Making Sense of ASD – Part 1
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Making Sense of Autistic Spectrum Disorders, and Mental Health Issues in ASD
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January 21, 2014

Outline
Clinical Features and Natural History of ASD [8:30 -10:00 a.m.]
• Leo Kanner’s lasting contributions
• Behavior Management
• Psychopharmacology for non-medical professionals
• Behaviorism and Its Limitations
Break [10:00 – 10:15]
Mental Illness in ASD: The Elephant in the Room [10:15 – 11:30]
• Neuropsychiatric Co-Morbidity
• Family function / dysfunction
• Does ASD predispose to violent crime?
• Proposed care model

Disclosures
• Dr. Coplan is author of Making Sense of Autistic Spectrum Disorders: Create the brightest future for your child with the best treatment options (Bantam-Dell, 2010), and receives royalties on its sale

• This presentation will include a discussion of off-label drug use

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The NERVOUS CHILD
Quarterly Journal of Psychopathology, Psychotherapy, Mental Hygiene, and Guidance of the Child
AUTISTIC DISTURBANCES OF AFFECTIVE CONTACT
By Leo Kanner

Since 1908, there have come to our attention a number of children whose condition differs so markedly and uniquely from anything reported so far, that each one must be recorded. The case, I believe, will eventually receive a detailed consideration of its fascinating peculiarities.

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

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

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

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**Impaired Socialization**

- “Aloof”
- “Withdrawn”
- Limited eye contact
- Indifferent to others

**Idiosyncratic Language**

- Echolalia
- Delayed Echolalia
- Pronoun Reversal
- Odd inflection

**Repetitious Behaviors**

- Rigid Routines
- Stereotypies
- Lining up / spinning objects

**Unusual sensory responses**

- “Petrified of vacuum cleaner”
- Drawn to, or afraid of, spinning objects
- Mouthing behavior
- Ingesting inedible materials
- Food selectivity
### Kanner, 1938 → 1943

- Gradual improvement in early childhood
  - Social skills
  - Language
  - Cognitive flexibility
  - Sensory Aversions

---

**“Between the ages of 5 and 6 years, they gradually abandon echolalia and learn spontaneously to use personal pronouns.”**

---

**“Language becomes more communicative, at first in the sense of a question-and-answer exercise, and then in the sense of greater spontaneity of sentence formation....”**

---

**“Food is accepted without difficulty. Noises and motions are tolerated more than previously. The panic tantrums subside. The repetitiousness assumes the form of obsessive preoccupations...”**

---

**“Reading skill is acquired quickly, but the children read monotonously, and a story or a moving picture is experienced in unrelated portions rather than in its coherent totality...”**

* “Central coherence”

---

**“Between the ages of 6 and 8, the children begin to play in a group, still never with the other members of the group, but at least on the periphery alongside the group.”**

---

**“People are included in the child’s world to the extent to which they satisfy his needs...”**
Kanner, 1938 → 1943

All of this makes the family feel that, in spite of recognized ‘difference’ from other children, there is progress and improvement.

Leo Kanner, 1943

Natural History: “The temporal course a disease from onset to resolution”

ASD has a Natural History

Quantifying severity of ASD, and changes over time

Social Interaction

“Our child is among us, but not with us.”

Parent of a 4 year old with ASD

1. Social Interaction

- No eye contact
- No physical affection
- Cannot be engaged in imitative tasks
- Intermittent eye contact
- Seeks affection “on his own terms”
- May invite personal space of others (not true affection)
- Engageable in imitative tasks, although with difficulty
- Good eye contact
- Shows interest in others, but often does not know how to join in
- Easily engaged in imitative activities
- Rigid; has difficulty if perceives that rules have been broken
- Difficulty with “Theory of Mind” tasks

Clinical Domain

<table>
<thead>
<tr>
<th>Decreasing Atypicality / Increasing Age</th>
<th>Clinical Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe / Youngest</td>
<td>1. Social Interaction</td>
</tr>
<tr>
<td>Moderate / Older</td>
<td>• No eye contact</td>
</tr>
<tr>
<td>Mild / Older</td>
<td>• No physical affection</td>
</tr>
<tr>
<td></td>
<td>• Cannot be engaged in imitative tasks</td>
</tr>
</tbody>
</table>

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
  - Empathy
  - Humor

Theory of Mind

Q: How does the boy feel?
A: “I don’t know, because I can’t see his mouth.”

Language

“My child talks, but he doesn’t communicate.”

