Behavioral Approaches to Chronic Pain Management
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Objectives
- Clinical practice guidelines
- Research supporting behavioral management
- Physiology of chronic pain
- Integrating behavioral approaches into PT
- Challenges to working with patients with chronic pain
- Summary of behavioral approaches
- Case study
- Pain SIG business meeting

Definitions
- Pain
  - “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” (International Association for the Study of Pain: http://www.iasp-pain.org)
- Chronic pain
  - “Any pain that persists beyond the anticipated time of healing.” (Turk 2001)
  - Chronic pain is an error in central pain processing mediated through mechanisms of neural plasticity.
  - Although acute pain serves as a protective warning signal, chronic pain has no known survival benefit.
Chronic Pain as a Disease

- Chronic pain is a ‘disease’
- This ‘disease’ must be managed
  - Like other chronic diseases: diabetes, hypertension, etc.
- Set realistic goals:
  - Decrease pain (might not be possible)
  - Increase function
  - Improve quality of life
- Need disease management skills
  - Address contributing factors as well as symptoms

Behavioral Management of Chronic Pain

[Diagram of Pain Management Continuum]

Pain Management Continuum

- Pain Control
- Nonpharmacological
  - Nerve blockade
  - Nerve ablation
  - Tissue growth modulation

- Behavioral and Psychological Therapies
  - Mindfulness, meditation
  - Cognitive Behavioral Therapy
  - Acceptance and Commitment Therapy
- Physical Management Therapies
  - Exercise
  - Physical therapy
  - Occupational therapy

- Pain
  - www.nationalpainfoundation.org
International Classification of Functioning, Disability Model

Slide 7

Chronic Pain in the ICF Model
• Body function
  – Sensation of pain
  – Mobility of joints
  – Muscle power/endurance
  – Psychomotor function
  – Proprioceptive function
  – Exercise tolerance
  – Energy & drive
• Body structure
  – Musculoskeletal structures
  – Structure of the brain
  – Structure of the nervous system

Slide 8

Chronic Pain in the ICF Model
• Activities
  – Lifting & carrying
  – Walking/moving around
  – Maintaining body position
  – Doing housework
  – Difficulty handling stress & psychological demands
  – Focusing attention
• Participation
  – Daily routine
  – Remunerative work
  – Family relationships
  – Intimate relationships
  – Community life
  – Acquisition of goods & services
  – Recreation/leisure
Chronic Pain in the ICF Model

- Personal Factors
  - Fitness
  - Habits
  - Coping styles
  - Lifestyle
  - Psychological assets
  - Upbringing
  - Social background

- Environmental Factors
  - Technology for home or employment
  - Healthcare professionals
  - Social security policies
  - General support services, transportation
  - Attitudes of family, friends, colleagues, health professionals

Chronic Pain Clinical Practice Guideline Recommendations

- Use biopsychosocial approach
- All patients should participate in exercise
- Include cognitive behavioral approach
- Psychosocial problems do not invalidate pain complaint
- Treatment should be sensitive to culture
- Active self-management is essential

Institute for Clinical Systems Improvement (ICSI) Assessment & Management of Chronic Pain: [www.icsi.org/guidelines_and_more/gl_os_prot/](http://www.icsi.org/guidelines_and_more/gl_os_prot/)
Slide 11

**Pain Models**

**Biomedical Model**
- Appropriate for acute pain
- Peripheral nociception is primary input for pain
- Treatment focus on disease or injury
- Reductionist approach
- Reliance on medical management

**Biopsychosocial Model**
- Appropriate for chronic pain
- Central processing modulates nociception and the experience of pain
- Illness behavior, cognitive & emotional responses strongly impact pain
- Multidimensional approach
- Emphasize self-management

Medical Treatment Utilization Schedule (MTUS) Medical Treatment Guideline at [www.dir.ca.gov/.../MTUS_ChronicPainMedicalTreatmentGuidelines.pdf](http://www.dir.ca.gov/.../MTUS_ChronicPainMedicalTreatmentGuidelines.pdf)

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Slide 12

**Physiology of Chronic Pain**

- Pain pathway succinct overview
- Pain classification
- The brain in chronic pain
- Stress and pain
- Cognitive frame

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Slide 13

**Pain Pathways**

Ascending Pain Pathways
- Peripheral pathway

Descending Pain Pathways
- Complex Processing by the Brain

(Schweinhardt 2010)
Pain Categories

- Nociceptive pain
  - Evoked by noxious stimulus

- Inflammatory pain
  - Evoked by inflammatory processes

- Pathological pain
  - Neuropathic pain evoked by peripheral nerve damage
  - Dysfunctional pain evoked, in the absence of tissue damage, by sensitization of central nervous system neurons

Behavioral Management of Chronic Pain
Woolf 2010

If Pain Were a Fire Alarm...

