1. Discuss the relationship between emotional disorders and poor self-regulation skills, bullying behavior, and limited academic success in school.

2. Discuss the neural architecture of emotional functioning including the neurobiology of temperament in children.

3. Explore the neurobiological correlates and treatment options for emotional dysregulation, depression, and anxiety disorders in children.

4. Present a treatment algorithm utilizing multiple intervention methods designed to promote social-emotional learning. Specific counseling techniques, cognitive-behavioral therapy, parent training, and neurofeedback will be discussed to promote emotional wellness in children.
**Emotional Disturbance**

* Children with emotional disturbances remain the single most challenging special education population to educate successfully. WHY?
* Children with emotional disturbances are twice as likely to drop out of school and tend to earn worst grades than children with other disabilities (Reddy, 2001).
* Approximately 1/3rd of ED children receive homebound instruction - more than any other disability group.

**Emotional Disturbance**

* Poverty and family stressors key environmental predictors. Currently 1/3rd of all ED children come from households with an annual income of less than $12,000 per year.
* African Americans represent better than 1/4th of all children labeled emotionally disturbed.
* Approximately half of ED children reside with just one parent.
* Disproportionate rate of physical abuse in children with emotion disturbances – more than any other disability group (Reddy, 2001).

**ED and Behavioral Trends**

National Center for Educational Statistics (2007)

* 78% of schools experience one or more violent crimes.
* Middle schools report highest rates of violent crimes.
* Percentage of kids experiencing violent crimes in 2006-2007 is not much different than 1999, despite curricular changes emphasizing character education.
* A strong relationship exists between committing violent acts and social-emotional disorders in children (Valliant et al., 1999; Worling, 2001)
* A strong relationship also exists between ED and bullying.
Bullying is defined by acts of intentional harm over time to exert power and control over another (Pepler & Craig, 2000).

A strong relationship also exists between ED and bullying. For instance, victims of bullying are often unpopular, socially isolated, and report low self-esteem (Hawker & Boulton, 2000).

Children with disabilities in regular classroom settings are most vulnerable to being bullied (Mishna, 2003). In fact, kids who are obese, gay, or have disabilities are up to 63% more likely to be bullied than other children.

Children who engage in bullying behavior tend to be impulsive, dominant in relationships, and view violence as a positive means for resolving conflict (Carran & Kellner, 2008).

In summary: Children with emotional disturbances are most likely to be involved in bullying/victim relationship. (Carran & Kellner, 2008)

<table>
<thead>
<tr>
<th>Type of Bullying</th>
<th>Number of Students</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullied</td>
<td>8,166,000</td>
<td>31.7%</td>
</tr>
<tr>
<td>Made fun of, insults</td>
<td>5,390,000</td>
<td>21.0%</td>
</tr>
<tr>
<td>Subject of rumors</td>
<td>4,636,000</td>
<td>19.1%</td>
</tr>
<tr>
<td>Pushed, shoved, spit</td>
<td>2,819,000</td>
<td>11.0%</td>
</tr>
<tr>
<td>Destruction of property</td>
<td>1,076,000</td>
<td>4.2%</td>
</tr>
<tr>
<td>Cyber-bullied</td>
<td>940,000</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

ADDITIONAL FREQUENCY DATA:

- Males ............30.3%
- Females .........33.2%
- Grade 6 ........42.7%
- Grade 12 ........23.0%
- Whites ...........34.1%
- Income ..........$7500 - $14,999

* Boys tend to be more aggressive, girls use more social isolation

Meta-analysis demonstrated behavior modification one of the most effective intervention strategies for managing classroom behavior (Lloyd, Forness, & Kavale, 1998).

Dismisses observable behavior as being reflective of brain functioning. No need for introspection, or analysis of feelings, thoughts and moods.

Goal is to induce task specific performance, as opposed to the internalization of self-regulatory behaviors (Cicerone, 2002).