*Mother of a 3 year old with autism*
Language Deficits in ASD

- **Pragmatics**: Use of language for the purpose of social interaction
  - Framing
  - Topic maintenance, Turn taking
  - Conversational repair
- Impaired Pragmatics:
  - Echolalia, delayed echolalia (“scripting”)
  - Lack of framing
  - Off-topic responses
  - Person talks “at” rather than “with” partner

**Prosody**: Tone, Pitch, Volume
- Stilted
- Sing-song
- Robotic
- Pedantic
- Overly loud
- Difficulty “reading” prosodic cues of others
  [ Difficulty with nonverbal cues (body language) ]

---

**Quantifying severity of ASD - 2**

<table>
<thead>
<tr>
<th>Clinical Domain</th>
<th>Decreasing Atypicality / Increasing Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Language</td>
<td>Severe / Youngest</td>
</tr>
<tr>
<td>Pragmatics</td>
<td></td>
</tr>
<tr>
<td>Prosody</td>
<td></td>
</tr>
<tr>
<td>Nonverbal</td>
<td></td>
</tr>
<tr>
<td>No response to</td>
<td></td>
</tr>
<tr>
<td>voice; may “act</td>
<td></td>
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<tr>
<td>deaf”</td>
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</tr>
<tr>
<td>Use of gestures</td>
<td></td>
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<tr>
<td>as a means of</td>
<td></td>
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<tr>
<td>compensating</td>
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<tr>
<td>for absence of</td>
<td></td>
</tr>
<tr>
<td>spoken language</td>
<td></td>
</tr>
<tr>
<td>May use “hand-</td>
<td></td>
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<tr>
<td>over-hand” to</td>
<td></td>
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<tr>
<td>guide caregiver</td>
<td></td>
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<tr>
<td>to desired</td>
<td></td>
</tr>
<tr>
<td>objects</td>
<td></td>
</tr>
<tr>
<td>Echolalia,</td>
<td></td>
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<tr>
<td>Delayed</td>
<td></td>
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<tr>
<td>echolalia</td>
<td></td>
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<tr>
<td>Verbal</td>
<td></td>
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<tr>
<td>Perseveration</td>
<td></td>
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<tr>
<td>(stilted,</td>
<td></td>
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<tr>
<td>sing-song,</td>
<td></td>
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<td>volume)</td>
<td></td>
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<tr>
<td>May use stock</td>
<td></td>
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<tr>
<td>phrases in an</td>
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<tr>
<td>attempt to</td>
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<td>communicate</td>
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<tr>
<td>Makes use of</td>
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<tr>
<td>visual</td>
<td></td>
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<tr>
<td>communication</td>
<td></td>
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<tr>
<td>modalities</td>
<td></td>
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<tr>
<td>(symbol cards;</td>
<td></td>
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<tr>
<td>sign language)</td>
<td></td>
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<tr>
<td>Speaks fluently,</td>
<td></td>
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<tr>
<td>but literal;</td>
<td></td>
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<tr>
<td>lacks understanding of</td>
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<tr>
<td>verbal nuances</td>
<td></td>
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<tr>
<td>Difficulty with</td>
<td></td>
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<tr>
<td>Pragmatics</td>
<td></td>
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<tr>
<td>Framing,</td>
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<tr>
<td>Turn-taking,</td>
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<tr>
<td>Topic</td>
<td></td>
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<tr>
<td>maintenance;</td>
<td></td>
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<tr>
<td>Conversational</td>
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<tr>
<td>repair; talks “at”</td>
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<tr>
<td>rather than “with”</td>
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<tr>
<td>“others” and</td>
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<tr>
<td>Theory of Mind</td>
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<tr>
<td>language tasks</td>
<td></td>
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<tr>
<td>(Fibbing; humor; verbal</td>
<td></td>
</tr>
<tr>
<td>make-believe)</td>
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</tbody>
</table>

**Literal**

Q: Who lives in a tree?
A: Nobody lives in a tree!
Q: What animals live in a tree?
A: Birds, squirrels....
Theory of Mind

Camping

Six boys put up a tent by the side of the river. They brought things to eat with them. When the sun went down, they went into the tent to sleep. In the night, a cow came and began to eat grass around the tent. The boys were afraid. They thought it was a bear.

Q: Is this a sad story, a scary story, or a funny story?

- A scary story, because the boys were scared. (PDD-NOS)
- It was a most unusual story, because you don’t often find cows in the woods. (Asperger Syndrome)

Repetitious Behavior

“My child has over-attention deficit disorder.”