- Nociceptive pain would be activated by a hot fire
- Inflammatory pain would be activated by warm temperatures
- Pathological pain would be a false alarm.
  - The alarm is going off, but there is no fire.
  - The problem is the wiring.

Woolf 2010
Brain Changes in Chronic Pain

- Grey matter reductions in prefrontal, cingulate and insula cortices (May 2008)
- Reorganization of motor and somatosensory cortices (Katz 2008)
- Increased rest activity and abnormal functional connectivity in the insula and anterior cingulate (Malinen 2010)
- A shift away from sensory processing regions toward regions encoding emotional & motivational states (Apkarian 2011)

Descending Modulation of Pain

- Pathway projects from brainstem to the spinal cord and modulates dorsal horn neuron activity (Heinricher 2003)
Descending Modulation of Pain

- Neurons in the rostral ventral medial medulla (RVM)
  - On cells: descending facilitation
  - Off cells: descending inhibition
- Facilitatory and inhibitory activation is usually balanced
  - This balance can shift with injury, chronic pain, attention and stress
    (Heinricher 2009, Sprenger 2012, Wagner 2013)

Stress and Pain

- Implicated in the transition from acute to chronic back pain (Pincus 2002)
- Can contribute to exacerbation of
  - Fibromyalgia (Griep 2010)
  - Chronic headaches (Pentz 2009)
  - Rheumatoid arthritis (Dixon 1998)
  - Pelvic pain (Koehn 1996)
  - Irritable bowel syndrome (Karch 2006)
  - Persistent postmastectomy pain (Schneider 2010)
- Adversely affects surgical outcomes (Van Zuuren 1998, Geiss 2000)
Slide 21

**Stress and Pain**

- Laboratory research on rodents suggests peripheral and central mechanisms contribute to stress induced hyperalgesia. (Quintero 2011, Rivat 2010, Martenson 2009)
- Water avoidance stress in rats produced mechanical hyperalgesia in skeletal muscle and:
  - 34% decrease in mechanical threshold of muscle nociceptors
  - Nearly two-fold increase in action potentials produced by a fixed intensity suprathreshold stimulus.
  - 67% increase in conduction velocity (Chen 2011)

Behavioral Management of Chronic Pain

Slide 22

**Childhood Trauma/Abuse & Pain**

- Over-activates hypothalamic-pituitary axis (HPA) in childhood, blunts HPA responses as an adult
- Alters dopamine, serotonin, GABA, & cytokines
- Results in structural brain changes
- Alters epigenetics of neuroendocrine system
- Increases risk of chronic pain in adulthood
  - (Tietjen 2011, Davis 2005)

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Slide 23

**Cognitive Frame**

1. **Expectation**

   Treatment expectations substantially modulate benefit of opioid medication

   ![Graph

   Pain Intensity (VAS)](Bingel 2011)
Slide 24

Cognitive Frame

2. Belief
- Changing meaning of pain from negative to positive
- Improves pain tolerance
- Co-activates of endogenous opioid and cannabinoid systems (Benedetti 2013)

![Bar chart showing baseline, Nal, Rim, and Nal+Rim conditions with negative and positive pain rating]

Slide 25

Cognitive Frame

3. Attention
- Neuronal response to painful stimulation was significantly reduced in the dorsal horn under high working memory task compared to low
- Substantial contribution of endogenous opioids to this mechanism

![Graph showing fMRI dorsal horn neuronal response parameter estimates with Low and High Working Memory]
Pain Physiology: Summary

- Treatment of chronic pain requires an accurate understanding of underlying mechanisms
- These mechanisms are complex and multifactorial
- The experience of pain does not require peripheral tissue damage
- All pain perception involves activation of cognitive and emotional brain areas
- Chronic pain is associated with structural and functional brain changes
- Cognitive processing alters descending pathway modulation in the spinal cord

Behavioral Management of Chronic Pain

Stress plays a role in generating hyperalgesia and chronic pain through both central and peripheral mechanisms
- Childhood trauma and abuse adversely alters neuroanatomy and neurophysiology
  - Leading to an increase risk of chronic pain as an adult

Psychosocial Impact on Pain

- WHO decree that chronic pain management should take a biopsychosocial perspective
- Failure to address psychosocial issues leads to poorer outcomes
- Common psychosocial obstacles to recovery from chronic pain:
  - Stress
  - Anxiety, fear-avoidance, catastrophization
  - Depression, negativity
  - Low personal control
  - Social isolation
Integrating Behavioral Approaches

- Pain education, including neurophysiology
- Mindfulness
- Breathing
- Cognitive behavioral approaches
- Relaxation
- Biofeedback
- Behavioral approaches to exercise: traditional, tai chi, qigong, yoga, visualization, guided imagery

