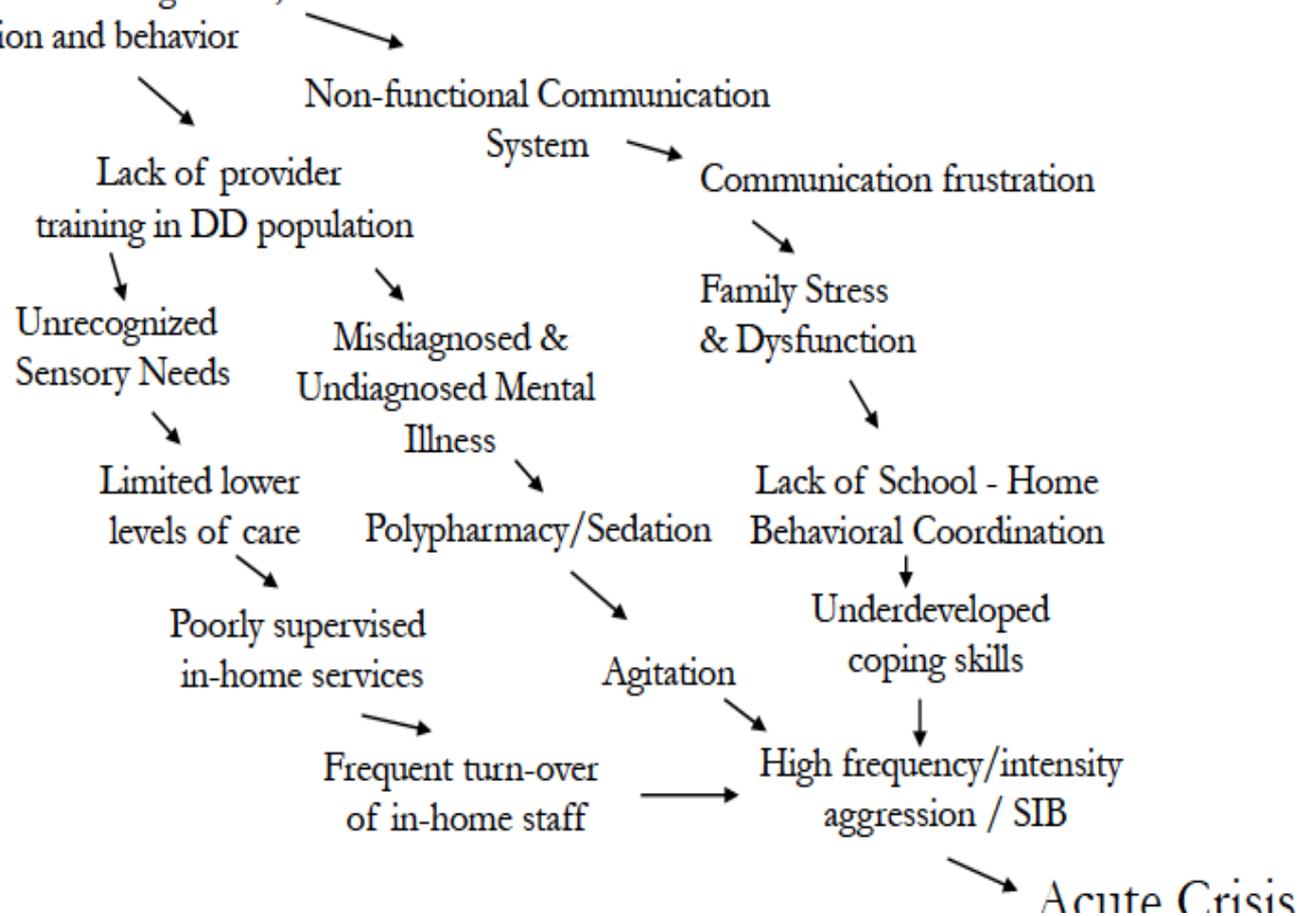
Determining Etiology of Dysfunction

Time line



Causality Model For Admission

Child with Developmental Disorder with
impairment in emotional regulation,
communication and behavior