Does changing behavior change emotions??
Neuropsychology is the study of brain-behavioral relationships with respect to learning and behavior. It presumes that a child’s ability to adapt to the social demands of their environment begins with the functional organization of the brain.

* Observable behavior is a striving for homeostasis and balance occurring in the brain.
* Therefore, treatment for behavioral and emotional disorders should focus upon both intrinsic and extrinsic factors, rather than simply exploring rational functions of behavior (i.e. BIP’s assume child is trying to escape, seek attention, control, etc.).

Children with emotional disturbances tend to be unsuccessful in school due in part to a lack self regulation skills in one or more of the following domains:

a) Behavioral Self-Regulation - poor inhibition of impulses and motor control.
b) Emotional Self-Regulation - and inability to self-regulate moods and reactions to social situations.
c) Attention Self-Regulation - an inability to modulate and sustain attention.

A neuropsychological approach does not try to put semantic labels on observable behavior, but instead tries to identify core brain regions responsible for the dysfunction.

* A hyperactive amygdala source of most anxiety problems.
* Kids with anxiety issues need structure in their day to reduce chances for unexpected and unfamiliar events.
* Serotonin can help calm down amygdala, like a warm blanket over brain. It acts on 18 receptors throughout the brain, a key transmitter that converts short-term to long-term memory (Kandel, 2006).

(2) Hippocampus - located in medial temporal lobe and responsible for facilitating memory functioning. This structure also involved with emotional learning.

* Emotional learning (classical conditioning) can take place outside of conscious control with paired association between amygdala and hippocampus .......a phobia!!
* Chronic stress from abuse or neglect releases cortisol which reduces hippocampal volume (8%)and leads to memory loss and clouded thinking.
* A hypervigilant hippocampus develops from chronic stress thereby priming the system to over-react to benign situations (PTSD).
The Cerebral Orchestra of Emotions: Subcortical Regions

(3) **Nucleus Accumbens** - located in forebrain and part of basal ganglia.
* Reward center of brain which is activated in anticipation of reward.
* Most recreational drugs including cocaine and amphetamines increase **dopamine** in this area.
* Involved in task motivation and rewards.
* Under-activity of reward center of our brain associated with anhedonia and depression.

**Side note:** * Most patients report the absence of joy is more painful than the presence of sadness (Davidson & Begley, 2012).
(1) **Orbitofrontal cortex** - region of the brain responsible for ascribing an emotional valence or value judgment to another's feelings. Often triggers an automatic social skills response (Rolls, 2004).
- Has rich interconnections with the limbic system.
- Responsible for *emotional executive functioning*.
- Self-regulation of behavior as highest levels of emotional decision making dictated by this brain region.

(2) **Ventrolateral prefrontal cortex** – responsible for *response inhibition* and *emotional regulation*.
- Has rich interconnections with the limbic system.
- Also involved with *emotional executive functioning*.
- Situated adjacent to orbitofrontal cortex and involved in the ability to take another’s perspective on an emotional event (*theory of mind*).
(3) Anterior Cingulate Cortex – task motivation and reward based decision making. Severe damage leads to akinetic mutism. Selective attention allows us to shift our focus from the outside world of objects and events toward the inside world of thoughts and ideas (self awareness). Helps provide constraint over behavior. The brain’s gear shifter between cognition and emotion. When stuck, can result in obsessive and ritualistic types of behaviors, as well as cognitive inflexibility (Swingle, 2007). Key brain region in developing “theory of mind”.

Vignette #1

Brianna is celebrating her 5th birthday and is brimming with excitement now that the time has come to open gifts (nucleus accumbens). Her first gift is from Megan, her best friend, and is a Cinderella dress, slippers, and crown. She responds with intense excitement (amygdala/ orbitofrontal cortex). Brianna races to Megan and impulsively gives her a huge hug (ventralateral prefrontal cortex). After opening the rest of the presents, Brianna realizes that Megan’s birthday is next week and wonders how Megan would feel if she bought her the new Disney Leapster (anterior cingulate cortex).
1. Emotional Dysregulation – excessive worry, sadness, fearfulness, and overly intense emotional reactions.

