Behavior From the Inside Out

Marcia L Braden, PhD PC Licensed Psychologist Special Educator

<u>www.marciabraden.com</u>

Behavioral Profile

- Sensory Integration Disorder
- Anxiety Disorders, panic attacks
- Attention problems, hyperactivity
- Mood lability, mood swings
- Difficulty with initiation
- Perseveration
- Difficulty with transitions
- Aggression

Understanding Problem Behavior

- Disruptive to home or school environment
- Interferes with the child's ability to learn
- Interferes with other's ability to learn
- Presents danger to self or to others
- Interferes with social acceptance

In the Beginning...

- We thought behavior occurred in isolation
- We thought that one size of intervention would fit all types of children
- Some believed that the behavioral problems in special populations was just part of the condition and should be accepted without attempting to change it

And Then We Saw the Light



Etiology Left Medicine and Entered Education

- Generalists were no longer able to meet the unique needs of all special populations
- With the revision of IDEA and the accompanying mandates, the one size fits all philosophy was abandoned
- Research indicated that specific neurobiological deficits aligned with behavioral and cognitive challenges

- Biological cause of FX- in >95% of those w/FX there is an expanded mutation, meaning that the DNA is stretched out in the area of the promoter region of *FMR1* (fragile X gene)
- This mutation is an expansion of the nucleotides CGG
- In <5% there is a different mutation in *FMR1* that inactivates the gene

Fragile X Gene *FMR 1* Mutable CGG Repeat Region

Normal CGG repeats 12-44

Gray zone CGG repeats 45-54

Gene unmethylated (active), clinically unaffected, may be risk factor for late onset of a neurological disease like Parkinsons

Premutation (Carrier) CGG repeats 55-200

Gene unmethylated/clinically do not have fragile X syndrome – may get FXTAS or FXPOI

Full Mutation CGG repeats 200-2000

Gene fully or partially methylated/over 95% males affected, 50% females affected

 The promoter is like the light switch of the gene and when the repeats get too big, the gene is switched off



 So then the gene stops making what it is supposed to make like the RNA (ribonucleic acid). The RNA can't make the protein which is called FMRP

> Marcia L. Braden, Ph.D Liz Berry-Kravis MD PhD.

FMRP is very important for the development of the brain and necessary for the brain connections to mature. If the connections aren't made and strengthened, the brain can't work properly
 Clutamete systems are responsible for

 Glutamate systems are responsible for regulating the FMRP. Glutamate is the most common excitatory neuro transmitter in the brain

- The mGluR pathway is activated by group I metabotropic glutamate receptors, which includes mGluR1 and mGluR5
- When these receptors get activated, protein synthesis is initiated (this is a complex process)
- FMRP serves as the inhibitor for the mGluR-dependent protein synthesis
- Glutamate is the accelerator



Marcia L. Braden, Ph.D. Liz Berry-Kravis MD PhD

- You need a balance between the glutamate activation of the mGluR receptor and the FMRP because if you don't stop making the proteins you run the risk of making too much
- In FXS you make too much of specific mgluRregulated proteins and the brain connections can't form properly
- In some parts of the brain the connections get too strong as in parts of the (amygdala) or the anxiety center

And in other areas the connection is too weak like in the cortex and hippocampus of the brain which can cause thinking to be impaired and/or affect short-term memory
Problems in the frontal lobe (mGluR) affect hyperactivity and executive function

- So it is not hard to understand how difficult it is to treat behaviors without accounting for the neurobiology.
- For example, if the problem is in the frontal lobe, the person with FXS will be hyperactive and or distractible.
- If the connections are too strong as in parts of the (amygdala) the person with FXS will be anxious

What I've learned about FXS and Behavior

- They show or tell us what they need
- It is our job to give them a more appropriate way to communicate their needs
- We have to observe the behavior and look for the function of the behavior in order to help the individual change the behavior

The behavioral cycle

Gross and fine motor delays Anxiety Language delays

Neurobiological underpinnings

Sensory dysfunction

Cognitive delays

Response from Parent, teacher Therapist

Running away Throwing shoes Hitting head Pulling hair

How could sensory integration dysfunction affect behavior?

- There are a number of ways that sensory dysfunction contributes to behavioral issues
- If you are in a constant state of arousal because you cannot interpret sensory input, how can you be available for instruction, behavioral redirection or intervention?

Sensory diets, accommodations in the classroom and regulation protocols should be considered when developing behavior intervention plans

How could speech/language delays affect behavior?

 Difficulty communicating needs which likely results in showing an unmet need through a behavioral sequence such as this:

The person with FXS says the room is too noisy His parents misunderstands and tells him he Will have fun

He gets angry and hits his mother

Marcia L Braden, PhD PC

How could gross and fine motor delays affect behavior?

If you can not kick the ball, you do not play If you cannot ride a bike, you are left out If you cannot write your name, you look different If you cannot tie your shoe you look different

Frustration, anger and behavioral outbursts

Characteristics That Affect Behavior Physical Ailments

Prone to ear infections

- Can't always tell us they are sick, but rather show us their discomfort through their behavior
- Anxiety can contribute to GI problems and/or headaches

How could social/psychological deficits affect behavior?

- If you are anxious in social settings, you can't make friends
- It is easier to be with adults than age similar peers because adults repair social interaction and help support successful social collaboration
- If you have social deficits you dislike talking on the phone, attending social events, being with people you don't know, and taking social risks

Most Common Behavior Problems in the Classroom

- Distractibility/ Lack of Interest
- Skill Level Incompatible with Classroom
 Expectations Causing Behavioral Excesses
- Anxiety that manifests in withdrawal, self abuse, hand flapping or other motor excesses
- Hyperactivity caused by over stimulation
- Poor impulse control



How could poor impulse control and hyperactivity affect behavior?

- Difficult to stay focused on the lesson
- The need to move from the desk, stand up, walk around could interrupt the learning of others
- Touching things that are interesting- taking others' things without permission could cause others distress



Most Common Behavior Problems in the Classroom

- Lack of visual supports cause confusion and frustration
- Lack of support for transitions
- Anticipation of schedule changes, novel tasks and environmental chaos



How could difficulty with transitions affect behavior?

- Going to recess (outside to play)
- Leaving the classroom to eat lunch
- Coming to school and leaving school
- Going from home to work
- Leaving one work activity and going to another
- Many other times during the day

Anxiety and Negative Emotions

- Anxiety plays an important role in negative emotions such as anger, rage and irritability
- These feelings can result in behavioral episodes such as aggression and explosive outbursts
- Inconsistent regulation of the arousal functions (attention, motor control, and impulses) contribute to a fear of being out of control Belser and Sudhalter, 2001)

