INNOVATIVE INTERVENTIONS TO SUPPORT FAMILIES LIVING IN POVERTY

Webinar 1:

Executive Function and Self Regulation in Context:
The Role of Stress and Poverty and Opportunities for Intervention

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Outline

- Executive Function & Self-Regulation in Children and Adults
  - What are they? Developmental patterns?
- EF in Context
  - What influences the development and deployment of EF and SR?
- Strategies and Opportunities for Intervention
  - What should/can be targeted? How?
  - An example, SECURe for Parents and Children
- Implications
Executive Functions are...

Cognitive processes located in the prefrontal cortex that coordinate and integrate the broader functions of thought, memory, emotions, and motor movement.

Core Brain Processes
- Working Memory
- Attention Control
- Attention Shifting (Cog. Flex.)
- Response Inhibition

Higher-Order Thinking, Purposeful, Goal-Directed Behavior
(that is relevant to and the same for many domains, e.g., parenting, higher education, workforce participation)

EFs are Foundational...

Academic Behaviors & Work Habits
- Focused & Engaged Learning
- Transitioning, Planning, Organizing

Empathy & Perspective-Taking
- Emotion & Behavior Regulation
- Emotion Knowledge & Expression

Conflict Resolution & Problem Solving
- Understanding Social Cues
- Prosocial Behavior & Cooperation

Executive Functions:
- Working Memory
- Attention Shifting/Flexibility
- Response Inhibition
In children, typically defined as....

- **Working Memory**
  - The ability to hold a piece of information in mind and manipulate or update it over a short amount of time.
  - E.g., the ability to remember 2-3 simple steps or directions, in the face of minor distractions or interruptions.

- **Attention Control**
  - The ability to choose what to pay attention and what to ignore, and to maintain attention in a particular direction.
  - E.g., can stay on task even when it gets difficult or child is tired, can concentrate on a project for sustained period of time, even when left alone.

- **Response Inhibition**
  - The ability to inhibit responses/behaviors inappropriate to context or task demands.
  - E.g., raises hand instead of shouting out answer; persists when task gets hard.

- **Attention Shifting (Cog. Flex.)**
  - The ability to switch between thinking about two different concepts, and to think about multiple concepts simultaneously.
  - E.g., shifts from one part of a problem to another; compares and contrasts ideas or perspectives; shifts from one task to another.

In adults, often referred to as...

- **Planning**
  - Identifying long-term goals and obstacles and solutions to reaching them, specifying sequence of steps, setting interim goals.
  - E.g., making arrangements for child care, getting yourself ready for work while getting children up and ready for school.

- **Self-Control**
  - Controlling one’s thoughts, feelings, behavior.
  - E.g., not getting distracted from a goal, not getting angry, not making an impulsive decision.

- **Monitoring**
  - Awareness of thoughts, feelings, behavior, performance, progress, others’ behavior, context and surroundings.
  - E.g., what is working about this situation, is my behavior appropriate to this setting, what are her facial cues telling me?

These embody many of the component skills in the slide above...e.g., planning requires working memory, self-control employs attention control, shifting and response inhibition, and monitoring includes attention control, etc.
EFs are Inter-Related...

In children, the processes/skills develop and becoming increasingly coordinated over time.

- To leave the house in the a.m. ...
  
  Socks on before shoes (WM); leave the baseball cards on the counter (AS, RI); put lunch, snack, homework in backpack (WM, don’t eat snack - RI); tie shoes (WM, RI, AS) – all in the context of major distractions, time pressure, and ...

Adult & Child EF-linked Behaviors are Inter-Related...

In children the processes/skills develop and becoming increasingly coordinated over time.

- To leave the house in the a.m. ...
  
  Socks on before shoes (WM); leave the baseball cards on the counter (AS, RI); put lunch, snack, homework in backpack (WM, don’t eat snack - RI); tie shoes (WM, RI, AS) – all in the context of major distractions, time pressure, and ...