2. Avoidance Behaviors – avoid people, places, or activities.


4. Peer Relationships – few or no connections with others, peer bullying, or victimizing relationships.

5. Impulsive Behaviors – overactive with poor emotional self-regulation skills.


**MANAGING EXPLOSIVE BEHAVIORS**

* What can teachers and parents do to curb aggression?

**Diffuse the Situation** (dorsolateral pfc)
- humor
- distraction

**De-escalate the Situation** (amygdala)
- provide a means to save face
- balance of power

**Disengage the Emotion** (orbitofrontal cortex)
- self calming strategies
- breathing and meditation

**Re-engage a new Behavior** (dorsolateral prefrontal cortex)
- behavior management plan
- cognitive behavioral therapy

**Reflection and Learning** (anterior cingulate)
- empathy and insight
- tolerance and emotional flexibility
Classroom Strategies for Emotional Dysregulation

a) Preferential seating in class away from distractions.
b) An opportunity to take tests and quizzes away from distractions or in another classroom.
c) Use of a sensory devices or other items to manipulate while working.
d) Utilizing a behavioral incentive system for timely and independent work completion.
e) Use of a crisis pass when needed...designate where student will go.
f) Having a “school coach” or mentor check in with the student daily.
g) Giving a “Two Minute Warning” prior to transitioning from one activity to another.

h) Using a Behavior Intervention Program (BIP) with home rewards.
i) Modifying or “chunking” longer assignments into more manageable steps.
j) Creating a “quiet zone” area in the class with headphones and sensory devices.
k) Using a nonverbal cueing system when distressed.
l) Minimize school support personnel giving consequences......this greatly reduces teacher’s ability to exercise authority.
m) Reinforce with privileges, and not food or toys.
n) Avoid long-term reinforcements and keep in the moment.
o) Use tablets or ipads to track behavior in real time......mirrors to reinforce emotions.
p) DEVELOP EMPATHY IN CHILDREN!!!

Teaching Empathy to Kids

· Modeling behavior
· Social Stories
· Play Therapy focusing on perspective taking.
· Learn to read facial recognition and nonverbal cues.
· Cooperative instead of competitive activities.
· Develop intrinsic reinforcers instead of extrinsic rewards and punishments.
· Practice solving moral dilemmas.
· Monitor gratuitous violence.
· Peer mediation
**The Neurobiological Architecture of Empathy**

**Mirror Neurons**: Present in the prefrontal cortex of most mammalian brains (Decety & Jackson, 2004).
- V.S. Ramachandran claimed mirror neurons may be the single most important discovery in neuroscience in last decade.
- Mirror neurons fire when experiencing an emotion or when observing others engaged in self-same emotion (i.e. crying at the movies)
- May be neurobiological signature for **Empathy**!
- Mirror neuron system dysfunctional in Autism.

---

**The Neurobiological Architecture of Empathy**

**Mirror Neurons**: Keysers and Gazzola (2006) reported that persons demonstrating high levels of empathic behavior tend to have stronger activations in the mirror system for emotions.
- Conversely, persons with more dysfunctional mirror neuron systems, such as **autistic children**, have a litany of social-emotional limitations including poor self-awareness, a lack of introspection, the inability to imitate when young, and poor affective matching (Ramachandran & Oberman, 2006).

---

**Mirror Neurons in the Brain**
Neurofeedback is a learning paradigm that helps develop control over brain functions regulated autonomously.

- Can be used to treat arousal disturbances. In mania, the brain is hyper-aroused, particularly in the right hemisphere, whereas in depression, the brain is under-aroused, particularly in the left hemisphere. In anxiety, back of the brain is over-aroused and in ADHD, frontal lobes often under-aroused.

