Welcome and Introduction (8:30-8:35)
1. George Bernard Shaw: "The Americans and the English are two People separated by a common language"
   - Flat, Tube, Lorry, Nappie?
   - Interdisciplinary collaboration: similar challenges
   - Differing technical jargon
   - Different treatment approaches
   - Differing theoretical orientation
2. Six blind men and the elephant

It was six men of Indostan, 
To learning much inclined 
Who went to see the Elephant, 
(Though all of them were blind,) 
That each by observation 
Might satisfy his mind.

The First approached the Elephant, 
And happening to fall 
Against his broad and sturdy side, 
At once began to bawl:  
"God bless me! – but the Elephant 
Is very like a wall!"
The Second, feeling of the tusk,
Cried "Ho! What have we here
So very round and smooth and sharp?
To me 'tis mighty clear
This wonder of an Elephant
Is very like a spear!"

The Third approached the animal,
And, happening to take
The squirming trunk within his hands,
Thus boldly up and spake: -
"I see," quoth he, "the Elephant
Is very like a snake!"

The Fourth reached out his eager hand,
And felt about the knee;
"What most this wondrous beast is like
Is mighty plain," quoth he;
"'Tis clear enough the Elephant
Is very like a tree!"

The Fifth, who chanced to touch the ear,
Said, "E'en the blindest man
Can tell what this resembles most:
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

"Blind monks examining an elephant", an ukiyo-e print by Harabusa Itchô (1652–1724).

The Sixth no sooner had begun
About the beast to grope,
Than, seizing on the swinging tail
That fell within his scope,
"'I see," quoth he, "the Elephant
Is very like a rope!"

And so these men of Indostan,
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the right,
And all were in the wrong!
Therapeutic Dogmatism
(Six Blind Men and the Elephant)

Is ASD:
– a sensory processing disorder…
– a language disorder…
– a social disorder…
– a behavioral disorder…
– a learning disorder…
– a neurological syndrome…?

Answer: All of the Above (and more)

Welcome & Introduction (8:30-8:35)

• Outline for the day (8:35-8:45)
  • What do we mean by ASD? Beyond the DSM (8:45-9:15)
  • Medical evaluation – Why? (9:15-9:30)
  • Neuropsychology and Neurobiology of ASD (9:30-10:15)

Break (10:15-10:30)

• ASD and Mental Illness (10:30-11:15)
• Morning Session Q&A (11:15-11:30)

Lunch

• Behavior Management in the Classroom (12:30-3:00; Myles)
• Afternoon Q&A (3:00-3:15)
• Summary & Closing Remarks (3:15-3:30)

Introduction (8:30-8:35)

2. Need to bridge disciplinary siloes
   • Having multiple points of view can be a strength rather than a weakness, as long as all parties listen respectfully to one another, and work in harmony
     • Two eyes → 3D vision

The Royal Earlswood Asylum for Idiots (est. 1854)

http://en.wikipedia.org/wiki/Royal_Earlswood_Hospital
Langdon Down, 1887

I know nothing more painful than the long motherly expectancy of speech; how, month after month, the hopes are kept at high tension, waiting for the prattle which never comes. How the self-contained and self-absorbed little one cares not to be entertained other than in his own dreamland, and by automatic movements of his fingers or rhythmical movements of his body.…

15-16

Langdon Down, 1887

[These children] are bright in their expression, often active in their movements, agile to a degree, mobile in their temperament, fearless as to danger, persevering in mischief, [and] petulant to have their own way.

Their language is one of gesture only; living in a world of their own they are regardless of the ordinary circumstances around them, and yield only to the counter-fascination with music.…

14-16

Langdon Down, 1887

Even when speech does exist it is often echo-like… To my question “How are you today?” came the immediate reply “Today.” I ask another “Are you a good girl?” the response is simply “Girl.”….

Sometimes the whole question is repeated, and the echo is not simply that of the last word.

72

Langdon Down, 1887

… [T]hey live entirely in a world of their own; they do not listen with a childlike curiosity to the conversation which is going on in their presence…. They hear what is said, but they do not attend, nor can their attention be arrested, except by diverting them into new channels by a more attractive trail.

They usually have great intensity of purpose, and succeed in having their own way, the mothers giving up the contest for the sake of peace…

Pp 70-71

Langdon Down, 1887

Extraordinary memory is often met with associated very great defect of reasoning power. A boy came under my observation who, having once read a book, could ever more remember it…. I once gave him Gibbon’s “Rise and Fall of the Roman Empire” to read. This he did, and on reading the third page he skipped a line, found out his mistake and retraced his steps; ever after, when reciting from memory the stately periods of Gibbon, he would, on coming to the third page, skip the line and go back and correct the error with as much regularity as if it had been part of the regular text.…

58-60

Langdon Down, 1887

Often the memory takes the form of remembering dates and past events… One boy never fails to be able to tell the name and address of every confectioner’s shop he has visited in London – and they have been numerous – and can as readily tell the date of every visit.

58-60
Time Passes......