In adults the processes/skills are coordinated and inter-related.

- To leave the house in the a.m. ...
  
  Plan to come back, remember house and car keys, etc. etc., monitor and manage all child activities above (maintain self control) – all in the context of major distractions, time pressure, and...
Children are not born with these skills...they grow and improve, especially between the ages of 3-6 years.

A second period of expansion, during transition to adulthood, work, and parenting.

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A Model for Understanding EF/SR in Behavior

Regulatory Gestalt: over time, skills across domains are integrated into coherent system of regulatory functioning

Executive Function: a foundation of core brain capacities and processes that support regulatory functioning across multiple domains and contexts.

Each Regulatory Domain has specific knowledge, skills, and experiences/practice that support regulation in that domain.

Executive Functions: Core Processes and Skills
- Working Memory
- Attention Control
- Attention Shifting
- Response Inhibition

Regulation Gestalt: of Self and in Social Interaction

Cognitive Regulation
Emotion Regulation
Social Regulation

E.g., Moffitt et al. (2011, PNAS): Self-control measured with observer, parent, teacher, and self-report ratings during the first decade of life predicts income, savings behavior, financial security, occupational prestige, physical and mental health, substance use, and (lack of) criminal convictions.

Academic Skills and Behaviors
Social-Emotional Skills, Behaviors, Interactions
Work-related Skills and Behaviors
EF/SR in Context: Poverty, Risk & Stress

1 in 5 children growing up in poverty have increased risk for social-emotional difficulty (Evans & English, 2002; Evans, 2004)

Children who experience early adversity are more likely to exhibit challenges with executive functioning and self-regulation (Gunnar, 2000; Bos et al, 2009)

The chronic fear, anxiety, and stress associated with unpredictable or chaotic environments can disrupt brain architecture, particularly those involved with executive function and emotion management.

Environmental Stress

As human beings, we face different types of stress.

<table>
<thead>
<tr>
<th>Positive stress</th>
<th>Tolerable stress</th>
<th>Toxic stress</th>
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<tbody>
<tr>
<td>is a normal part of healthy development.</td>
<td>is more severe but the effects can be managed.</td>
<td>is strong, prolonged stress and can disrupt brain development, and increase risk of disease and cognitive impairment.</td>
</tr>
</tbody>
</table>

It leads to brief increases in heart rate and mild elevations in stress hormone levels. It leads to serious but temporary stress responses buffered by supportive relationships.
Toxic Stress

Toxic stress typically results from...

... a deeply distressing or disturbing experience.

... an accumulation of distressing or disturbing experiences over time.

Research from the Center on the Developing Child, Harvard University

Toxic Stress and Trauma

We often refer to persistent toxic stress as complex trauma.

Trauma affects our brain chemistry in ways that can challenge learning, including making it more difficult to remember, pay attention, self-regulate, plan and organize our thoughts.
Toxic Stress, Trauma and the Brain

**Prefrontal Cortex:**
- Decision or “Control Center” of the brain ... slow thinking
- Planning, goal setting, inhibiting impulses

**Amygdala and limbic structures:**
- Reactive center of the brain
- Arousal, fear, anxiety, anger, motivation, aggression
- Fast thinking

**Brain regions are closely linked via “Stress Response System”**

... BUT, this is NOT always adaptive in everyday situations: school, home, work, relationships ... undermines EF and goal-directed behavior

Bottom Line...

Low-income children – and adults – who face *toxic* levels of *stress* are at higher risk for behavioral and neurocognitive difficulties with executive function and self-regulation.

