Kids, Stress, and Somatic Symptoms

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August 3, 2013
Disclosures

- None pertinent to this talk
Learning Objectives

• Cognitive development and how this affects the experience and impact of stress

• Recognizing somatic expression of stressors, and changes with time and development

• Behavioral treatments school nurses can use or support:
  – Responding to pain exacerbations with compassion
  – Emphasizing functioning
  – Avoiding further reinforcement of symptoms
  – Encouraging return-to-class and independent pain management

• Discussion and questions
Stressors vary by age

Cognitive Development

- Stressors and fears change, in part, due to cognitive development
- Many theories on cognitive development
- Perhaps best-known is Piaget’s theory
  - Others generally add more recognition of impact of language and the social context of developments in thinking and ability (e.g. Vygotsky)
    - Four main stages (most have substages…)
      - Sensorimotor (0 to 2 years)
      - Preoperational (2 to 6-7)
      - Concrete operational (6-7 to 12-13)
      - Formal operations (12-13)
    - Not going to worry much about the first two stages…
Cognitive Development

• There are typical ages for these cognitive milestones, but…

• *Not all progress at the same rate!*


Concrete Operational

- Concrete operational (6-7 to 12-13)
  - Thought processes become more logical and “adult-like”
  - Can only solve problems related to concrete objects or events
  - Can use observations to solve a problem (inductive)
  - Struggle to use a general rule to predict (deductive)
Childhood fears

• Fears are common
  – Nearly 50% of kids between 6 and 12 have “many” fears and concerns

• Common fears / stressors:
  – Natural events (e.g. weather) when don’t understand about them.
  – Being left alone, the dark, animals, fires, high places
  – Younger kids: “Bad people” in the world, and supernatural things (ghosts, etc)
  – Older kids: Bodily injury, death, health of family

• Natural for these to wax and wane, though can get “stuck”
Some things always cause worry

- Family discord
- Parental divorce
- Bullying
- Witnessing or experiencing something traumatic
- Abuse
Formal Operations

• Formal operations (12-13 through adulthood)
  – Can use deductive logic, including hypothetical situations
  – Can think about abstract concepts, including hypothetical consequences of their actions
  – Can use trial-and-error to solve problems
Adolescent characteristics...

- Despite “formal operations,” we may wonder about the logic of adolescent thinking!
Adolescent characteristics...

• Adolescent thinking characteristics
  – Egocentrism
    • preoccupation with own feelings/thoughts
  – Imaginary Audience
    • believe that one is the focus of others’ thoughts and attention
  – Personal Fable
    • no one else can possibly understand own unique experiences
  – Illusion of Invulnerability
    • bad things only happen to other people
Adolescent characteristics...

• Adolescent roles
  – Developing identity
  – Forming opinions
  – Individuating

• Prefrontal cortex develops until age 25!
  – Responsible for:
    • Organization, abstract thinking, ability to prioritize
    • Inhibit emotions and behavior, impulse control
    • Anticipate consequences
Adolescent fears / stressors

- Common fears / stressors:
  - Social isolation / peer acceptance
    - Embarrassment,
    - Being different
    - “Drama”
Adolescent fears / stressors

- Common fears / stressors:
  - Social isolation / peer acceptance
    - Embarrassment, being different
    - “Drama”
  - Physical appearance, attractiveness
  - Sexual development
    - Differences from others, and sorting through new feelings/thoughts
Adolescent fears /

• Common fears / stressors:
  – Social isolation / peer acceptance
    • Embarrassment, being different
    • “Drama”
  – Physical appearance, attractiveness
  – Sexual development
    • Differences from others, and sorting through new
  – Coping with emotions / hormones
Adolescent fears / stressors

• Common fears / stressors:
  - Issues of the day (e.g. crime, war, weather disasters)
  - School failure / the future
  - Problems with own family
Stress/fears may lead to physical symptoms

- Stress-related physical symptoms INCREASE during development

These conditions are COMMON

- “Benign” chronic pain occurs in about 1 in 4 teens

King et al., 2011;
Perquin, et al., 2000
Somatic expression of stress

• Stress-related physical symptoms INCREASE during development

• In adolescents, gender differences become more apparent

These conditions are **COMMON**

Prevalence of “Severe” Chronic Pain

- **0-3 years**: 3% (Boys), 3% (Girls)
- **4-7 years**: 2% (Boys), 2% (Girls)
- **8-11 years**: 7% (Boys), 14% (Girls)
- **12-14 years**: 7% (Boys), 17% (Girls)
- **16-18 years**: 4% (Boys), 15% (Girls)

Perquin et al., 2000
Somatic expression of stress

• Stress-related physical symptoms INCREASE during development

• In adolescents, gender differences become more apparent

• Stress-related physical symptoms change during development
  – This does not appear to be simply due to improved language or reasoning