Father of a 10 year old with autism and perseverative behavior

Quantifying severity of ASD - 3

<table>
<thead>
<tr>
<th>Clinical Domain</th>
<th>Severe / Youngest</th>
<th>Moderate / Older</th>
<th>Mild / Old</th>
<th>Decreasing Atypicality / Increasing Age</th>
<th>May demonstrate consciousness awareness of preference for routines; easier to self-modulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
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<tr>
<td>Rigidity</td>
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<tr>
<td>Motoric</td>
<td></td>
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</table>


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<thead>
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<th>Clinical Domain</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td></td>
</tr>
<tr>
<td>3. Repetitious</td>
<td>Decreasing Atypicality / Increasing Age</td>
</tr>
<tr>
<td>Behaviors</td>
<td>Severe / Youngest</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Extreme distress if routines are changed or when required to transition from one task to another, fascination with odd objects (tags, wheels, fans, etc.)</td>
</tr>
<tr>
<td>Motoric</td>
<td>Frequent, intense stereotyped movements (flapping, spinning, toe-walking, finger twiddling)</td>
</tr>
</tbody>
</table>

**Central Coherence**

- Ability to see “the big picture” rather than a collection of individual elements
Tasks requiring Central Coherence (in addition to Theory of Mind)

What's happening in this picture?

What's happening in this picture?

What's happening in this picture?

What's happening in this picture?

What's happening in this picture?

“The man is drowning.”

“The man is swimming, and the car is about to fall on him.”

“Two strangers got into the house and are handing out newspapers.”
What's happening in this picture?
"That girl is trying to steal the other girl's book."

What's happening in this picture?
"The man is trying to fix the truck."

What's happening in this picture?
"The man is playing with his dog. The truck can't go because all the people are in the way."

What's happening in this picture?
"He's cleaning the truck. The driver is distressed because it's taking so long."
Repetitious behavior in ASD

- A direct expression of the underlying biology
  - Cognitive Rigidity
  - Stereotypies
- Stress relief
- A coping mechanism, to offset deficits in Theory of Mind & Central Coherence
  - “Better the devil you know...”

Sensory & Motor Processing

Abnormal responses to sensory stimuli

Quantifying severity of ASD

<table>
<thead>
<tr>
<th>Clinical Domain</th>
<th>Severe / Youngest</th>
<th>Moderate / Older</th>
<th>Mild / Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensormotor: Intense aversion or attraction to specific classes of stimuli</td>
<td>Same, but diminishing intensity</td>
<td>Same, but diminishing intensity</td>
<td></td>
</tr>
<tr>
<td>- Clumsiness</td>
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</tr>
</tbody>
</table>
| - Auditory: Hyperacusis, severe ears, acts deaf
  - Visual: self-stimulation (lights/patterns); looks at objects from odd angles
  - Tactile: rubbing, licking, insulating, deep pressure; aversive to light touch
  - Olfactory: Sniffing
  - Extreme food selectivity
  - Pain threshold
  - Fear: heightened/blunted | | | |
| | | | |

Kanner 1943

It is not easy to evaluate the fact that all of our patients have come of highly intelligent parents. This much is certain, that there is a great deal of obsessiveness in the family background. The very detailed diaries and reports and the frequent remembrance, after several years, that the children had learned to resist twenty-five questions and answers of the Psychoanalytic Catechism, to sing thirty-seven nursery songs, or to discriminate between eighteen symphonies, furnish a telling illustration of parental obsessiveness.

One other fact stands out prominently. In the whole group, there are very few really warmhearted fathers and mothers. For the most part, the parents, grandparents, and collateral are persons strongly preoccupied with abstractions of a scientific, literary, or artistic nature, and limited in genuine interest in people. Even some of the happiest marriages are rather cold and formal affairs. Three of the marriages were dismal failures. The quest for whether or to what extent this fact has contributed to the condition of the children. The children’s loneliness from the beginning of life makes it difficult to attribute the whole picture exclusively to the type of the early parental relations with our patients.

Kanner 1943

We must, then, assume that these children have come into the world with innate inability to form the usual, biologically provided affective contact with people, just as other children come into the world with innate physical or intellectual handicap. If this assumption is correct, a further study of our children may help to furnish concrete criteria regarding the still diffuse notion about the constitutional components of emotional reactivity. For here we seem to have pure-culture examples of inborn autistic disturbances of affective contact.