**The challenge in thinking about this all:**
- It’s not simply deficits...it’s that stress impedes the deployment of EFs and their related regulated behaviors.
- It is harder to use what you know, to plan and monitor, and to access your better judgment under conditions of trauma, stress and strain – *and this is true for everyone.*
- The distance between reactivity, making an impulsive decision, etc. is shorter for those with a history of toxic stress, or who are experiencing it – or other barriers (exhaustion, etc.) – in the moment.
Opportunities for Intervention

Executive functions and self-regulation skills are amenable to change. Strategies and approaches characteristic of effective interventions:

- Short and targeted activities
- Multiple opportunities to practice
- Progressively more difficult/demanding
- Supportive, encouraging environment
- Embedded in social interactions and relationships
- Role models, mentors and coaches are the best support
  - the skills are learned best via exposure, instruction, and practice,
  - and at its core is about noticing the moment and slowing down before doing something

An example approach: SECURe

- **Social, Emotional, and Cognitive Understanding and Regulation in education**
- A strategy that is...
  - Child, teacher/staff, and family focused
  - Is focused on young children and their families
    - vertically aligned PreK-3rd
    - horizontally implemented throughout school & with families
  - grounded in supporting the development of executive function and regulatory skills
SECURe Components

- Children
- School & After School
- PreK-3
- Parents
- School Adults
- Homes & Neighborhoods

Workshops & Technology

SECURe Approach

What are the supports?
- Staff & Family Workshops
- Classroom Support
- Documentation & Data Use
- Training

What is implemented?
- Lessons
- Activities
- Structures
- Routines

What results?
- Regulated Everyday Interactions

Activities:
- Build core executive function and regulatory skills...
- Increase exposure to key academic concepts and content
- Can be flexibly implemented in various settings (classrooms, hallways, gym, lunch, after-school, etc.)
- Address adult capacity - can be modeled by adults and provide a scaffold for adults

And are...
- Frequent, short, targeted
- Physically engaging, contextually relevant
- Progressively more difficult and demanding over time
- Provide opportunities for positive feedback
SECURe Families: A 2Gen Approach

- Extending the evidence-based, child-focused program for Prek-3 (SECURe)
- Assumption is that executive function and self-regulation are key skills for both children and adults and are central to *interactions*
- Focuses on parenting as a common experience and motivating context for building adult skills that could transfer to other contexts
- Monthly workshops Oct-June, 2 hrs plus follow-up, facilitated by a mental health consultant

What? When? Where?

**What?** STRESS MANAGEMENT
- Interrupting cycles of stress ↔ problem behavior
- Provide direct support for adults

**When?** SALIENT DEVELOPMENTAL MOMENTS

**Where?** HOME & PARENTING
- Common challenges of parenting
- 2Gen approach aligned with school
Interrupting the stress cycle and putting EF back in control...

**Stressed Self**
- Emotions-driven
- Reactive
- Negative
- Punitive

**Best Self**
- Calm, Thoughtful
- Planful
- Positive
- Supportive

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**Workshop Cycle**

- **Learn**
- **Plan**
- **Notice**
- **Try**
- **Reflect**
Cycles of Skill-Building and Content

The *structure* and cycle of the monthly workshops builds:

- Planning
- Goal-Setting
- Reflection

→ *Key EF skills for adults*

The *content* of workshop materials and SECURe strategies emphasize:

- Self-Control
- Stress Management & Emotion Skills
- Positive Communication

→ *Key self-reg skills for adult & child*

Meta Concepts

SECURe Families activities are an opportunity to build core EF skills that can then be transferred to other contexts.
Example Strategies: Adult SR

What is adult self-regulation?
The ability to manage stress and challenging situations in positive and productive ways

Managing children’s everyday behavior...
- Unpredictable
- Emotions run high
- Challenging at important/stressful times of day
- Adults have little time for breaks

De-Escalating Adult Stress

Child stress ➔ Child behavior ➔ Adult response to behavior ➔ Adult stress ➔ Child stress
Example Strategies: Adult SR

Pressure Point Activity Sheet

Consider the activities/routines that occur each day, which involve your child(ren)....

Map them here:

1. Looking over this list, what are the most difficult times of your day – the pressure points?
2. Where are you during these moments?
3. What behaviors are occurring that make these moments difficult?
4. What do you think or feel during these moments?