1837 1938

1887

1938

- 3/12/38: The Anschluss (Germany annexes Austria)
- 9/29/38: Munich (“Peace in our time”)
- 11/9/38: Kristallnacht (“The night of broken glass”)

Hitler elected: 1933

"Racial Hygiene"

This poster, from around 1938, reads: “60,000 Reichsmarks is what this person suffering from a hereditary defect costs the People’s community during his lifetime. Fellow citizen, is that your money too. Read A New People, the monthly magazine of the Bureau for Race Politics of the NSDAP.”


https://en.wikipedia.org/wiki/Action_T4

Archiv für Psychiatrie und Neurologie 1944, Volume 117, Issue 1, pp 70-136

Die „Autistischen Psychopathen“ im Kindesalter

Dok. Dr. Hans Asperger

- Lack of empathy
- Little ability to form friendships
- One-sided conversations
- Special interests
- Little professors
- Clumsy movements


http://www.icn.ucl.ac.uk/dev_group/ufrith/documents/Ch%201,%20Asperger%20and%20his%20syndrome%20copy.pdf


http://www.icn.ucl.ac.uk/dev_group/ufrith/documents/Ch%201,%20Asperger%20and%20his%20syndrome%20copy.pdf


http://www.mugsy.org/wing2.htm

- Articulate yet strangely ineloquent
- Active but odd
- Specialists in unusual fields
- Speech is pedantic and often consisting of lengthy disquisitions on favourite subjects

Lorna Wing

7 October 1928 – 6 June 2014

Image © Tina Norris, www.tinanorris.co.uk

Kanner, L. Autistic Disturbances of Affective Contact. Nervous Child, (2) 217-250, 1943

www.drcoplan.com

http://www.NDPeds.com
Kanner, 1943

- N = 11 (M 8; F 3)
- Age: 2 to 8 yr.
- Clinical Features: four domains
  1. Impaired socialization
  2. Idiosyncratic speech & language
  3. Repetitious behaviors
  4. Unusual responses to sensory stimuli

Kanner, L. Autistic Disturbances of Affective Contact. Nervous Child, (2) 217-250, 1943

More Time Passes......

1943 ➔ 1980

DSM III

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>DSM-III: First appearance of:</td>
<td>6 mandatory, severe criteria for Dx of autism, including:</td>
</tr>
<tr>
<td></td>
<td>• Infantile autism</td>
<td>• Pervasive lack of responsiveness to other people</td>
</tr>
<tr>
<td></td>
<td>• Autism-residual state: Children who once met criteria for infantile autism but no longer do.</td>
<td>• Gross deficits in language development</td>
</tr>
<tr>
<td></td>
<td>• Bizarre responses to various aspects of the environment</td>
<td></td>
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</tbody>
</table>

DSM III-R

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>1994</td>
<td>DSM-IV:</td>
<td>6 of 16 milder criteria, such as:</td>
</tr>
<tr>
<td></td>
<td>• Broader menu for diagnosis</td>
<td>• Lack of spontaneous seeking to share achievements with other people</td>
</tr>
<tr>
<td></td>
<td>• Asperger’s Disorder first appears</td>
<td>• Difficulty sustaining a conversation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lack of varied social imitative play</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Persistent preoccupation with parts of objects</td>
</tr>
</tbody>
</table>

Two Clinical Domains (vs. 3 in DSMIV and 4 in Kanner)
A. Deficits in Social Communication and Interaction
B. Restricted, Repetitive, Behaviors, Interests, and Activities (including sensory processing issues)

- Eliminated PDD-NOS, AS, CDD
- Created “Social Communication Disorder,” and located it outside the realm of ASD

ASD vs. Social (Pragmatic) Communication D/O

<table>
<thead>
<tr>
<th>Symptom Domain*</th>
<th>Autism Spectrum D/O</th>
<th>Social (Pragmatic) Communication D/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social and Language</td>
<td>Deficits in social-emotional reciprocity, nonverbal communication, and maintaining understanding relationships</td>
<td>Deficits in social communication resulting in functional limitations in effective communication, social participation, development of social relationships, academic achievement, or occupational performance</td>
</tr>
<tr>
<td>Restricted, repetitive patterns of behavior, interests, or activities</td>
<td>At least 2 out of 4: • Stereotyped or repetitive motor movements, use of objects, or speech • Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior • Highly restricted, fixated interests that are abnormal in intensity or focus • Hyper- or hyporeactivity to sensory input</td>
<td>NO</td>
</tr>
</tbody>
</table>

DSM5

- The Good
  - Abnormal sensory processing is now a symptom that counts towards the Dx (although located under “repetitive behaviors” rather than being elevated to a separate domain)

- The Bad
  - Lack of 2 sets of criteria
    - Research: Restrictive, in order to achieve homogeneity within research sample
    - Clinical: Inclusive, in order to assure that nobody who needs services is overlooked
    - Up to 10% of children with “high functioning autism” may not meet DSM5 criteria
    - What about high-functioning adults?
**DSM5**

- **The Ugly**
  - Social Communication D/O is located outside of the realm of ASD
    - Most persons with pragmatic lang. d/o have (or had) other features of ASD.
  - In order to get a Dx, one must be “severely impaired”
    - Treatments merely “mask” symptoms
    - Compensated ASD not recognized
      - Even DSM-III recognized “autism, residual state”

---

**Another way of looking at it**

![Diagram showing atypical behaviors and intellectual disability](https://via.placeholder.com/150)

![IQ: Genius](https://via.placeholder.com/150)
Atypicality:

- **Mild Atypicality** plus IQ ≥ 70
  - (*High-Functioning Autism*)

- **Severe-Moderate Atypicality** plus IQ ≥ 70
  - (*Low-Functioning Autism*)

- **Severe-Moderate Atypicality** plus IQ < 70

- **Mild Atypicality** plus ID

- **Moderate Atypicality**
  - IQ 70

- **Severe Atypicality**
  - IQ 100

- **Mild Atypicality** plus ID

Note: SPLD: Semantic-Pragmatic Language Disorder
NLD: Nonverbal Learning Disorder
SID: Sensory Integration Disorder

Symptom-based diagnosis = Patting the elephant

http://www.theblindelephant.com/the_blind_elephant_fable.html
The Future

NOT THIS: Symptom-Based Dx

BUT THIS

Underlying neuropsychological traits
- Central Coherence and Theory of Mind
- Cognitive Rigidity
- Dysregulation of attention, arousal & mood
- Impaired Sensory Processing and Mirror Neuron Functioning

Neurobiological etiology and dysfunction
- Single Gene, polygenic, chromosomal (e.g.: Fra-X, 22q, Tri-21)
- Teratogenic (i.e., prenatal insult, e.g.: hydantoin, rubella, VPA)
- Postnatal?