Kanner’s contributions

• Clinical Description
  – Social, Language, Repetitious behavior, & Sensory aversions / attractions
• Described the Natural History of improvement over time (irrespective of treatment)
• Attribution: An “inborn disturbance of affective contact”

Outline

Clinical Features and Natural History of ASD [8:30 -10:00 a.m.]
  • Leo Kanner’s lasting contributions
    ➢ Behavior Management
    • Psychopharmacology for non-medical professionals
    • Behaviorism and its Limitations
Break [10:00 – 10:15]

Mental Illness in ASD: The Elephant in the Room [10:15 – 11:30]
  • Neuropsychiatric Co-Morbidity
  • Family function / dysfunction
  • Does ASD predispose to violent crime?
  • Proposed care model
Neuropsychological Deficits in Children with ASD

- Abnormal regulation of arousal
- Abnormal regulation of attention
- Cognitive Rigidity
- Abnormal Sensory Processing
- Altered regulation of sleep

Cognitive Rigidity
(Difficulty shifting mental sets)

- "Externalizing Behaviors"
  - Insistently repetitious behavior
  - Difficulty with unmet expectations
  - Perfectionism
  - Compulsions
  - (Aggression, SIB)
- Obsessions
- (Anxiety)
- (Depression)
- "Internalizing Behaviors"

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

IDEA

- IDEA requires the IEP to address “behavior that impedes child’s learning or that of others” (IDEA Section 614(d)(2)(B))
- In practice, this section of IDEA is usually applied only to externalizing behaviors

Perfectionism
Perfectionism

Compulsions

Anxiety

Anxiety

Joseph F: 15 y.o. boy Asperger Syndrome

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

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

“A 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)
Anxiety

“Standing in the Atlantic Ocean. The ocean has a very high surface, up to their mouth, so they can’t breathe.” Six year old boy with ASD and Anxiety.

Depression

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, normal IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

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IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ

IB: 12 yr old male, Mild ASD, Superior IQ
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.

Anxiety, Perfectionism, and Self-Injurious Behavior

Standard Score: 138

How do you kill a blue elephant?

Shoot it with a blue elephant gun.

How do you kill a pink elephant?

Hold it by the trunk until it turns blue, then shoot it with a blue elephant gun.

Unaddressed internalizing behavior often leads to externalizing behavior

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
- Cognitive Behavioral Therapy (CBT)
- SSRIs
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Behaviorism’s Blind Spot

• BCBA’s do not adequately address “internalizing behavior.”

Not seeing the vase
(ignoring internalizing behavior)

Seeing the vase
(recognizing internalizing behavior)

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.”

Positive Behavior Support Plan for Internalizing Behavior

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

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Visual Schedules

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The Incredible 5-Point Scale

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Positive Behavior Support Plan for Internalizing Behavior

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

Selective Serotonin Reuptake Inhibitors (SSRIs)

- **Primary targets**
  - Cognitive Rigidity
  - Anxiety
  - Obsessions (thoughts)
  - Compulsions (behavior)
  - Perfectionism
  - Depression
  - Stereotypies: Probably not
- **“Downstream” benefit:**
  - ♦ Disruptive Behavior
  - ♣ Quality of Life

Abnormal regulation of arousal
Abnormal regulation of attention
Abnormal sensory processing
Agitation
SIB
SSRIs
Cognitive Rigidity
Stereotypies
Rigid

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SSRIs in ASDs

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

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Selective Serotonin Reuptake Inhibitors (SSRIs)

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Comment</th>
</tr>
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<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>
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</tr>
</tbody>
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Pharmacotherapy for anxiety disorders in children and adolescents


- Studies reviewed: 22 RCTs/2,519 participants
  - Short-term (average 11 wks)
  - Mean age 12 yrs
  - Drugs studied (versus placebo)
    - SSRIs: 15 (fluoxetine 6, fluvoxamine 2, paroxetine 3, sertraline 4)
    - SNRIs: 5, (clomipramine 3), venlafaxine 2
    - Benzodiazepines: 2, (alpracalam 1, clonazepam 1)
    - Tricyclic antidepressants: 1 (desipramine)
- Meta-analysis
  - Response rate: Medication 59%; Placebo 31%
  - 7.3% of subjects treated with SSRIs withdrew be/c side effects
  - “The overwhelming majority of evidence of efficacy was for the SSRIs, with the most evidence in paediatric OCD”

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Anxiety after Rx with CBT & Escitalopram

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

MRN: 07-0427

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Anxiety

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

MRN: 07-0427

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

“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

www.drcoplan.com

info@drcoplan.com
Fluoxetine 10 mg/d

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

After one week on Sertraline

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.
Abnormal Regulation of Attention - 1

