Chronic Low Back Pain: Not a Novel Approach

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Objectives

- Define the different types of pain
- Define biopsychosocial/interdisciplinary treatment approach
  - Roles of the medical, psychology, and physical therapy providers
- Identify patients who would benefit from biopsychosocial approach vs those who respond to a traditional medical approach
- Identify non-opioid medications to address chronic back pain

Incidence of Chronic Back Pain

- 134.5 billion USD estimated for neck and low back pain
- 39% of adults experienced back pain
- Most patients with chronic pain are managed in primary care

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Pain Terminology

Type of Pain	Definition
Nociceptive	Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors
Neuropathic	Neuropathic pain, caused by a lesion or disease affecting the somatosensory nervous system
Nociplastic	Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain
Acute	Sudden onset, short duration, and is clearly associated with a cause
Chronic	Pain that lasts for longer than 3-6 months

Pain Terminology

Term	Definition
Multimodal Treatment	The concurrent use of separate therapeutic interventions with different mechanisms of action within one discipline aimed at different pain mechanisms
Multidisciplinary Treatment	Multimodal treatment provided by practitioners from different disciplines working separately
Interdisciplinary Treatment	Multimodal treatment provided by a multidisciplinary team collaborating in assessment and treatment using a shared biopsychosocial model and goals

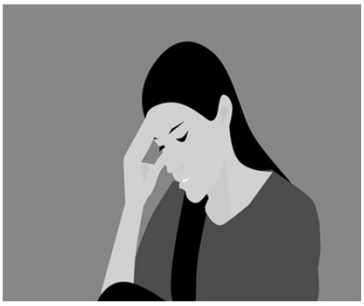
Treatment Approach for Chronic Back Pain

Multi/Interdisciplinary Approach

- Chronic pain not responsive to interventions
- Chronic pain without clear pain generator
- Chronic pain with significant physical, mental, or emotional disability

Spine Specialist

- Acute or subacute pain with weakness
- Acute pain not responsive to conservative methods
- Chronic pain that **does** respond to interventions



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- Physical function
- Mental Health
- Isolation
- Financial wellness
- Helplessness
- Poor sleep
- Deconditioning
- Additional comorbidities
- Inappropriate medication use
- Loss of purpose

Why do we care?

Chronic pain cycle

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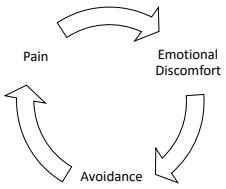

- "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"

-WHO definition

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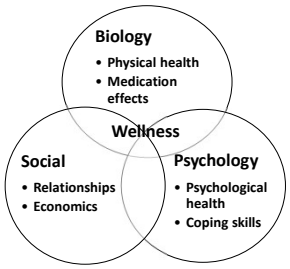
Biopsychosocial Philosophy

An interdisciplinary treatment model that places an emphasis on recognizing the interconnection between biology, psychology, and socio-environmental factors



Multidisciplinary treatment is the most effective way to improve function

Medical Provider Role

- Identify what type of chronic back pain
  - Treatments and response
- Identify what downstream effects our patient has
  - Average day
- Recommend and educate, educate, educate
  - OT, PT, Psychology, etc
- Trial Medications
  - Appropriate medications for chronic pain
- Check in

Motivational Interviewing

"A Collaborative, goal-oriented style of communication…designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion"

Use in situations with:

- Ambivalence
- Low confidence
- Low desire to change
- Low importance

Fundamental Processes:

- Engaging
- Focusing
- Evoking
- Planning

Medical Treatments "Biology"

Medication Class	Clinical Pearl	Examples
TCA	Higher VAS reduction	nortriptyline
SNRI	Higher incidence of side effects	duloxetine
NSAIDs	Most recommended	Ibuprofen, diclofenac
SMR	Flares in chronic low back pain	cyclobenzaprine, tizanidine

Medical Treatments "Biology"

Not Recommended

- Oral corticosteroids
- Anticonvulsants*
- Benzodiazepines
- Antibiotics

Medical Treatments "Biology"

Opioids

Interdisciplinary Treatment Referrals

- Physical therapy
- Occupational therapy
- Pain psychology
- Pharmacist
- Nutritionist

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Psychology Provider Role

- Work with patients to help with pain management skills
  - Focus on function, well-being, quality of life
  - NOT a focus on analgesia
- Work with other providers to reinforce similar messages about goals for treatment
  - Regular discussions about patient progress with psychology
  - How psychological functioning may influence patient progress in other treatments

Psychology and Pain

- Let's start with the gold standard definition:
- Pain is "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." (International Association for the Study of Pain [IASP])

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Additional key notes about pain from IASP

- Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.
- Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.
- Through their life experiences, individuals learn the concept of pain.
- A person’s report of an experience as pain should be respected.
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.
- Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain.