Medical Evaluation of persons with ASD

• Determination of etiology
  - Syndrome-specific cognitive & behavioral profile
    • Targeted interventions
      - Behavioral
      - Educational
      - Pharmacologic
  - Syndrome-specific support groups
  - Current / future medical issues
  - Recurrence risk
    - Parents
    - Siblings
    - Affected individual

Estimated number of ASD risk genes.
Krumm et al; Cell, 2013

46 Chromosomes

Each chromosome is composed of tightly wound DNA*

DNA is a ladder, twisted into double helix

Genes = Segments of DNA
(humans: ~24,000 genes)

*6 feet of DNA per cell; 10 billion miles of DNA in the human body

- What do we mean by ASD? Beyond the DSM (8:45-9:15)
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- Q&A: 11:15-11:30

Lunch (11:30-12:30)

- Behavior Management in the Classroom (12:30-3:00)
- Q&A (3:00-3:20)
- Summary Remarks (3:20-3:30)
**Fragile-X**

- FMR1 gene
  - Normal: < 50 repeats
  - Pre-Mutation (50-200 repeats)
    - mRNA toxicity: Slowly progressive:
      - Females: Premature ovarian failure
      - Mainly Males: Fragile-X tremor & ataxia syndrome ("FXTAS")
      - Variable occurrence of anxiety/depression (F>M) deficits in executive function (mainly males with FXTAS), other.
  - Full Mutation (>200 repeats); "Fragile-X Syndrome (FXS)
    - mRNA toxicity: Slowly progressive:
      - Males: ID, ASD, ADHD, Anxiety; broad forehead, prominent ears, large testes (adult)
      - Females: Highly variable: Normal → LD → ASD, Anxiety D/O; usually no physical features

http://www.cdc.gov/ncbddd/fxs/features/fxs-prevalence-keyfindings.html
https://fragilex.org/fragile-x-associated-disorders/fragile-x-syndrome/

**Behavioral Problems in FXS**

- ASD
- ID
- ADHD
- Feeding Problems / Mouthing Behavior
- Anxiety
- Hyperarousal
- Sensory defensiveness
- Aggression
- Self-Injurious behavior

See more at: https://fragilex.org/treatment-intervention/consensus-on-clinical-practices/3b30a55b3e7b9a8f8eb/349
https://fragilex.org/fragile-x-associated-disorders/fragile-x-syndrome/

**FXS: Full Mutation (Males)**

https://s-media-cache-ak0.pinimg.com/236x/ba/c0/79/bac079c2f3bf55491ae673b010387ba6.jpg
http://www.uth.tmc.edu/GeneWise/DevelopmentalDelay/images/devDelay32.png

• Deletion or duplication on long arm of chromosome 22
• Spectrum of craniofacial, immunologic, cardiac, and other physical abnormalities
• Spectrum of neurodevelopmental / neuropsychiatric disorders: ADHD, ASD, delayed speech, global developmental delay, anxiety d/o, depression, bipolar disorder, schizophrenia ("genetic pleiotropy")
• Heritable as autosomal dominant


Deleted segment |

22 q deletion

"Long face with malar hypoplasia, retrognathia, prominent nose with squared nasal root, small ears, short and/or narrow palpebral fissures, and small, open mouth"


Developmental brain dysfunction: revival and expansion of old concepts based on new genetic evidence

Pleiotropy

<table>
<thead>
<tr>
<th>Deletion</th>
<th>Intellectual disability or developmental delay</th>
<th>Autism spectrum disorder</th>
<th>Schizophrenia</th>
<th>Epilepsy</th>
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<tr>
<td>Del 1</td>
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<td>✗</td>
<td>✖</td>
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<td>Del 3</td>
<td>✗</td>
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<td>✗</td>
<td>✖</td>
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<td>✗</td>
<td>✗</td>
<td>✓</td>
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<td>✗</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Del 3 q</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✖</td>
</tr>
<tr>
<td>Del 3 q</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✖</td>
</tr>
</tbody>
</table>

*Frequency in individuals referred for chromosomal microarray testing. Common indicators for testing include neurodevelopmental disorders and multiple congenital anomalies?

Table 3: Variable expressivity in selected microdeletion syndromes

http://www.22q.org/about-22q/new-diagnosed/deletion/

What do we mean by ASD? Beyond the DSM (8:45-9:15)

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Q&A (3:00-3:20)

Summary Remarks (3:20-3:30)

Visible features: Social, Lang, Repetitive Beh, Sensory (DSM, IDEA, ICD, etc.)

Underlying neuropsychological traits

- Central Coherence and Theory of Mind
- Cognitive Rigidity
- Dysregulation of Attention
- Dysregulation of arousal & mood

- Impaired Sensory Processing and Mirror Neuron Functioning
- Neurobiological abnormalities
- Single Gene, polygenic, chromosomal (e.g.: Fra-X, 22q, Tri-21)
- Teratogenic (i.e., prenatal insult, e.g.: hydantoin, rubella, VPA)
- Postnatal?
1. **Shifting cognitive set:** The ability to shift from one activity or set of rules to another.
2. **Inhibition** (impulse control): “Go / No-Go” decision-making
3. **Working memory:** The ability to remember all of the steps needed to reach a goal
4. **Planning:** The ability to order steps into a logical sequence so that a goal is reached

Cognitive Rigidity → Anxiety → Disruptive Behavior

“Our son experiences extreme anxiety when what he anticipates isn’t what happens... When we know a change is coming we can prepare him, but those we can’t anticipate are still very upsetting for him... The switch flips in his mind, and it’s out of his control.”