Pain Education

- Patients understand factors contributing to their experience of pain
- Offered in individual or class format
- Topics include:
  - Anatomy of the nervous system
  - Peripheral and central sensitization
  - How the brain and spinal cord process and regulate pain information
  - Neuroplasticity
  - Difference between acute and chronic pain
  - Pathological pain: hurt ≠ harm
Pain Education

- A recent systematic review of neurophysiology pain education concludes that for chronic musculoskeletal disorders, this education strategy may have a positive impact on pain, disability, catastrophizing and physical performance
  - (Louw 2011)

Key take home messages

- Pain is not due to incoming messages from the peripheral nervous system alone
- All pain perception shares neuropathways with cognition and emotion
- No brain, no pain
- Pain does not always imply tissue damage
  - Hurt does not always mean harm

Key take home messages

- Sensitive nerves send signals in the absence of tissue damage
- The brain contributes to generating pain in the absence of tissue damage
- The body's stress reaction increases nerve sensitivity and generates pain in the absence of tissue damage
- Cognitive and behavioral choices impact nervous system activation
Slide 34

Skillful language for patients

- “I am sore, but I am safe.”
- “Hurt does not mean harm.”
- “If I stay calm, my nerves will stay calm.”
- “That sensation is due to my sensitive nerves over-firing. I do not have to give it my attention.”

Slide 35

Pain Education

1. Nerves carry information from body area to spinal cord
2. Communicates with a spinal cord nerve pathway that carries information to the brain
3. The brain processes the information
4. Another nerve pathway carries information back down to the spinal cord and, like a volume control, can increase or decrease the activity here
5. With ongoing pain and stress, these pathways become sensitive and generate pain in the absence of tissue damage
Slide 36

**Pain Education**

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Slide 37

**Mindfulness**

- **History:**
  - In 1979 Jon Kabat-Zinn began teaching mindfulness meditation to patients with chronic medical conditions at the University of Massachusetts Medical Center
  - Mindfulness-Based Stress Reduction (MBSR)
  - Program: 1x/week, 2.5 hours, 8 consecutive weeks
  - Full Catastrophe Living by Kabat-Zinn
  - Tens of thousands of people have now gone through this program worldwide
  - [http://w3.umassmed.edu/MBSR/public/searchmember.aspx](http://w3.umassmed.edu/MBSR/public/searchmember.aspx)

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Slide 38

**Mindfulness**

Research Comprehensive literature review concludes that in chronic health conditions including heart disease, chronic pain, RA, fibromyalgia, type 2 diabetes, PTSD, depression and cancer, MBSR contributes to improved:

- coping
- well-being
- quality of life
- health outcomes (Merkes 2010)
Mindfulness

Pain-related Research
Meditation has been shown to contribute to:

- Lower baseline pain sensitivity (Grant 2009)
- Less negative appraisal of pain (Brown 2010)
- Reduced pain attentional bias toward pain in adults with chronic pain (Garland 2013)
- Improved pain acceptance and physical function in older adults with chronic low back pain (Shore 2008)
- Improved pain scores, physical and social function in women with chronic pelvic pain (Fox 2011)

Mindful Awareness: Skillful Way to Pay Attention

- Present moment
- Stable
- Non-judging
- Accepting
- Kind, friendly
- Curious
- Non-striving

http://www.carolynmcmanus.com/pages/workshops.html
Introduction to Mindfulness Parts 1 & 2
Mindful Awareness

1. Physical
   • Breathe

2. Cognitive
   • Label pain “sensation”
   • Mind is like a camera lens. Choose wide angle.
   • Mind is like the sky, sensation is like a cloud

2. Cognitive
   • Fear and worry are about the future.
   • Plan for tomorrow but do not live there.
   • Return to the present moment and today.
   • How do you best take care of yourself here and now?
   • This makes for a good today and serves as the foundation for tomorrow.
Mindful Awareness

3. Emotional: Kindness and compassion
   - How you would show up for a friend in your circumstance?
   - Notice how this feels in your body and the language that comes to you.
     - This is your natural wisdom in the face of life’s challenges.
   - As you breathe, pay attention to this breathe with the same understanding and goodwill that you would show to a dear friend

Mindful Breathing

- Slow, deep breathing reduces sympathetic nervous system activity and pain perception (Chalaye 2009, Buach 2012)
- May prove especially helpful to patients with fibromyalgia. Compared to healthy controls FM patients:
  - Have smaller chest expansion measurements
  - Lower maximal inspiratory and expiratory pressures (Ozgocmen 2002)
Slide 46

**Home Program**
- Practice mindful breathing:
  - When you experience pain escalation
  - Formal mindful breathing practice
    - Guided meditation instructions: CDs, online, apps
    - Informal breathing practice
    - Become aware of your breathing during routine daily activities

