Pain and Mood Regulation in Women with Chronic Pain

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Pain and emotion dysregulation

• Focus on negative emotions and vulnerability factors
  • Negative affective disturbance
    – 2-4 X the risk of anxiety and mood disorders in National Comorbidity Survey (McWilliams et al., 2003)

• Also true that positive emotions and resilience factors are often diminished
  – Decreased positive affect and engagement (e.g., Davis et al., 2001; Zautra et al., 2005)
Being Irish, he had an abiding sense of tragedy, which sustained him through temporary periods of joy.

~William Butler Yeats
More than just negative: The role of the positive

Resilience Resources
- Positive social ties
- Trait positive affect

Vulnerability Factors
- Negative social ties
- Trait negative affect
- Depression

Pain or Stress episode

Resilient responses
- Positive social contact
- Increased positive affect

Vulnerable responses
- Negative social contact
- Increased negative affect
- Helplessness cognitions

Functional Health
Chronic pain varies day-to-day

40% Variable
60% Stable

- Between person
- Within person
Day-to-day Pain Variation
Trait Positive and Negative Affect and Weekly Pain
(N=124 FM & OA Women)

Zautra, Johnson, & Davis, 2005
Stress and Pain Within a Day: Interrupting the Cycle
(N=220 FM, primarily women)

Resource: Positive social ties

Stress: Morning Loneliness (1-5) → .12*** → Afternoon Negative Cognitions (1-5) → 13.22*** → Evening Pain (0-100)

Wolf, Davis, & Yeung (in preparation)
Resilience and Vulnerability

Resilient people with solid positive social ties experience fewer negative effects from stressors

What about those with vulnerability factors? The case of depression....
Resilience resource: Induced positive mood

- 110 women with FM and/or osteoarthritis
- 29% depressed (>26 on CES-D)

Social Stress Interview

Neutral mood induction

Positive mood induction

Outcomes:
Despondency
Joviality
Pain

Davis, Thummala, & Zautra, in press
Film sample: Positive
Film sample: Neutral
Despondent mood
Depressed vs Non-depressed Patients

![Graph showing Despondency levels over Lab Period]

- **Depressed/Positive mood**
- **Depressed/Neutral mood**
- **NonDepressed/Positive mood**
- **NonDepressed/Neutral mood**

Axes:
- Y-axis: Mean Despondency Rating (1-5)
- X-axis: Lab Period (Rest, Stress, Mood)
Jovial mood: Depressed vs Non-depressed Patients

![Graph showing the mean joviality rating from Rest, Stress, and Mood periods for Depressed/Positive mood, Depressed/Neutral mood, NonDepressed/Positive mood, and NonDepressed/Neutral mood.](image)
Pain:
Depressed vs Nondepressed Patients

Clinical Pain

- Depressed/Positive mood
- Depressed/Neutral mood
- NonDepressed/Positive mood
- NonDepressed/Neutral mood

Pain Rating (0-100)

Lab Period:
- Rest
- Stress
- Mood
Can we bolster emotional resilience?

- Cognitive behavioral approaches are the most widely used behavioral tx.
  - Focus on restructuring maladaptive thoughts, relaxation, activity pacing.
  - Don’t particularly focus on bolstering positive emotion and social relations.
Clinical Trial for Chronic Pain
144 RA Patients

• Group-based, 8 Weeks

CBT-Pain
  Pain Coping Skills

Mindfulness-Based Emotion-regulation
  Negative affect to pain and stress
  Sustain positive affect

Education Control
  Knowledge re: chronic pain
Recurrent Depression: Mindfulness

- For individuals with a history of 2+ episodes depression: M > CBT & Control
Pre-post Changes in Positive Affect

Change in Positive Affect (1-5 rating scale)

- No Depression History
- Depression History

Zautra, Davis et al., 2008
Pre-post Changes in Physician-rated Joint Swelling

Zautra, Davis et al., 2008
Pre-to-post change in cognitive reactivity: Mindfulness vs CBT vs Education

A. Mindfulness

B. CBT-Pain

C. Education

Davis, Thummala, & Zautra (under review)
Pre-to-post change in emotion reactivity: Mindfulness vs CBT vs Education

A. Mindfulness

B. CBT-Pain

C. Education

Davis, Thummala, & Zautra (under review)
For daily pain and stress flares….

• Mindfulness produced more resilient responding to pain and stress flares:
  – decreased day-to-day cognitive and affective reactivity

• Not so for CBT-Pain and Education
On-line Randomized Trial: 12 modules (N = 79 FM patients)

- **Mindfulness:**
  - Brief daily meditations around a theme

- **Health Tips:**
  - Information about a health behavior (e.g., sleep, sun protection, exercise)

- **Outcomes:**
  - Pain
  - Negative affect
  - Everyone improved
  - Positive Affect
  - Social Activity
  - Family Enjoyment
  - Loneliness
  - M > HT

Davis & Zautra, 2013
Positive Affect

Day Clusters

Mindfulness

Health Tips
Enjoyment of Family

Day Clusters

Mindfulness

Health Tips
In summary….

• We can bolster resilient responding in chronic pain patients

• The approach we’ve applied is mindful acceptance-based
  • Improved in positive affect/social engagements
  • Dampened pain and stress reactivity
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Functional Health
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