6 y.o. boy with ASD, anxiety, and normal nonverbal IQ

Cognitive Rigidity: Changes in Routine / Unmet Expectations

Cognitive Rigidity: (Difficulty shifting mental sets)

- Without a doubt
- Reply hazy, try again
- Signs point to NO
- Better not tell you now...
Perfectionism

Cognitive Rigidity & Perfectionism ➤
Task-Related behaviors

- Need to get it exactly right
  - Need for task completion before moving on
  - Self-inflicted punishment if not perfect

OR:

- Task avoidance
  - Fear of failure and ensuing self-criticism, rather than aversion to the task per se

Perfectionism

Anxiety & Perfectionism

10 y.o. boy with ASD.
Bender-Gestalt: SS 116
Hyperlexia
Verbal Comprehension: Moderate delay

Teacher report: “E. is a very sweet boy... Tries hard to please... Constantly seeks reassurance. He follows directions, but you have to let him complete what he is doing. He cannot leave things unfinished!”

Tony

7 y.o. boy with HFA, Anxiety, and Perfectionism

Teacher’s Report: “Tony tries to exclude himself from any ‘competition’ types of games or activities, as he really dislikes being ‘wrong,’ ‘out,’ or to lose. On the times he has had tantrums after being ‘out’ or when his team has lost, the other children have been very empathetic towards him and he has not lashed out at them. His frustration appears to be with himself.”

EK. MRN 06-0299

TQ. 8 yr old boy with AS
MRN: 14-0916
Tony
7 y.o. boy with HFA, Anxiety, and Perfectionism

Office Visit
Examiner: “Sometimes you just need to do your best, and then move on,” we stated in an encouraging tone of voice, then asked him “What do you think of that?”
Pt: “Not much,” he replied bluntly.

Compulsions
JF: 15 y.o. boy Asperger Syndrome

Anxiety
RM: 9 y.o. boy: ASD, normal IQ, anxiety d/o, disruptive behavior.
Mother: Anxiety D/O; PGM hoarding & OCD

Anxiety
RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD

Anxiety
RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD
Anxiety

“The house is on fire and we are running for our life.”

A.W.: 9 year old boy with PDD-NOS and normal IQ (MRN 11-07710)

Depression

KO; 10 yr old female, PDD-NOS, normal IQ

Anxiety, Perfectionism, and Self-Injurious Behavior

A.D.: 9 y.o. girl with ASD (my MRN: 06-0227)
Throughout the session, “Alice” delivered a steady stream of self-deprecating comments, calling herself “stupid,” or perseveratively asking if she was “fat.” During the Bender, she anxiously and angrily twisted the eraser off the tip of the pencil, while declaring “Why do I keep making stupid mistakes?” As her stress level rose, she escalated to slapping herself, and then punching herself in the face.

Standard Score: 138

Cognitive and Emotional Traits in ASD

➢ The problem
  - Neglect of Internalizing Behavior (and mental health) in the classroom

➢ The Solution
  1. Positive Behavior Support Plan for Internalizing Behavior
  2. Proactive mental health assessment
  3. Parent- and/or Family-centered intervention (Often)
  4. SSRI’s (often, in conjunction with 1-3)

IDEA, Section 614(d)(2)(B)

(B) Consideration of special factors.--The IEP Team shall--
(i) in the case of a child whose behavior impedes the child's learning or that of others, consider the use of positive behavioral interventions and supports, and other strategies, to address that behavior.


This site was created to provide a "one-stop shop" for resources related to IDEA and its implementing regulations...

• Comment: A few commenters recommended that Sec. 300.324(a)(2)(i) refer specifically to children with internalizing and externalizing behaviors.

• Discussion: We do not believe it is necessary to make the recommended change because Sec. 300.324(a)(2)(i) is written broadly enough to include children with internalizing and externalizing behaviors.

• Changes: None.

IDEA

- As a practical matter, however:
  - “Behavior” is tacitly interpreted by school districts to mean *externalizing behavior*
  - “Impedes Learning” is equated with *academic failure*
  - “Assessment” rarely addresses internalizing behavior / mental health

---

**The Story of Billy’s Box - 1**
(or, why it’s important to ID internalizing behavior)

- 8 y.o. boy with ASD and normal Nonverbal IQ
- Severe tantrums at school
- Antecedents:  
  - TRANSITIONS
- Function?  
  - Not attention, escape, access
  - “Biological” (i.e. “just part of his ASD”)?

---

**The Story of Billy’s Box - 2**
(or, why it’s important to ID internalizing behavior)

Q: “Billy – You’re always getting in trouble at school. What’s going on?”

A: “I’m afraid that if I hand in my work, I’ll never get a chance to go back and make it perfect.”

---

**The Story of Billy’s Box - 3**
(or, why it’s important to ID internalizing behavior)

“Put your papers in the box, and we promise you will be able to go back later and work on them some more, if you want to.”

---

**Social Skills Deficit + Cognitive Rigidity**

“With his teachers, L. is defiant, argumentative and refuses to complete tasks. He manipulates all situations and has much difficulty with the teacher/pupil hierarchy. He is very comfortable telling adults what to do and why… He has great difficulty seeing the consequences of his actions and views punishment or consequences as personal attacks….”

LC: 9 y.o. boy with superior IQ & AS  
MRN 10-0660
Social Skills Deficit + Cognitive Rigidity

“L’s IEP includes a Positive Behavior Support Plan, with goals that focus on compliance, and awareness of the feelings of others.

