It takes a village: Treating chronic pain using a BioPsychoSocial model

Edin Randall, PhD
Mayo Family Pediatric Pain Rehabilitation Center
Boston Children’s Hospital/Harvard Medical School
No conflicts of interests or disclosures
Mayo Family Pediatric Pain Rehabilitation Center (PPRC)

Boston Children's Hospital
Mayo Family Pediatric Pain Rehabilitation Center

Medicine, Nursing, Physical Therapy, Occupational Therapy, Psychology, Social Work, Recreational Therapy, Music Therapy
Additional Diagnoses

- Juvenile Rheumatoid Arthritis
- Ankylosing Spondylitis
- Ehlers-Danlos Syndrome
- Irritable Bowel Disease (e.g., Crohn’s)
- Chronic migraines
- Chronic abdominal pain
- Amplified Musculoskeletal Pain Syndrome (AMPS)
- Neuropathic pain
- Fibromyalgia
- Treating soon: Sickle Cell Disease
Acute vs. Chronic Pain

- **Acute pain** = Adaptive, survival function
  - Acute pain = harm; Immobilization = allow healing

- **Chronic pain** = > 3 mo; Pathological, serves no adaptive/physiologically relevant function
  - Chronic pain ≠ harm, Mobilization = avoid disability

FUNCTION BEFORE PAIN REDUCTION!
How does FOP Compare?

• Underlying biological condition

• Acute pain flares, with the possibility of worsening the condition with injury

• Chronic pain that exists between pain flares – This is what we can focus on!

• Disclaimer: I’m not an expert on FOP! I want to hear from you! Please ask questions! Put it in the chat!
  – What kind of pain do you struggle with?
**BioPsychoSocial Model of Pain**

Gatchel et al., 2007

**Biological**
- Disease
- Injury
- Procedures
- Biological predisposition

**Psychological**
- Cognitive appraisal
- Coping strategies
- Stress
- Emotional distress

**Social**
- Family environment
- Community
- Parental/sibling responses
- School/Academic
- Peers
- Extracurricular Activities

**Functional Status**
- Physical
- Recreational
- Academic/Job
- Social
- Psychological

**PAIN**

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Boston Children's Hospital

Harvard Medical School Teaching Hospital
BIOPSYCHOSOCIAL MODEL OF PAIN

Pain has many parts…

**Physical** - *physical changes that lead to pain*
- growth of scar tissue
- nerve malfunction
- degenerative changes or loss of function for the affected area

**Cognitive** - *how you think about pain*
- pain becomes the focus of
  - attention
  - memory for pain
- perceptions
- expectations

**Emotions** - *how pain makes you feel*
- sadness
- anxiety
- anger
- irritability
- fear
- worry
- guilt
- stress

**Actions** - *how you respond to pain*
- rubbing
- guarding
- limping
- reduced physical activity
- more rest

**Social** - *how others respond to your pain; participation in life*
- giving you support, medicine, ice/heat
- changes in relationships with friends, family, teachers, and others due to pain
- reduced participation in extracurricular activities
- reduced participation in academics
Psychological & Social Interventions
So is chronic pain real?

YES.

VALIDATION & EDUCATION IS KEY

• The mind / nervous system
  – Brain is attached to the body
  – Nervous system is the 2nd largest organ!
  – The nervous system does both emotional and physical feelings
  – Accounts for a large part of the variance in concepts such as pain sensitivity, pain appraisal, central sensitization…

• Psychological factors
  – Can exacerbate or maintain pain
  – Are natural consequences of living with pain
  – Play a major role in how an individual functions with pain
  – Are important targets for treatment in any pain experience
3-min video about chronic pain and what affects it
Basic Psych Treatment Goals

• Pediatric pain psychologists help youth and families:
  – Cope with the pain, maintain functioning in the context of pain (for FOP – not when in flare, but between episodes)
  – Discern which factors may maintaining and/or exacerbating pain ("turning up the volume")