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Pain and the Stress Response

Acute Pain

- Typically seen as adaptive
- Fight, flight, or freeze response
- Physiological wind up/wind down

Chronic pain

- Not as adaptive
- Difficulty with physiological wind down
- Can lead to physiological and chemical brain changes
- Can influence behavior and responses to stressors

Psychosocial Considerations

- Patients with chronic pain are at increased risk for depression, anxiety, substance use
- Chronic pain also associated with negative impacts in other areas of life:
  - Sleep
  - Stress
  - Social interactions/Social support
  - Work
  - Finances
- The relationship between chronic pain and psychosocial factors is bidirectional

Psychological Approaches to Chronic Pain

- Cognitive Behavioral Therapy (CBT)
- Relaxation/Biofeedback (typically used as part of CBT)
- Acceptance and Commitment Therapy (ACT)
- Emotional Awareness and Expression Therapy (EAET)
- Pain Neuroscience Education (PNE)

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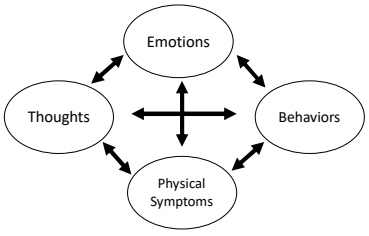
CBT for Chronic Pain



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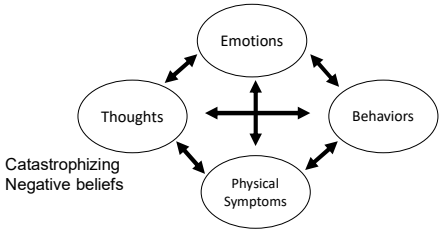

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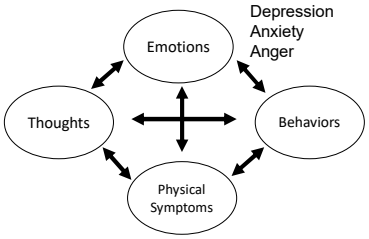

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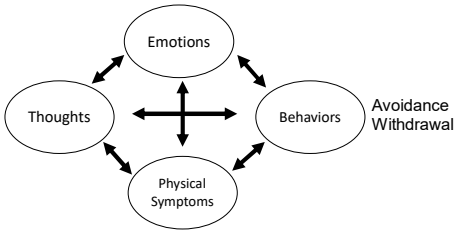

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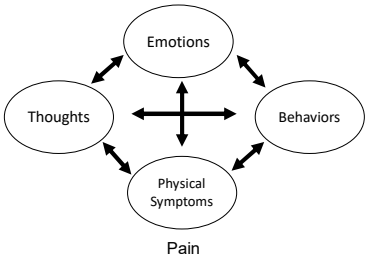

CBT for Chronic Pain - Cognitive

- Focus on pain-related cognitive errors
- Common
  - (Pain) Catastrophizing
  - Hurt vs. harm
  - All or nothing
  - "Should" statements

CBT for Chronic Pain - Behavioral

- Activity pacing
  - Pain-rest cycle vs. time-based pacing
- Sleep hygiene
  - Routines and setting up environment for better sleep
- Pleasant activity scheduling
  - Increase physical activity and social engagement

CBT for Chronic Pain - Physical

- Various physiological wind down exercises
- Addresses both top-down and bottom-up mechanisms
- Examples:
  - Deep breathing
  - Progressive muscle relaxation
  - Visualization
  - Mindfulness meditation

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Physical Therapy Provider Role

- Evaluation performed to assess a patient's current physical abilities including strength, range of motion, physical function, gait, and balance measures to determine an appropriate plan of care
- Goal is to preserve, enhance, and/or restore movement and physical function impaired or threatened by disease, injury, or disability with a variety of therapeutic treatment approaches
- Interventions can include but are not limited to therapeutic exercise, manual therapy, aquatic therapy, pain neuroscience education, graded activity and exercise exposure, and cognitive restructuring

Pain Focused Physical Therapy for Low Back Pain

- **Pain Neuroscience Education**
- **Graded Movement/Exercise**
- **Breathing/Relaxation/Mindfulness Training**
- **Sleep Hygiene**
- **Pacing**
- **Goal Setting**