Specific target behaviors include “Refusal to comply with task,” “Time off task,” and “Making noises.” The “Perceived Functions” of these behaviors are listed as “Escape from work, self-stimulation, sensory, and attention-seeking.”

LC: 9 y.o. boy with superior IQ & AS
MRN 10-0660

Reclaiming IDEA: Positive Behavior Support for Internalizing Behavior

• Staff Awareness
• Visual Schedules
  – What am I supposed to be doing do now?
  – What am I supposed to do next?
• Relaxation Techniques
  – Mental Imagery
  – Isometrics
  – Deep Breathing
  – “Break” cards
  – And other methods...
• Cognitive Behavioral Therapy (CBT)
• [SSRIs]

www.drcoplan.com

Social Skills Deficit + Cognitive Rigidity

“We are pleased to see that L. has a Positive Behavior Support Plan, but we are dismayed that it does not consider perfectionism as an antecedent, in which case L’s refusals may not be for the purpose of escape from task per se, but to avoid self-criticism for not being able to do a task perfectly.

Liam’s Behavior Plan calls for him to recognize the feelings of others, which is fair. By the same token, his Behavior Plan should also require the adults to make an effort to figure out what Liam may be feeling – not just react to the surface topography of the behavior.”

LC: 9 y.o. boy with superior IQ & AS
MRN 10-0660

SSRIs in ASDs

• Side Effects
  – Activation
    • Hyperactivity
    • Irritability
    • Insomnia
    • Agitation
  – Uncommon or irrelevant
    • GI dysfunction
    • Sexual dysfunction
    • “Black Box” warning (suicidal mentation)

www.drcoplan.com

Selective Serotonin Reuptake Inhibitors (SSRIs)

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoxetine</td>
<td>Prozac</td>
<td>The first selective SRI</td>
</tr>
<tr>
<td>Fluvoxamine</td>
<td>Luvox</td>
<td></td>
</tr>
<tr>
<td>Sertraline</td>
<td>Zoloft</td>
<td>May be less activating</td>
</tr>
<tr>
<td>Citalopram</td>
<td>Celexa</td>
<td>Prolonged QT interval</td>
</tr>
<tr>
<td>Escitalopram</td>
<td>Lexapro</td>
<td>Prolonged QT interval</td>
</tr>
<tr>
<td>And others...</td>
<td></td>
<td></td>
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</tbody>
</table>

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Anxiety

• Daniel C: ASD, Anxiety D/O
• 6 wk after increasing fluoxetine from 10 to 20 mg/d:
  “His anxiety doesn’t paralyze him any more.”

Cognitive Rigidity

“I haven’t been ‘fired’ or told that I was ‘the worst mom ever’ in a month! … Our son has been more adaptable. He has not had a meltdown in a month. (He has come close – but we managed or problem-solved, to come back from the cliff.)”

Mother of an 8 y.o. with ASD and normal IQ, 4 wk after starting SSRI

Anxiety

RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD

Anxiety after Rx with CBT & Escitalopram

RD. 9 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD

Anxiety

“A.W.: 9 year old boy with PDD-NOS and normal IQ (MRN 11-07710)
  “The house is on fire and we are running for our life.”

Fluoxetine 10 mg/d

A.W.: 9 year old boy with PDD-NOS and normal IQ (MRN 11-07710)
A.D. : 9 y.o. girl with ASD (my MRN: 06-0227)

Throughout the session, "Alice" delivered a steady stream of self-deprecating comments, calling herself "stupid," or perseveratively asking if she was "fat." During the Bender, she anxiously and angrily twisted the eraser off the tip of the pencil, while declaring "Why do I keep making stupid mistakes?" As her stress level rose, she escalated to slapping herself, and then punching herself in the face.

Standard Score: 138

Anxiety, Perfectionism, and Self-Injurious Behavior

Sent: Thursday, May 31, 2012
To: James Coplan
Subject: amazing shift in A.D.
Importance: High

Dr. Coplan,

I "know" that it takes several weeks for SSRI's to "kick in" but the child I saw in my office today is simply a different child and the improvements are being noted across settings by multiple adults. There was NO self abuse, NO negative self statements, an availability for interventions, just a complete transformation. We "fixed" mistakes, "re-did" errors, told jokes, and played together. The "core" Autistic symptoms are obviously still there - perseveration on bras, drawing, etc - but mood-wise there is no question that A. is already benefitting from the Sertraline... Impossible perhaps but really visibly clear...

Thank you very much.
S.S. Ph.D.
Perseveration

BL; 8 yr old male, normal IQ; PPD-NOS

Observe Interests & Perseveration

“Draw a picture of your family, with everybody doing something”

“Me and my parents and my sister at Dover Speedway”

Obsessive Interests & Perseveration

“We went to the Jersey Shore.”

“We are going into the Grand Hyatt!”

“We are at the Philadelphia airport waiting for our flight. Can I draw just me? My family already went ahead to the gate.”
Perseveration / Over-stimulation

6 yr. 11 mo. boy with ASD and normal nonverbal IQ

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Perseveration / Over-stimulation

“Draw a picture of your family, with everybody doing something”

7 y.o. boy with “subthreshold ASD” and perfectionism

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Dysregulation of Attention: Perseveration

• Interventions
  – Verbal preparation for transitions
  – Visual Schedules
  – SSRIs (OCD: Proven; ASD: likely)

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Dysregulation of Attention - 2

