Chronic pain: a disease of the brain

Vanessa Patel

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Chronic Pain: a disease of the brain

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Most common reason people go to the doctor: PAIN

- **Pain** is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

- **Acute Pain** - results from inflammation/injury to tissues; generally comes on suddenly and may be accompanied by emotional distress.

- **Chronic Pain** – 3 months+ duration of pain with environmental and psychological factors; resistant to most medical treatments.
Which person has pain?
How is pain perceived?

Context:
- Pain Beliefs
- Expectations
- Placebo

Cognitive:
- Hypervigilance
- Attention
- Distraction

Sensory:
- Intensity
- Localization
- Discrimination

Mood:
- Depression
- Catastrophising
- Anxiety

Chemical & Structure:
- Neurodegeneration
- Metabolic (e.g., opioidergic, dopaminergic)
- Maladaptive Plasticity

Pain Experience

Nociceptive Modulation

Aβ or C Nociceptive input

Burden of chronic pain:

Financial Consequences
- Healthcare costs
- Disability
- Lost Workdays

Psychological Problems
- Depression
- Anxiety
- Anger
- Loss of self-esteem

Social Consequences
- Marital/family relations
- Intimacy/sexual activity
- Social isolation

Functional Activities
- Physical functioning
- Ability to perform activities of daily living
- Sleep disturbances
- Work
- Recreation
Natural History of Persistent Pain: A Patient’s Perspective

Awareness and Interpretation of Symptoms
  ↓
Help/treatment-seeking
  ↓
Diagnostic uncertainty
  ↓
Patient frustration
  ↔
Provider frustration?
  ↔
Family/ Significant other frustration
  ↓
Doctor shopping
  ↓
Multiple costly, invasive diagnostic tests
  ↓
Suggestion of psychological causation or malingering
  ↓
Increased symptom reporting, pain behaviors, and help-seeking
  ↓
Increased emotional distress
Burnout in pain medicine physicians

- There is limited research on burnout in pain medicine physicians who provide care for patients with chronic pain.
- Recent research suggests 60% of pain medicine physicians in the United States may have high rates of emotional exhaustion.

Purpose of our study:
- Determine whether or not treating this demoralized population of patients is contributing to pain medicine physician burnout.
- Determine whether or not fostering confidence in managing the psychological profiles of patients and decreasing their perceived burden of difficult encounters would protect against pain medicine physician burnout.

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td><strong>Emotional Exhaustion</strong></td>
<td>79 (26.8%)</td>
<td>82 (27.8%)</td>
<td>129 (43.7%)</td>
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<tr>
<td><strong>Depersonalization</strong></td>
<td>124 (42.0%)</td>
<td>81 (27.5%)</td>
<td>83 (28.1%)</td>
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<tr>
<td><strong>Personal Accomplishment</strong></td>
<td><strong>46 (15.6%)</strong></td>
<td>70 (23.7%)</td>
<td>166 (56.3%)</td>
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<tr>
<td>Outcomes</td>
<td>Predictors</td>
<td>B</td>
<td>SE B</td>
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<tr>
<td>--------------------------</td>
<td>-------------------------------------------------</td>
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<tr>
<td><strong>Emotional Exhaustion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>0.016</td>
<td>0.071</td>
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<tr>
<td></td>
<td>Marital Status</td>
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<tr>
<td></td>
<td>Hours worked per week</td>
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<td>0.064</td>
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<tr>
<td></td>
<td>Months of BH training</td>
<td>0.397</td>
<td>0.184</td>
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<tr>
<td></td>
<td>Confidence/interest in Ψ (PMI)</td>
<td>-0.119</td>
<td>0.056</td>
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<tr>
<td></td>
<td>Burden of difficult patient encounters</td>
<td>1.360</td>
<td>0.171</td>
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<tr>
<td><strong>Depersonalization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>-0.052</td>
<td>0.034</td>
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<td></td>
<td>Marital Status</td>
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<td></td>
<td>Hours worked per week</td>
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<td>Months of BH training</td>
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<tr>
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<td>Confidence/interest in Ψ (PMI)</td>
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<td>Burden of difficult patient encounters</td>
<td>0.815</td>
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<tr>
<td><strong>Personal Accomplishment</strong></td>
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<td></td>
<td>Age</td>
<td>0.030</td>
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<td>Marital Status</td>
<td>2.182</td>
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<td>Hours worked per week</td>
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<td>Months of BH training</td>
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<td>Confidence/interest in Ψ (PMI)</td>
<td>0.183</td>
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<td>Burden of difficult patient encounters</td>
<td>-0.278</td>
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</table>

*Note.* *p*<.05, **p**<.001, B = unstandardized beta-coefficient, SE B = standard error of the unstandardized beta-coefficient, β = standardized beta-coefficient
Goals of chronic pain treatment

- What is at the joint vs. what is from the brain?
- Narcotics are not for long term use
- Functional status is important for determining next steps
- Antidepressants play a role in treating chronic pain
Psychological treatments:

- **Acceptance and Commitment Therapy (ACT)**
  - Observe thoughts and feeling as they are
  - Behaving in ways consistent with valued goals and life direction

- **Cognitive-behavioral therapy (CBT)**
  - Cognitive:
    - Re-conceptualization of pain as problem to solve
    - Coping skills training
  - Behavioral:
    - Relaxation training (progressive muscle relaxation; autogenic training)
    - Altering pain-relevant communication
    - Behavioral activation via contingency management

![The Cognitive Triangle](image)
In conclusion:

- At the heart of the problem of chronic pain remains the complex psychosocial aspects associated with living with chronic pain.
- Treatment of chronic pain and comorbid mental health issues requires a multidisciplinary approach.
- Treating this subset of patient population contributes to a large percentage of burnout in pain medicine providers.
- Addressing the psychiatric needs of chronic pain patients remains challenging.
References:

• Matthias et al., 2013