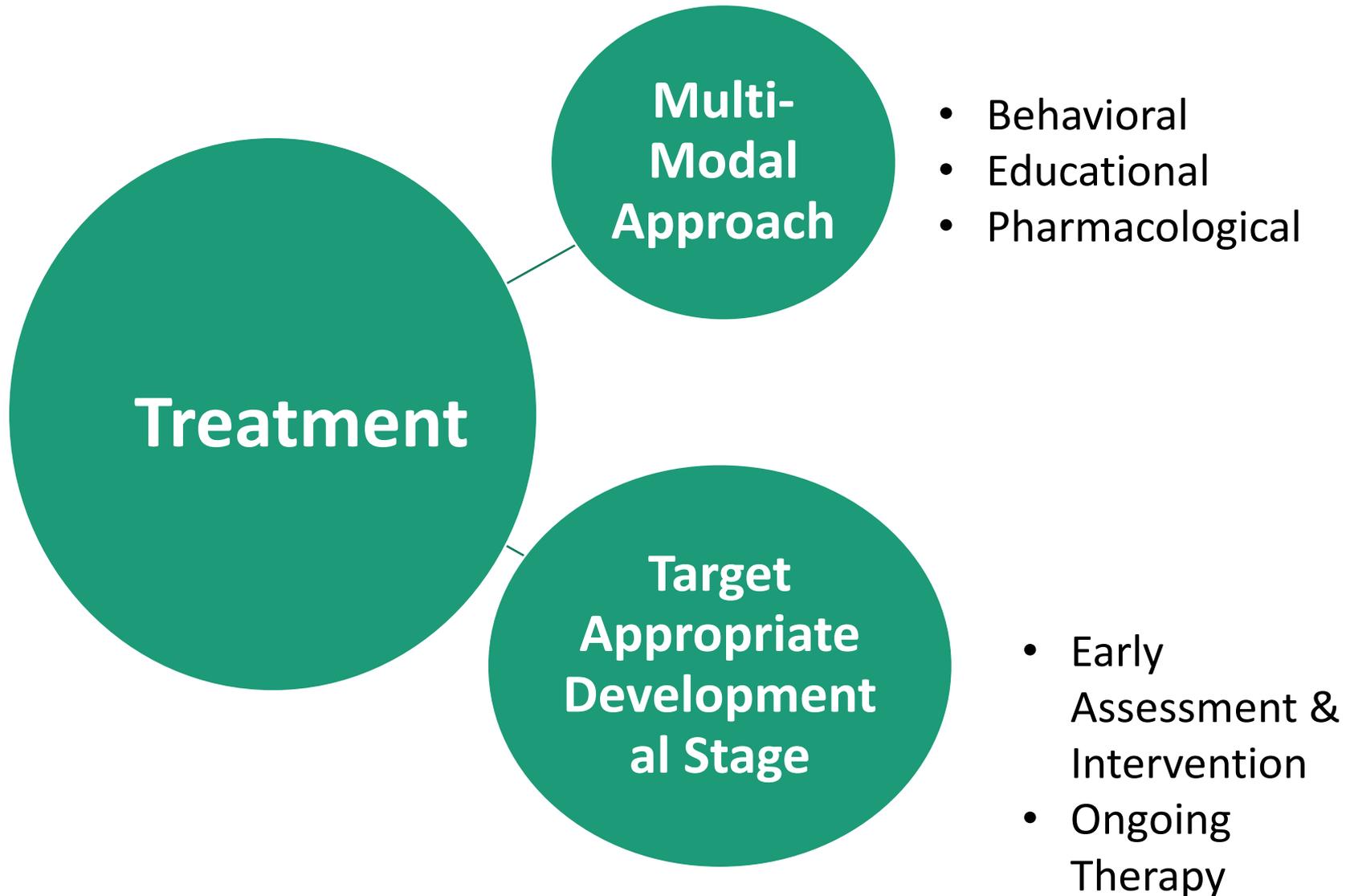


General Intervention Aims

- Reduce unsafe behaviors
- Improve self-regulation skills
- Increase positive social interactions
- Increase parent/guardian management skills
- Acquire adequate community supports to sustain post-discharge if inpatient



Treatment of Autism Spectrum Disorders



“Mainstay” Treatments:

ASD specific, interaction-based therapy

Applied Behavioral Analysis (ABA)

SCERTS (Social, communication, emotional regulation, transactional support)

Many others

Speech/language therapy

Social skills group (“Lunch Bunch”, other)

Common Additional Treatments

Occupational
Therapy

Overall level of adaptive functioning

Fine motor skills

Sensory processing integration

Physical Therapy

Cognitive Behavioral therapy

Behavioral Interventions

Other

Activities (swimming, music group, massage)

Animal (therapeutic horseback riding, service dogs)

Dietary

Target of Medication

- Core Features of Autism
 - Impaired social interaction and communication
 - Repetitive behavior/ restricted interests
- Specific Behavioral Problems
 - Aggression, Irritability, Self-injury
 - Hyperactivity
 - Anxiety (stereotypy/repetitive behaviors)
 - Sleep



There are currently no medications that are FDA approved for treating core features of ASDs.

Key Take Home Points

- DSM-5, ASD one category - Two core domains with specifiers
- Autism is a complex disorder
- Important to Assess for Medical and Psychiatric Comorbid Conditions

American Academy of Pediatric Guidelines

- Identification and Evaluation of Children With Autism Spectrum Disorders
 - *Pediatrics*, 2007;120:1183-1215
- Management of Children With Autism Spectrum Disorders
 - *Pediatrics*, 2007;120:1162-1182
- Recommendations for Evaluation and Treatment of Common Gastrointestinal Problems in Children With ASDs
 - *Pediatrics*, 2010;125 Suppl 1;S19-S29

American Academy of Pediatrics Toolkit

- *Autism: Caring for Children With Autism Spectrum Disorders: A Resource Toolkit for Clinicians*
- Contents
 - CD
 - Physician fact sheets
 - Family handouts
 - Supporting documents
 - Printed materials
 - Poster (CDC “Act Early” campaign)
 - Brochure samples
- www.aap.org/publiced/autismtoolkit.cfm

CANDO

Center for Autism and Neurodevelopmental Disorders

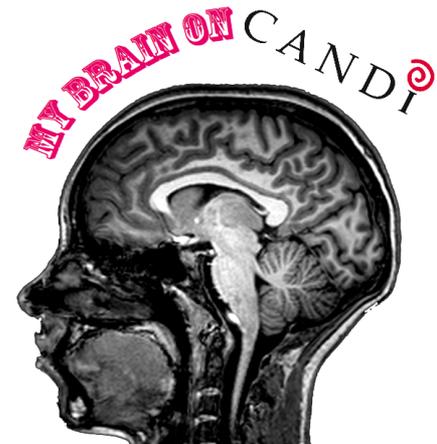


Child and Adolescent NeuroDevelopment Initiative - CANDI Department of Psychiatry, UMass Medical School

<http://www.umassmed.edu/psychiatry/candi>

<http://www.umassmed.edu/psychiatry/HighSchoolInterns>
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Thank You!