• Inattention
  – Inability to focus
  – Impulsive
  – Distractible

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Cognitive Rigidity

Rigid & Perseverative

Regulation of arousal

Regulation of sleep

Sensory Processing

Stimulant

• Hyperactive

• Stimulation

• Hyperactivity

• Impulsivity

• Agitation

• Aggression

• SIB

Rigid & Perseverative

Regulation of arousal

Regulation of sleep

Sensory Processing

Stimulant

• Hyperactive

• Stimulation

• Hyperactivity

• Impulsivity

• Agitation

• Aggression

• SIB
Inattention

- **Interventions**
  - Limited stimuli
  - Short work periods
  - Medication
    - Stimulants (may increase anxiety / rigidity / agitation)
    - alpha-2 agonists

---

**Alpha-2 Agonists**

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name(s)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonidine</td>
<td>Catapres</td>
<td>More sedating than guanfacine</td>
</tr>
<tr>
<td>Guanfacine</td>
<td>Tenex, Intuniv</td>
<td></td>
</tr>
</tbody>
</table>

- Frontal cortex / Locus Ceruleus: post-synaptic alpha-2 receptors
- Sympathetic outflow (autonomic nervous system): Pre-synaptic autoreceptors

**Benefits**

- ↓ Agitation
- ↓ Hyperactivity
- ↑ Attention Span
- No exacerbation of anxiety / rigidity

**Side Effects**

- Sleepiness: Common
- Emotional Lability (crying) - occasional
- Hypotension (low BP) - rare

---

**Clinical Pearl**

- **Beware of Cognitive Rigidity masquerading as ADHD**
  - Perseveration on inner stimuli: “Inattentive”
  - Perfectionism:
    - “Problems w. task completion”
    - (Or: Task avoidance!)
  - Anxiety:
    - “Rushes through work”
    - “Out of seat behavior”

---

**Pearl**

- “His anxiety shows itself as impulsivity”
  - Teacher of 10 y.o. boy w. AS (DC, MRN 13-0863)
Arousal & Mood

“He is so hard to calm down when he gets upset….His emotional thermostat doesn’t work”

Parent of an 8 year old with ASD

F. O. MRN 06-0208

Dysregulation of Arousal & Mood

• “If he gets up on the wrong side of the bed we know it’s going to be a bad day.”
• “We feel like we’re walking on egg shells”

Mood

JH; 10 yr old male, PDD-NOS
Anger (mood)

JH: 10 yr old male, PDD-NOS

Atypical Neuroleptics

Benefits
- Arousal Level
- Self-regulation

Side Effects
- Sedation
- Appetite / Wt Gain
- Insulin resistance / Diabetes
- Abnormal movements (reversible)
- Tardive Dyskinesia (irreversible)
- Prolactin

Side Effects
- Sedation
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Aripiprazole
- Relatively less risk of weight gain
- FDA approved for Rx of ASD

Clozapine
- Bone marrow suppression

Olanzapine
- Greater risk of weight gain

Quetiapine
- Greater sedation

Risperidone
- Greater risk of weight gain
- FDA approved for Rx of ASD

Ziprazidone
- Relatively less risk of weight gain
**Regulation of Sleep - 1**

- **Melatonin**
  - Brain hormone
  - ↓ Metabolic rate (Heart, Temp)
  - “You’re sleepy now”
- **Suppressed by light**
  - 24 hr cycle
  - Seasonal cycle

**Regulation of Sleep - 2**

- **Dysregulation of melatonin cycling**
  - Primary disorders of sleep
  - Blindness
  - ASD
- **Symptoms**
  - Delayed onset of sleep
  - Shortened duration / frequent wakening

**Regulation of Sleep - 3**

- **Shared genetic control**
  - Regulation of sleep
  - Regulation of arousal
- **Family history of sleep disorder**

**Sensory Processing**

- **Subjective Properties**
  - Familiar / Unfamiliar
  - Pleasant / Unpleasant
  - Strong / Weak
  - Internal / External
- **Sensory Input ➔ Self-awareness**
- **Mirror Neurons ➔ Empathy**

Sensory Processing

- Subjective Properties
  - Familiar / Unfamiliar
  - Pleasant / Unpleasant
  - Strong / Weak
  - Internal / External

- Sensory Input → Self-awareness
- Mirror Neurons → Empathy

The whole is greater than the sum of its parts

Max Wertheimer

ASD and Mental Illness: As per DSM5

“Co-Morbidity”

“A, B, C… etc. are completely separate entities, that just happen to co-exist.”

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• Q&A (3:00-3:20)
• Summary Remarks (3:20-3:30)
Reality

- Not “co-morbidity,” but
  - Continuum, and
  - Metamorphisis

As DSM would have it.....

Continuum:
ASD shades into Mental Illness, with no ‘bright line’ of separation

Reality.....

Metamorphosis:
Over time, symptoms of ASD evolve into symptoms of Mental Illness.

Not Piet Mondrian, but Claude Monet.
In the world of Metamorphosis…
“Losing the diagnosis” does not mean “cured”

- Persistence of
  - Cognitive patterns
  - Behavioral patterns
  - Emotional patterns
- Emergence of Non-ASD psychiatric disorders
  - Anxiety
  - Depression
  - Mood Disorders
  - Schizophrenia

Presentation in Childhood
ASD (Autism, PDD-NOS, AS)
NLD, SPLD*
Extended Family
• Social Impairment
• Communication Impairment
• Restricted, repetitive behaviors & interests
• Anxiety Disorders
• Obsessive-Compulsive Disorder
• Depression, Bipolar Disorder
• Alcoholism
• Schizophrenia

Extended Family
• Social Impairment
• Communication Impairment
• Restricted, repetitive behaviors & interests