Psychological Factors
Co-morbidities
Temperament
Coping style

Social Factors
Extracurricular
Academic
Family dynamics/patterns
Chronic Pain & Stress

- Chronic pain may result in a prolonged stress reaction which:
  - Exacerbates and maintains pain directly
  - Contributes to central sensitization (Lyon, Cohen, & Quinter, 2001)
    - Increased excitability and synaptic efficiency in neurons that process pain signals in the CNS
    - Decreased pain inhibitory processes
- The brain changes ... and pain persists
Psychological Treatment

• Cognitive Behavioral Therapy (CBT)
• Acceptance Commitment Therapy (ACT)

• Both modalities uniquely help address:
  – Fear of pain
  – Pain-related worries and behavioral avoidance (within reason for FOP)
  – Stress management
  – Relaxation and mindfulness approaches
Integrating Psychological Principals in Treatment for Pain - CBT

Psychoeducation
- Describing the Biopsychosocial Model, Validating experiences of pain

Training in self-regulation
- Relaxation and Mindfulness Techniques

Cognitive Techniques
- Thoughts, feelings, behaviors

Parent Involvement
- Supporting Parents; Helping Parents support their child differently
Cognitive Behavioral Therapy

• Based on cognitive-behavioral theory (see Kendall, 1993)
  – Changing what we do and how we think can change how we feel

• CBT targets the stress response and cognitive, emotional, and behavioral reactions to pain

• The goals are to (1) improve function and (2) reduce distress related to pain, which may ultimately improve your pain experience
CBT Triangle

Therapy Triangle

Thoughts
What thoughts do I have when I feel this emotion?

Behavior
What we do affects how we think and feel.

Feelings
Where in my body do I feel this emotion?
Pain Cycle

Chronic pain

Increased disability: physical and mental (e.g., depression)

Decreased activity

Experiential avoidance

Unhelpful thoughts/feelings
CBT Treatment

• Unhelpful cognitions are identified, challenged, and modified
  – E.g., “I can’t go to the party because I’ll be in pain”
    - “There’s no evidence that pain will flare during this event. I’m not a fortune teller!”
    - “I can still live a full life, within reason, even if pain is in the picture”
    - “I can be nervous about going, and still go and enjoy myself”

• Parental involvement is beneficial – How to affect parent’s cognitions and behaviors related to their child’s pain
CBT Treatment, cont’d

• Behavioral coping skills are taught to reduce pain and distress and improve functioning:

  – Gradually approaching the feared activity (graded exposure); coming up with a behavioral plan

  – Distraction! (dividing your attention away from pain)

  – Relaxation techniques
    • Diaphragmatic breathing
    • Progressive Muscle Relaxation
    • Visual imagery
    • Biofeedback
    • Personal relaxation strategies
      – Listening to music, taking a bath, etc
**ACTIVE COPING:** Different ways to manage with pain and help you keep going