- Perseveration
  - Inability to “Let go and shift”
  - Gets “stuck”
  - “Overattention Deficit Disorder”
- Compounds the effects of cognitive rigidity

Abnormal Regulation of Attention - 2

- Inattention
  - Inability to focus
  - Impulsive
  - Distractible
Abnormal regulation of arousal

Abnormal regulation of attention
  - Perseveration
  - Inattention

Cognitive Rigidity

Abnormal regulation of sleep

Abnormal Sensory Processing

Routines
  - Stereotypies
  - Agitation
  - Aggression
  - SIB
  - Impulsivity
  - Hyperactivity
  - Stimulants
  - \(\alpha\)-2 agonists

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

Stimulants, NRI's

<table>
<thead>
<tr>
<th>Generic Name(s)</th>
<th>Brand Name(s)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextroamphetamine</td>
<td>Dextrostat</td>
<td>FDA Schedule II</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Concerta, Ritalin, Metadate</td>
<td>FDA Schedule II</td>
</tr>
<tr>
<td>Dextroamphetamine + amphetamine</td>
<td>Adderall</td>
<td>FDA Schedule II</td>
</tr>
<tr>
<td>Dexmethylphenidate</td>
<td>Focalin</td>
<td>FDA Schedule II</td>
</tr>
<tr>
<td>Atomoxetine, Attentin</td>
<td>Strattera</td>
<td>Noradrenaline reuptake inhibitor (NRI), not FDA Schedule II</td>
</tr>
</tbody>
</table>

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>

Benefits
  - \(\downarrow\) Agitation
  - \(\uparrow\) Hyperactivity
  - \(\uparrow\) Attention Span
  - No exacerbation of anxiety / rigidity

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

“It's buying him the split second before he reacts.”

Parents of a child with ASD, agitation, anxiety, and cognitive rigidity after starting guanfacine.

(ML; MRN 13-0839)
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”

Abnormal regulation of arousal

Abnormal regulation of attention

(Perseveration)

(Inattention)

Routines

Stereotypies

Agitation

Aggression

SIB

Impulsivity

Hyperactivity

Atypical neuroleptics

- Relatively less risk of weight gain
- FDA approved for Rx of ASD

Generic Name	 Brand Name	 Comment
Aripiprazole	 Abilify	 Relatively less risk of weight gain
Clozapine	 Clozaril	 Bone marrow suppression
Olanzapine	 Zyprexa	 Greater risk of weight gain
Quetiapine	 Seroquel	 Greater sedation
Risperidone	 Risperdal	 Greater risk of weight gain
Ziprazidone	 Geodon	 Relatively less risk of weight gain
Anger (mood)

JH; 10 yr old male, PDD-NOS

Abnormal regulation of arousal

Abnormal regulation of attention
  (Perseveration)
  (Inattention)

Cognitive Rigidity

Abnormal regulation of sleep

Abnormal Sensory Processing

Agitation

Impulsivity

Hyperactivity

Rigid + Perseverative

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

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

Abnormal regulation of sleep

Abnormal regulation of arousal

Perseverative

Hypo-arousal

Hyper-arousal
Abnormal regulation of arousal
Abnormal regulation of attention
Abnormal regulation of sleep
Abnormal Sensory Processing

Cognitive Rigidity

Routines
Stereotypies
Sensory-Seeking
Agitation
Aggression
SIB
Sensory Overload
Impulsivity
Hyperactivity

Disordered Sleep

Disordered Sleep

The whole is greater than the sum of its parts
Max Wertheimer
Summary

- **Why this child?**
  - What is this child’s developmental Level?
  - Is this stage-appropriate behavior?
  - Does the behavior serve a social function?
    - Escape, access, attention
  - Is the classroom placement appropriate?
    - Language level?
  - Does this behavior occur in other settings?
    - Family factors?
      - Parents consistent at home?
      - Parental psychopathology? (Anxiety, Depression, Alcohol)

- **Behavioral Intervention – Usually**
  - FBA’s usually disregard internalizing behavior

- **Change in classroom setting – sometimes**
  - Shift from rote to inferential learning (2nd - 3rd grade): challenge

- **Medication:** Often

- **Family mental health intervention:** Often

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An ounce of prevention….

- **Identify internalizing behaviors before they lead to externalizing behaviors**
  - Behavior Management Plan that proactively seeks to avert or dissipate anxiety

More on IDEA and FBAs here:
http://www.wrightslaw.com/info/discipl.index.htm
http://www.pent.ca.gov/lgl/addressingbehaviorIDEA.pdf