NLD: Non-Verbal LD, SPLD: Semantic-Pragmatic Lang. Disorder

Outcome for children with High Functioning ASD

Non-ASD Psych D/O

Psychiatric Symptom Impairment in Children with Autism Spectrum Disorders

- 115 pts w. ASD at University Hosp. Child Devel. Clinic
  - Age 6-12 yr: Male: 86 %; White: 91 %
  - Mean IQ: 85
    - ≥70: 91 (77%)
    - <70: 24 (23 %)
  - Spectrum Dx:
    - Autistic Disorder: 31 %
    - Asperger’s Disorder: 19 %
    - PDD-NOS: 50 %
  - Child and Adolescent Symptom Inventory-4R
    - Parent & teacher ratings

Disorder
Prevalence (%)*

- ADHD (any type) 83% 82%
- Oppositional defiant disorder 53% 34%
- Conduct disorder 23% 9%
- Anxiety disorders 70% 47%
  - Generalized anxiety disorder 48% 32%
  - Social phobia 51% 23%
- Major Depressive D/O, Dysthymia 45% 19%
- Manic episode 53% 18%
- Schizophrenia 48% 10%
- Any disorder 94% 84%

* Combined Parent & Teacher ratings
** “Impairment” = Symptoms “Often or Very Often”
Co-Morbidity

- When co-morbidity approaches 100%, is it still “co”-morbiditry?
- Or is it an integral part of the condition?

“Is Schizophrenia on the Autism Spectrum?”
King & Lord, 2011

- “Schizotypal Personality” is distinguished by “unusual preoccupations, unusual perceptual experiences, odd thinking and speech (e.g., overelaborate, or stereotyped), inappropriate or constricted affect, behavior or appearance that is odd, eccentric, or peculiar; lack of close friends or confidants other than first-degree relatives, and social anxiety…”

“Is Schizophrenia on the Autism Spectrum?”
King & Lord, 2011

- “What arguably distinguishes schizophrenia spectrum from autism spectrum in two individuals who otherwise share all of these symptoms is the presence of paranoid ideation…”

“Is Schizophrenia on the Autism Spectrum?”
King & Lord, 2011

- “Given the degree of overlap, one might reasonably ask if paranoid thinking could be a logical downstream consequence of a common underlying difficulty in the perception of social communication”

Theory of Mind

- Realization that other people have an internal mental & emotional state, different from one’s own
- Ability to gauge the internal mental & emotional state of others
  - Able to infer motives & predict behavior of others
  - Humor, Sarcasm, Inflection, body language
  - Empathy – Mirror Neuron System – Motor Imitation
- These difficulties are real, and not simply a byproduct of difficulty with verbal expression

Mirror Neurons “Mirror” What We Observe

www.drcoplan.com
Mirror Neurons “Mirror” What We Observe


Speculation:

• Deficient Mirror Neurons
  – Underlie Motor Clumsiness
  – Underlie Impaired Empathy
  – May explain why children with ASD use hand-over-hand rather than eye contact or pointing through the air
“Children with autism place a greater than normal reliance during motor learning on their own proprioception while discounting visual consequences in the extrinsic world.”

Central Coherence
- The ability to see the “big picture”

Theory of Mind & Central Coherence
**MUFF**
Muff is a little yellow kitten.
She drinks milk.
She sleeps on a chair.
She does not like to get wet.
Q: If you gave Muff a bath, how would she feel?

Theory of Mind & Central Coherence
**MUFF**
Muff is a little yellow kitten.
She drinks milk.
She sleeps on a chair.
She does not like to get wet.
Q: If you gave Muff a bath, how would she feel?
A: I don’t know. We haven’t read that part of the story yet.*
*6 ½ y.o. boy with superior IQ and ASD

Theory of Mind & Central Coherence
**THE BOAT**
(3rd grade reading level)
Henry goes to a large lake in the summer. Last summer a motorboat sank near his house. The boat had ten men in it. The man who was running the boat brought it very close to the shore when the water was low. The boat hit a big rock under the water. The water came in very fast. All of the men swam to shore.
Q: There’s someone in this story who might get in trouble. Who is it?

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Q: There’s someone in this story who might get in trouble. Who is it?
A (Pt: 12 yr old boy with high functioning autism): Henry? The ten men?
The Boat (3rd grade reading level)

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Q: There’s someone in this story who might get in trouble. Who is it?
A (Pt 12 yr old boy with high functioning autism): Henry? The ten men?
A (Pt’s father; Master’s Degree, electrical engineer): I have no idea.

Theory of Mind & Central Coherence

What’s happening in this picture?
A: The boy is hoarding animals.

What’s happening in this picture?
A: The kitten is on the boy’s back and is about to eat him.

What’s happening in this picture?
Two strangers got into the house and are handing out newspapers.
“They are stealing the children.”

Possible Relationship Between ASD and SCZ

How would your behavior change, if you suddenly lost Theory of Mind and Central Coherence?

Primary failure to develop ToM & CC
Loss of previously acquired ToM & CC

Autism Spectrum Disorder

Schizophrenia Spectrum Disorder

BIRTH

ADOLESCENCE

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Parents & Siblings of Children with ASDs:
Issues of Attention and Mood
(parent report survey)

Severe mood problems in adolescents with autism spectrum disorder

• 91 adolescents w. ASD (M: 83)

• Methods:
  – IQ, Adaptive function, neuropsych measures
  – “Severe Mood Problems (SMP) Scale”
    • Explosive rage
    • Low mood
    • Depressive thoughts
    • Labile mood
  – Maternal self-report (GHQ)
    • Maternal mood, anxiety and somatic difficulties

Results

• High SMP: 24 (26%)
  – Predictors of High SMP:
    • Emotional & behavioral problems at age 12
    • Autism severity (by parent report)
    • Maternal GHQ: “The current analyses suggest a specific relationship between maternal affective symptoms and SMP in offspring”
  – Not predictors:
    • Full Scale IQ
    • Adaptive function
Anxiety, ASD