Common somatic symptoms

Early elementary
• Abdominal pain!
• also fatigue, leg pain, headaches

Into middle school

Into high school

### Other somatic presentations

<table>
<thead>
<tr>
<th>Type</th>
<th>Common presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion disorder</td>
<td>Blindness, deafness, paralysis, numbness, amnesia, seizures. Thought to be uncommon, but increases through adolescence</td>
</tr>
<tr>
<td>Complex regional pain</td>
<td>Pain + swelling, color changes, and temperature changes. Sometimes associated with cognitive neglect of affected area of body</td>
</tr>
<tr>
<td>syndrome</td>
<td></td>
</tr>
<tr>
<td>Pervasive refusal syndrome</td>
<td>Mostly in 8-16 year olds; refusal to eat, drink, ambulate, talk, or engage in self-care.</td>
</tr>
<tr>
<td>Factitious disorder</td>
<td>Not common, and really a rather blurry line with other somatic presentations</td>
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</tbody>
</table>

Complex Regional Pain syndrome
These conditions are **REAL**

- Sometimes you can see “cause” (e.g. arthritis)
- Sometimes not (e.g. headache, pain amplification)
  - These kids are actually experiencing symptoms, regardless of:
These conditions are **REAL**

- Sometimes you can see “cause” (e.g. arthritis)
- Sometimes not (e.g. headache, pain amplification)
  - These kids are actually experiencing symptoms, regardless of:
    - whether it can be seen,
    - what they can do with symptoms,
    - what makes symptoms better/worse
- *All* physical symptoms are worse with stress
Think Bio-Psycho-Socially!

• Physiological / Medical
  – Inflammation
  – Autoimmune processes
  – Autonomic dysregulation
  – Nerves get “practiced” at sending and receiving pain signals
  – Muscles guard and may spasm
  – Avoiding activity
Think Bio-Psycho-Socially!

• Psychological / Emotional
  – Stress affects immune system and muscle tension
  – Anxiety increases autonomic nervous system
  – Depression leads to less physical and social activity
Think Bio-Psycho-Socially!

• Behavioral / Environmental
  – Loss of friends reduces options for distraction
  – People do not listen/believe symptoms, which increases stress and anxiety
  – Family changes how they respond
  – Different expectations
Common Treatments

- Medications
- Physical activity or physical therapy
- Health behaviors (water, nutrition, sleep, etc)
- Distraction (sensory and cognitive)
- “Self-regulation” (usually relaxation-based)
- Manage stressors
- Talk therapy
Physical Activity

- Why does it help?
  - Stimulates nerves normally
  - Strengthens and supports joints
  - Decreases stress

- Strategies at school
  - Moderation in activity and sitting!
  - Stretching
  - PT exercises
  - Yoga or Tai Chi?
• Why does it help?
  – Promotes healing through normal body processes
  – May decrease inflammation
  – Allows medications to work their best

• Strategies at school
  – Aim for 64oz water daily
  – Variety of fresh foods including colorful fruits and veggies
  – Reduce processed foods and sugar
  – Manage homework
Distraction - sensory

- Why does it help?
  - Moves focus to comfort
  - May promote relaxation and healing
  - Releases feel-good neurotransmitters

- Strategies at school
  - Self-massage
  - Heat, cold, movement in water
  - Petting animals?
Distraction - cognitive

• Why does it help?
  – Engages thoughts
  – Adds fun activities
  – Releases feel-good neurotransmitters
• Use **preventatively, not reactively!!**

• Strategies at school
  – SCHOOL!
  – “Screens”
    • In moderation
  – Games, books
  – Music, art, activities
  – Friends
Self-regulation

• Why does it help?
  – Regulates autonomic nervous system
  – Decreases overactive pain nerves
  – Promotes healing

• In class, restroom, or nurse’s office…

• Strategies at school
  – Relaxed breathing
  – Progressive muscle relaxation
  – Imagery/self-hypnosis
  – Biofeedback
  – Yoga
Self-regulation

• Children’s Mercy outreach resource
  – [www.childrensmercy.org/starpower](http://www.childrensmercy.org/starpower)
  – Can come out to school and present for 45 minutes on stress and coping (including relaxation).
Relaxation

STRESS
What can cause stress in children?
- Change: a new school or divorce
- Responsibilities: extra activities, homework and tests
- Relationships with peers or adults: feeling left out or not good enough
- Safety concerns: bullying or violence in neighborhood
- Worries and unknowns: illness

A little stress from time to time is normal. Signs of too much stress are:
- Mood swings
- Acting out
- Changes in sleep patterns
- Trouble concentrating
- Stomach aches or headaches

Most parents can help their children cope with stress, but sometimes children need the help of a school counselor or pediatrician.