- Television, alcohol, and marijuana all slow down the brain by increasing alpha waves...often in back of head.

- Neurofeedback differs from medication in that the child learns to self-regulate their own brain functioning. With respect to medication, there is no learning involved.

Research for using neurofeedback on a range of disorders ranging from anxiety disorders, emotional regulation, ADHD, autistic symptoms, mood disorders, depression, TBI, migraines, and tics is extremely promising, though admittedly incomplete (Lubar, 1995; Sterman, 2000; Demos, 2005; Swingle, 2007; Budzynski, et al., 2009).

International Society for Neurofeedback & Research (ISNR) at www.isnr.org is an excellent source of information as well as the Journal of Neurotherapy for research in this field.

Level 1 Support from American Academy of Pediatrics for ADHD
1) SSRI’s may be the most effective treatment for bottom-up disorders which occur outside of conscious control (Reinblatt & Riddle, 2007). Shortage of serotonin is associated with: anxiety, panic, phobias, PTSD, obsessions, compulsions and eating disorders.

2) Exposure therapy can also quiet an overactive amygdala in cases of anxiety disorders (Goossens et al. 2007).

3) Children with strong interpersonal attachments to caregivers can develop far greater resiliency to stress than children with insecure attachments (Adams et al., 2007).

4) Cognitive behavior therapy is equally as effective, or in some cases, can surpass medication (Pine, 2008). Most useful with “top-down” disorders, and allow 4 months for 50% reduction in symptoms (Khalid-Khan et al., 2007).

5) Structured class settings that minimize unpredictability best for kids with anxiety disorders.

6) Neurofeedback aimed at diminishing arousal (beta waves) while simultaneously increasing the amplitude of alpha waves holds much promise for many anxiety conditions.

side note: Use CBT for mild impairment for 4 months. If 50% reduction in symptoms is not observed, SSRI meds recommended.

Cognitive Rehearsal: the child recalls a problematic situation and discussion ensues regarding the best way to handle the situation.

Validity Testing: the child attempts to defend a faulty interpretation of a situation. The goal of therapy is to render these interpretations invalid.

Writing in Journal: maintain a journal rating the intensity of a situation as well as maladaptive thoughts that accompanied the situation. Eventually, the child should begin to accumulate a repertoire of positive thoughts to replace the maladaptive ones.

Modeling: role play and demonstrate specific relaxation techniques in various anxiety producing situations.

Breathing Techniques: focus on breathing from the diaphragm, not the chest, and exhaling on longer slower breaths. Strive for 6-8 breaths per minute. Practice breathing techniques when visualizing an anxiety provoking situation.

Homework: assign a task for the child involving a specific situation likely to induce anxiety, and a more adaptive cognitive thought.
5 Therapeutic Treatments for Depression

1) Cognitive behavioral therapy aimed at replacing ANT’s (automatic negative thoughts) with more adaptable cognitions.
2) Play therapy techniques teaching young children how to identify their feelings and better ascribe verbal labels to them, as well as monitoring feelings with homework assignments.
3) Utilizing neurofeedback techniques aimed at diminishing the amplitude of theta (slow) waves in the cortex...particularly the left hemisphere.
4) Psychopharmacological approaches (SSRI’s).
5) Increasing the number of interpersonal connections in a child’s life (IPT).

Social Emotional Academic Learning

What Does SEAL Address?