RD. MRN 07-0427

TS, Anxiety, Depression, Bipolar D/O, ASD, ADHD

Depression

Bipolar D/O

Generalized Anxiety D/O w. Panic Attacks

ASD

TS

ADHD

AH, MRN 13-0887

BPD, OCD, Anxiety, AS

Bipolar Disorder

OCD

Anxiety

Speech Delay

“Processing Disorder”

C.A.; MRN 12-0811

The Elephant in the Room

Child w. ASD (± MH D/O) + Parent w. MH D/O =

Bullying Experiences Among Children and Youth with Autism Spectrum Disorders.
Cappadocia, M.C., J.A. Weiss, and D. Pepler, JADD, 2011

Subjects
• 192 children / young adults w. ASD age 5–21
  – HFA (14%)
  – AS (54%)
  – PDD-NOS (13%)
  – Autism (19%)

Results
• Bullied (physical, verbal, social, cyber) within the past month: 77%
  – 1 time: 11%; 2-3 times: 23%; ≥ 4 times: 43%

Risk factors for being bullied | $p^*$
---|---
Child - Gender | NS
Child - Age (being younger) | < .05
Child - Social skills deficit | NS
Child - Communication difficulties | < .05
Child - Internalizing mental health problems | < .001
Child - Externalizing mental health problems | NS
Parent - Mental health problems | < .01
Child - Fewer friends at school | < .05

*NS = Not statistically significant. Smaller $p = $ less likely to occur by chance.

---

**Family Health**

(“We give our children roots and wings” — Hodding Carter)

Family Health is a key ingredient in outcome for all children, but especially for the child with developmental disability, who is less able to work around obstacles arising from family dysfunction than a child with normal development.

---

**Signs of Family Health**

- **Cognitive, Emotional, and Tactical Flexibility**
  - Shifting alliances (adults vs. kids, “boys vs. girls,” etc.)
  - Shifting roles (role of “hero” or “in the doghouse”)
  - Shifting solutions (one size does not fit all; “equitable” vs. “equal”)
  - Shifting combinations for activities. All legitimate combinations should come up once in a while.
- **Sense of humor / playfulness / resilience**

---

**Danger Signs**

- **Inflexibility**
  - Fixed roles
  - Fixed solutions
- **Hypervigilance**
  - Lack of trust in care providers
- **Social Isolation**
  - “Circle the wagons”
  - “Nobody helps us!”

---

**Wing 1997**

(Wing, L. Asperger’s syndrome: Management requires diagnosis. Journal of Forensic Psychiatry, 8(2), 253-257)

- Assumption that own needs supersede all other considerations
- Lack of awareness of wrongdoing
- Intellectual interest (Asperger: “Autistic acts of malice”)
- Pursuit of “special” interests (objects, people)
- Hostility towards family
- Hyperarousal
- Vulnerability
- Cry for help
- Revenge

---

**Proposed Pathways from Core Features of ASD to Offending**

*No awareness of, or intent to do harm*
• What do we mean by ASD? Beyond the DSM (8:45-9:15)
• Medical evaluation – Why? (9:15-9:30)
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• Summary Remarks (3:20-3:30)

• Brenda’s material here

SUMMARY

Optimizing Outcome

– Cognitive Issues
  • ToM, Central Coherence
  • Executive Function
    – Attention, Inhibition, Planning
– Emotional / Mental Health Issues
  – Anxiety
  – Depression
  – Mood
  – Reality Testing
– Self-Knowledge and Self-Esteem

• Not “Co-Morbidity,” but Continuum and Metamorphosis
• Pleiotropy: ASD and Mental Illness are genetically and clinically intertwined, w/o a clear dividing line
Core Features
Social
Language
Repetitive Behavior
Sensory/Motor

Cognitive Rigidity
• Difficulty changing mental sets
• Routines
• Transitions
• Repetitious behaviors
• Perfectionism

Anxiety
• GAD
• OCD / TS
• Phobias

Atypicality
• Social:
  • Theory of Mind
• Language:
  • Pragmatics
  • Prosody
• Cognitive:
  • Central Coherence
• Sensory/Motor:
  • Aversions / Attractions
  • Clumsiness

DD Model Mental Health Model

Core Features
Social
Language
Repetitive Behavior
Sensory/Motor

Cognitive Rigidity
• Persistence on Sames
• Perfectionism

Anxiety Disorders
• OCD / TS

Atypicality
• Social:
  • Theory of Mind
• Language:
  • Pragmatics
  • Prosody
• Cognitive:
  • Central Coherence
• Sensory/Motor:
  • Aversions / Attractions
  • Clumsiness

DD Model Mental Health Model
School-Based MH Services

- Proactively monitor student mental health
  - Don’t wait for academic failure or disruptive behavior
  - Positive Behavior Support for Internalizing Behavior
  - Embed MH services within schools?

Positive Behavior Support Plan for Internalizing Behavior

- Staff Awareness
- Visual Schedules
  - What am I supposed to be doing do now?
  - What am I supposed to do next?
- Relaxation Techniques
  - Mental Imagery
  - Isometrics
  - Deep Breathing
  - “Break” cards
  - Other…
- Cognitive Behavioral Therapy (CBT)
- SSRIs

Family Care

- Recognize that ascertaining a child with ASD means strong possibility that one or both parents have Mental Health issues and/or family dysfunction that need to be addressed
  - This may be the single biggest element of the problem available for intervention
  - Addressing this issue will take a lot of people out of their comfort zone

Systems Change

- ASD community needs to make common cause with MH community in advocating for child and adult MH services
  - Distinction between ASD and “psychiatric disorder” not scientifically tenable
  - Not financially viable
  - Not in the best interests of persons with ASD
- Barriers
  - Hard to shift mental sets
  - Fear, Stigma
  - Institutional inertia / turf

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