Describing a Pressure Point

Pick 1 Pressure Point and imagine you are describing this event to your best friend, trusted mentor, or therapist... what would you tell them about your thoughts and feelings in the moment?

Answer the following questions:

• What happens during that moment? What do you see?
• What do you think?
• How do you feel?
• How do you act?
• Do you have any physical symptoms of stress?
What Can I Do?

Positive Mantra

Negative Thoughts and Feelings ➔ Unproductive Words, Actions

THIS TOO SHALL PASS.
Positive Mantra

• Something you say over and over to yourself in a difficult or stressful situation

• Examples:
  – “Okay, I know how to handle this.”
  – “This isn’t his/her fault. She/he is still learning.”
  – “This isn’t my fault, but I can help.”
  – “I’ve seen this before. I have an idea.”
  – “This is part of what we are learning.”

• GOAL: Replace negative thoughts with positive thoughts

Child and Adult Strategies

Strategies that help us to:
  Notice stress
  Document stress
  Communicate about stress
  Manage stress
Noticing Stress

-- At this stress level, I tend to feel angry, stressed, restless, or frustrated:

-- At this stress level, I tend to feel energized, relaxed, or composed:

-- At this stress level, I tend to feel disconnected, bored, or drained:

**Child Connection**

Feelings Thermometer
Documenting Stress: Post-It-Notes

- Quick method of documenting stress levels
- 3 times a day, randomly
- 2-3 days per week

Date/Time/Place:

Level on Stress-o-Meter:

What does the classroom look like / sound like / feel like?

Documenting Patterns of Stress: Stress Log

Date/Time/Place:

Level on Stress-o-Meter:

What does the classroom look like / sound like / feel like?

<table>
<thead>
<tr>
<th>Time and Place</th>
<th>Stress Thermometer Level</th>
<th>What did I think?</th>
<th>How did I feel?</th>
<th>What did I do or say?</th>
<th>What did the classroom look like / sound like / feel like?</th>
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**Child Connection**

- Use **“Think Aloud”** to scaffold children’s ability to:
  - Notice, describe, and document what’s happening (w/out judgement or anger)
  - Describe what **you think, say, or do** in similar situations
    - How do you think about these situations?
    - What do you tell yourself?
  - Share your successful strategies!

Adults often use strategies without realizing it. Telling children what we do when faced with a similar challenge can help them learn how to be successful.

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**Communicating Stress/Feelings**

- Use **“I Messages”** to:
  - Respond to actions from specific individuals that act as a trigger to escalated stress levels
  - Acknowledge your own feelings

I feel _________ because _______.

(Expr. seq.) (Expr. seq.)
Communicating Stress/Feelings

**Child Connection**

- Actively encourage children to use “I” Messages in times of joy or distress
  - “I see that your eyes are watering up. Can you give an “I” Message so I know how you are feeling?”
  - “It’s okay to be angry, but I can’t let you hit. You can use an “I” Message so I know how you are feeling.”

```
I feel ________ because _____.
```

Managing Stress with Children: Play a Calming Brain Game

- Wiggle Cool Down
- Animal Cool Down
- Pass the Bell
- On My Pizza, I Like...
- I Spy
- Who Stole the Honey Pot
- Telephone
- Silly Sounds

Play these in chaotic moments to de-stress or re-focus.
Managing Stress with Children:
“Moody Cow Meditates” & Mind Jar Routine

A jar with still water represents a clear and calm mind

Shake it up! A jar with sparkles spinning around represents an upset, overwhelmed, or busy mind

Watch as the sparkles slowly settle to the bottom of the jar, calming your mind

https://youtu.be/QNmM6H6tqMc

Implications

1. We all face challenges with EF/SR, and related behaviors.
2. Consider what parents/adults say are their biggest challenges – provide support in places that are meaningful to them:
   – Acute stress management
   – Children’s behavior
   – Access to resources
3. Concrete supports (things to actually do at key moments), and a process whereby the skill itself is made explicit (=transferability).
Thank you!

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