Pain Neuroscience Education (PNE)

- PNE is an educational strategy that focuses on teaching people in pain more about the biological and physiological processes involved in their pain experience
- Current best-evidence provides strong support for PNE to positively influence pain ratings, dysfunctions, fear-avoidance, and pain catastrophization, limitations in movement, pain knowledge and healthcare utilization
- The more patients know about their back pain, the less they fear it and the impairments can improve

Graded Exercise Program

- Aims to increase the ability to participate in physical activity by reversing the physical deconditioning and exercise intolerance related to prolonged inactivity
- Includes the establishment of a baseline of achievable patient-specific exercise or physical activity, followed by increments in the duration of physical activity
- Aim is to help gradually increase physical activity and help patients become more independent in their everyday lives

Graded Exercise Program

Week #	Walking interval	Rest interval	Repeat the intervals	Total activity time (minutes)
1	2 minutes	1 minute	5 times	10
2	4 minutes	2 minutes	4 times	16
3	5 minutes	2 minutes	4 times	20
4	7 minutes	2 minutes	3 times	21
5	5 minutes	2 minutes	5 times	25
6	10 minutes	2 minutes	3 times	30
7	15 minutes	2 minutes	2 times	30
8	20 minutes	2 minutes	2 times	40

Breathing/Relaxation/Mindfulness

- Improves core stability
- Reduces muscle tension and fatigue
- Helps to activate the parasympathetic nervous system which can help to calm the body, reduce pain perception, and improve emotional well-being
- Reduces inflammation by improving blood chemistry
- Improves coping strategies

Sleep Hygiene

- Poor sleep can **worsen** pain sensitivity and chronic pain can **disrupt** sleep
- **Goals of improving Sleep Quality**:
  - Improve healing and recovery
  - Reduce emotional distress
  - Enhance physical function

Sleep Hygiene

- Encourage a consistent sleep schedule
- Create a comfortable sleep environment
- Avoid screens and stimulants before bed
- Practice relaxation and breathing techniques
- Use supportive sleep positions

Pacing

- The goal of pacing is to gradually increase activity levels that are near normal as possible on most days.
  - **Pacing Strategies:**
    - 1. Make a schedule that includes rest breaks built in
    - 2. Be time oriented, not pain oriented- this keeps YOU, and not the pain in control!
    - 3. Rest before your pain starts to get worse
    - 4. Incorporate change into your activity routine- alternate activities frequently, change positions, stretch, go for a walk, etc.
    - 5. Use a timer to signal breaks
    - 6. Break tasks into small, more manageable pieces
    - 7. Avoid rushing
    - 8. Try not to overschedule activities
    - 9. Prioritize your activities

Patient Focused Goal Setting

- Patient focused goal setting is a vital component with Chronic Low Back pain patients
- Aligns care with what truly matters to the patient and therefore can enhance engagement and functional outcomes
- Enhances motivation and adherence
- Builds Self-efficacy
- Supports self-management and empowers patients to take an active role
- Promotes individualized care

Patient Focused Goal Example

- 62-year-old patient with primary concern of chronic low back pain limiting her ability to bend, lift, and walk for extended periods and she would like to be able to spend active time with her young grandchildren
- **Short Term Goals (by 4 weeks)**
  - Pt will be able to walk for 15 minutes continuously without needing to stop due to back pain, using proper posture and breathing techniques.
  - **Focus:** Pain management, endurance, posture training
  - **Therapy Activities:** Diaphragmatic breathing, core stabilization, walking drills, endurance, and posture training.

Patient Focused Goal Example

- 62-year-old patient with primary concern of chronic low back pain limiting her ability to bend, lift, and walk for extended periods and she would like to be able to spend active time with her young grandchildren
- **Long Term Goals (by 8-12 weeks)**
  - Pt will be able to lift and carry her 20lb grandchild from the floor to standing without pain, using proper body mechanics.
  - **Focus:** Functional strength, lifting mechanics, confidence in movement
  - **Therapy Activities:** Functional lifting training, squats, hip hinge practice, core strengthening

Physical Therapy Mantras

HURT ≠ HARM

SORE but SAFE!

Who benefits from the interdisciplinary approach?

- Patients with functional goals
- Not exclusively focused on analgesia
  - Open to working on function and quality of life
- Pain that is more chronic versus acute
- Some motivation and patience is helpful, but can be cultivated during treatment as well

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