~ 5 Big Ideas

1) Recognizing one’s emotions and values as well as one’s strengths and limitations
2) Managing emotions and behaviors to achieve one’s goals
3) Showing understanding and empathy for others
4) Making effective, constructive choices about personal and social behavior
5) Forming positive relationships, working as teams, solving effectively with conflict

© 2009, Collaborative for Academic, Social, and Emotional Learning

<table>
<thead>
<tr>
<th>TEST</th>
<th>AGE RANGE</th>
<th>AUTHORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASC-II: Behavioral Rating Scale</td>
<td>2-21</td>
<td>Randy Kamphouse &amp; Cecil Reynolds</td>
</tr>
<tr>
<td>1) Behavioral and Emotional Screening System (BESS)</td>
<td>2-18</td>
<td>Keith Conners</td>
</tr>
<tr>
<td>2) BASC-II Progress Monitor</td>
<td>2-18</td>
<td>Thomas Achenbach &amp; Leslie Reynolds</td>
</tr>
<tr>
<td>3) BASC-II Classroom Intervention Guide</td>
<td>5-18</td>
<td>Jack Naglieri, Paul LeBuffe, Steven Plummer</td>
</tr>
<tr>
<td>4) BASC-II Intervention Guide</td>
<td>5-18</td>
<td>Jack Naglieri, Paul LeBuffe, Steven Plummer</td>
</tr>
<tr>
<td>Beck Youth Inventory II (anxiety, depression, anger, disruptive behavior, self-concept)</td>
<td>7-18</td>
<td>Judith &amp; Aaron Beck</td>
</tr>
<tr>
<td>Children's Depression Inventory</td>
<td>7-17</td>
<td>Mari Kovacs</td>
</tr>
<tr>
<td>Revised Children's Manifest Anxiety Scale – 2</td>
<td>6-17</td>
<td>Cecil Reynolds &amp; Bert Richardson</td>
</tr>
<tr>
<td>Clinical Assessment of Behavior</td>
<td>2-18</td>
<td>Bruce Brockham</td>
</tr>
<tr>
<td>RCDS/RADS</td>
<td>Grades 3 &amp; up</td>
<td>William Reynolds</td>
</tr>
<tr>
<td>Social Emotional Assets and Resilience Scale (SERA)</td>
<td>5-18</td>
<td>Kenneth Merrill</td>
</tr>
<tr>
<td>Millon Adolescent Clinical Inventory</td>
<td>13-19</td>
<td>Theodore Millon</td>
</tr>
<tr>
<td>MMPI-A</td>
<td>14-18</td>
<td>Butcher et al.</td>
</tr>
</tbody>
</table>
**ADDITIONAL MEASURES/PRODUCTS**

**Behavior Module of AIMSweb:**
- BESS & SSIS Performance Screening Guides can be completed by teachers online in AIMSweb.
- BASC II Intervention and SSIS Intervention Guide included with AIMSweb.

**Social Skills Improvement System:**
- **Performance Screening Guide** - teacher screening tool to determine which students are at-risk for social skills problems.
- **SSIS Classwide Intervention Program** - a curriculum for teaching social skills. Includes a teacher guide and student lesson booklet and video clips.
- **SSIS Rating Scales** - scoring software links results with interventions.
- **SSIS Intervention Guide** - a handbook with scripts for delivering 20 targeted social skills interventions.

**Reynolds Bully Victimization Scales for Schools** - also includes a school violence anxiety scale to assess student concerns (grades 3-12)

**Resiliency Scales for Children and Adolescents** - yields a Personal Vulnerability Index and 10 subscales (ages 9-18)

**Strong Kids Curriculum** - a series of 20 lessons, each 45 minutes, that helps students to develop empathy, resolve conflict, and improve social skills (Kenneth Merrell)

---

**Concluding Thoughts**

1) Emotional dysfunction is not necessarily rooted in immorality but rather in neurobiology. Nevertheless, we are all to be held accountable by the choices we make.

2) Remember…..genes load the gun, but the environment pulls the trigger!

3) Not all behavior has a rational function (teleology). Antecedent → Behavior → Consequence should be: Antecedent (intrinsic) → Executive Functioning → Behavior → Brain Homeostasis.

4) Medication in combination with cognitive behavioral therapy and environmental supports key to success. Neurofeedback may be the wave of the future.