JUST BREATHE
Breathing for relaxation can help children with stress in many situations. Breathing exercises can help children relax during times of stress, worry, sadness or pain.

Belly Breathing
Belly breathing is gentle and easy to do. But it does take some practice.
1. Place one hand on your belly. Relax your belly muscles and see how that feels.
2. Take a slow, deep breath in through your nose and down into your belly. Your hand should go up about an inch.
3. Slowly let your breath out of your mouth. Your belly should go down.
4. Breathe in...belly goes up...breath out...belly goes down.
5. Slowly repeat 5 times.

As you breathe, imagine airflow going in and bringing comfort to every part of your body. As you breathe out, let go of all fears, worries and tensions.

Breathing in 5’s
1. Using belly breathing, breathe in slowly through your nose and down to your belly for a count of 5.
2. Hold it for a count of 5.
3. Breathe out slowly through your mouth for a count of 5.

MY GOAL: ____________________________
Managing stressors

• Academic issues
  – Poor academic fit: consider further evaluation for learning issues, attention, etc
    • Can show up in later school years!
  – School failure: figure out reasons. Emotional, physical, or academic

• Bullying
  – Hard to address; best to prevent.
  – Teach kids skills, consider support groups
Managing stressors

• Problems with own family
  – Provide outlet / normalization
  – Groups at school? Time with counselor?

• Normal fears for younger kids:
  – Be understanding!
  – Provide information about natural events
  – Encourage gradual exposure to fears
  – Don’t use fears to scare kids (e.g. “bad people”)

Children's Mercy Hospitals & Clinics
www.childrensmercy.org

UMKC School of Medicine
Managing stressors

• Normal fears for older kids:
  – Be understanding!
  – Discuss things frankly, but age-appropriate
    • Injury, death, health of family
    • Issues of the day (e.g. crime, war, weather)
  – Watch for social isolation / peer acceptance
    • Prevent teasing, shame, when possible
  – Provide education about:
    • physical appearance, sexual development
    • coping with emotions / hormones
Managing stressors

• Professional help (therapy/counseling)
  – Abuse or trauma
  – Anxiety disorder
  – Depression
  – Significant lack of social skills
  – Coping with medical symptoms
Managing stressors

• Talk therapy

• **Attend school!**
School is *IMPORTANT*

- School provides:
  - Distraction (cognitive & sensory)
  - Physical activity
  - Social engagement
  - Oh, and *education*
I say it's a fallacy that kids need 12 years of school! Three months is plenty!

Look at me. I'm smart! I don't need 11½ more years of school! It's a complete waste of my time!

How on earth did you get all the way to the bus stop with both feet through one pant leg?

I fell down a lot.

...Why? What's your point?

Nothing. I was just curious.
Pain + school = HARD

School Absenteeism for Adolescents with Chronic Pain (School Report)

% of Sample

- Few days missed: 44.00%
- Missed >25% of school days: 24.60%
- Missed >50% of school days: 20.40%
- No school for >3 months: 14.00%

Logan et al., 2008
Konijnenberg et al., 2004
Pain + school = HARD

Change in Grades for Adolescents with Chronic Pain Since Onset of Pain

Logan et al., 2008
Again, school is *IMPORTANT*

- Full medical homebound contraindicated for most adolescents with chronic pain
  - May do more harm than good
- Commitment to regular school attendance despite pain is critical to prevent enduring disability
  - Avoid pattern of withdrawal
- Students retained in one grade are 50% more likely to drop out
Making school *WORK*

- IEP / 504 set out bidirectional expectations
  - Help kids succeed, spell out accommodations
  - Support teachers and staff
  - Hopefully provide clear guidelines for school nurse
Making school WORK

• Accommodations may facilitate regular attendance:
  – Rest/relaxation breaks in a quiet area (or classroom)
  – Ability to move around, stretch
  – Have water in classroom, take meds at school?
  – Extra time for tests/assignments
  – Extra study hall, tutoring
  – Assignments and grading limited to essential learning
  – Modified PE curriculum
  – Gradual reentry plan
Even accommodations may need moderation...

“Yeah, my backache went away once I started using this. Now I’m getting carpal tunnel.”
Making school *WORK*

- **School nurse expectations**
  - Respond compassionately, while neutral or “matter-of-fact”
    - Don’t show judgment or disbelief about symptoms
    - And… avoid being overly solicitous
  - What to do if patient comes to nurse’s office
    - How long can they stay, what do they do there?
  - Encourage return-to-class when ready or as specified in plan
  - Allow independent coping skills
    - Encourage use in-class when possible
  - View as opportunity to learn skills to manage stress and somatic symptoms for whole life!
Discussion

• Questions
• Clarifications
• Suggestions
• Case Examples