<table>
<thead>
<tr>
<th>DISTRACTIONS help you focus your attention elsewhere</th>
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<tbody>
<tr>
<td>- Talk to friends and family</td>
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<tr>
<td>- Reading</td>
</tr>
<tr>
<td>- Playing with pets</td>
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<tr>
<td>- Card games</td>
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<tr>
<td>- Board games</td>
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<tr>
<td>- Playing with fidgets/putty</td>
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<tr>
<td>- Listening to music</td>
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<tr>
<td>- Listening podcasts/audiobooks</td>
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<tr>
<td>- Being with family and friends</td>
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<tr>
<td>- Writing</td>
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<tr>
<td>- Watch TV/movies</td>
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<td>- Crocheting</td>
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<tr>
<td>- Yoga</td>
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<td>- Video games</td>
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<td>- Create a vision board/collage</td>
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<td>- Drink cold water/Gatorade</td>
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<td>- Eat a crunchy snack</td>
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<td>- Photo albums</td>
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<tr>
<td>- See sunset</td>
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<tr>
<td>- Go for a drive</td>
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<td>- Walk with friends</td>
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<tr>
<td>- Painting</td>
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<td>- Baking</td>
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<tr>
<td>- Spicy foods</td>
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<tr>
<th>THINKING STRATEGIES help change unhelpful thoughts to something more helpful.</th>
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<tbody>
<tr>
<td>- Trying to find the positives</td>
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<td>- Challenge negative thoughts/reframing</td>
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<tr>
<td>- Magic triangle</td>
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<tr>
<td>(thoughts→feelings→behaviors)</td>
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<tr>
<td>- Problem Solving (finding strategies to cope through something that is happening)</td>
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<tr>
<td>- Think about what’s important and my reasons for doing things / identifying my values</td>
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<tr>
<td>- Letting thoughts pass by / Acceptance strategies</td>
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<tr>
<td>- Occupy my mind with something else (think of all good things I’ve done, hard things that I’ve done)</td>
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<tr>
<td>- Planning things to do (outings/activities)</td>
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<tr>
<td>- Push yourself (you can do anything for ___ minutes)</td>
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<tr>
<th>MOVEMENT/EXERCISE helps to reset your brain and nervous system into a mode where it knows that doing normal everyday things is okay.</th>
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<tbody>
<tr>
<td>- Stretching</td>
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<td>- Going for a walk</td>
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<td>- Playing with pets</td>
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<td>- Riding a bike</td>
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<td>- HEP</td>
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<td>- KMP</td>
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<td>- Foam rolling</td>
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<tr>
<td>- Yoga</td>
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<tr>
<td>- Hiking</td>
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<td>- Going to the mall</td>
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<td>- Bathroom break</td>
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<td>- Fill water</td>
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<td>- Hallway walk</td>
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<tr>
<td>- Skate board</td>
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<tr>
<td>- Putty</td>
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<tr>
<td>- Crocheting</td>
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<tr>
<td>- Going for a drive</td>
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<tr>
<td>- Dance/cheer</td>
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<th>RELAXATION calms your body and nerves down (de-stress), which can reduce pain.</th>
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<tr>
<td>- Stretching</td>
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<td>- Comfort food</td>
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<tr>
<td>- Deep breathing</td>
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<tr>
<td>- Guided imagery/meditation</td>
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<tr>
<td>- Being alone</td>
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<tr>
<td>- Being around people</td>
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<td>- Hanging outside in the sun</td>
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<tr>
<td>- Cuddling with pets</td>
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<tr>
<td>- Listening to music</td>
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<tr>
<td>- Playing with fidgets/putty</td>
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<tr>
<td>- Watching TV/videos</td>
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<tr>
<td>- Reading</td>
</tr>
<tr>
<td>- Self-care/skin-care</td>
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<tr>
<td>- Coloring</td>
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<tr>
<td>- Writing</td>
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<td>- Crocheting</td>
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<td>- Baking</td>
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Relaxation: The science speaks for itself!

Physiological response:
- ↓ muscle tension
- ↓ heart rate
- ↑ oxygen consumption

Cognitive response:
- ↑ self-control
- ↑ self-efficacy
- ↑ success

Decreased stress
Decreased physiological arousal
Improved mood
Social Aspects of Pain

• Evaluating how pain has impacted your ability to live according to your values (what’s important to you, your “life compass”)

• The more you live according to your values, while respecting your limitations, the happier you will be, and this can indirectly affect your pain experience.
Treating the Social Aspects of Pain

– Academic functioning
  • Work with schools to get accommodations for managing pain the school setting (504/IEP)

– Extracurricular activity involvement
  • This makes you you! Expanding your self-definition beyond pain and disability

– Social relationships
  • Peer interactions (educating, accepting invites, reaching out; “out of sight, out of mind”)
  • Family relations (how you interact with them, how they treat you)
A Few Resources

- When Your Child Hurts by Rachael Coakley, Ph.D.
- The Explain Pain Handbook by Mel Lederman, PhD, and David Butler, MD
- The Chronic Pain & Illness Workbook for Teens by Rachel Zeffness, PhD

LEARN MORE