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Slide 47

**Psychosocial Approaches**
- Behavioral analysis should be part of the initial patient evaluation
- Identify links between patient’s complaints and:
  - Behaviors:
    - Fear avoidance, pain persistence
  - Internal environment:
    - Thoughts, moods, sensations such as anxiety, stress, depression, low internal sense of control
  - External environment:
    - Stressors, supports, family and friends

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Slide 48

**Customize Approach to Person**
- Different personality types benefit from different behavioral/psychological approaches
- Response to pain (van Koulil, 2010/11)
  - Fear-avoidance
  - Pain-persistence
- Cognitive clusters (Flor & Turk, 2011)
  - “Well-adapted”
  - “Dysfunctional”
  - “Distressed with little social support”
  - “Psychophysiologically highly reactive”
Fear-Avoidance vs. Pain-Persistence

Fear-Avoidance
• Pain-avoidant behavior
• Fear of pain
• Catastrophizing
• Hypervigilance
• Social reinforcement for pain behaviors

Pain-Persistence
• Continue activity in spite of pain
• Ignore or deny pain
• Set unrealistic goals
• Ignore physical limits
• Low social support

Managing Fear-Avoidance
• Decrease focus on symptoms
• Goal setting
• Gradual increase in activity, independent of symptoms
• Reinforcing healthy behaviors
• Ignoring pain behaviors
• Progressive exercise (quota system)
• Graded exposure
• Visualization

van Knoll, 2010, 2011
Managing Pain-Persistence

- Realistic goal-setting
- Pacing
- Activity regulation (alternating activity & inactivity)
- Balanced daily activity
- Cognitive restructuring
- Gradually progressed conditioning exercises
- Gradual increase in activity
- Assertiveness training
  - (van Koulil, 2010, 2011)

Behavioral Management of Chronic Pain

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Pain Personality Types
(Flor & Turk, 2011)

1. "Well-adapted": low levels of pain, distress, interference with life; high self-efficacy and activity
   - Rx: pain education & coping skills
2. "Dysfunctional": high pain intensity, interference with activity, pain behavior, social support & solicitousness; negative pain self-talk.
   - Rx: operant treatment approach

Behavioral Management of Chronic Pain

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3. "Distressed with little social support": low self-efficacy, social support, solicitousness of others; ‘punished’ rather than rewarded for pain behavior; high affective distress & perceived daily stress
   - Rx: CBT, including stress & pain management, managing dysfunctional relationships

Behavioral Management of Chronic Pain
4. “Psychophysically highly reactive”: high stress-reactivity, muscle tension, daily stress; low social support, little reinforcement for pain behavior, low activity due to pain.

- Rx: relaxation, biofeedback

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Cognitive Behavioral Approach

- Patient education about physiological and psychosocial aspects of chronic pain
- Education that Rx must address both components
- Pain management rather than elimination
- Active patient participation
- Emphasis on wellness behaviors
  -- Enlist family support
- Elimination of fear-avoidance or pain-persistence

Institute for Clinical Systems Improvement (ICSI) Assessment & Management of Chronic Pain: www.icsi.org/guidelines_and_more/gl_os_prot/ (Guidelines for using CBT in a busy clinical environment)
Cognitive Behavioral Approach
- Do not use pain as a guide ("Hurt ≠ harm")
- Time-contingent, not pain-contingent activity level and medication usage
- Progressive exercise and activity
- Return to activity and participation
- Pleasant activity scheduling

Institute for Clinical Systems Improvement (ICSI) Assessment & Management of Chronic Pain: www.icsi.org/guidelines_and_more/gl_os_prot/ (Guidelines for using CBT in a busy clinical environment)

Cognitive Restructuring
- Identify automatic negative thoughts, including catastrophizing
- Challenge these thoughts, replace them with coping strategies
- Example:
  - Identify negative thoughts: "On Sunday I got a full-blown headache that sent me to bed. I will never be healthy."
  - Challenge thoughts: "I felt really good for 5 days. I did a lot of yard work Saturday because I felt so good. I had a flare because I did more than my current strength allows. I can’t do that much yard work now, but I might be able when I am stronger. I will recover from this flare."

Problem-Solving
- Identify the problem
- Generate potential solutions
- Prioritize options
- Implement solution and assess effectiveness
- Example:
  - Identify problem: "Doing yard work flared my neck pain because I did too much lifting and bending over; I wasn’t thinking about posture or body mechanics."
  - Generate solutions: "I need to work more slowly and thoughtfully, so I can use good body mechanics and posture. Have the kids lift and carry so I don’t do as much. Rest after an hour, even if I haven’t finished, then do more later..."
Slide 59

**Pain Coping Skills** (Nielson, 2013)

- Progressive relaxation
- Activity-rest cycles & pacing
- Graded activity
- Pleasant activity scheduling
- Challenging negative thoughts
- Calming self-statements
- Distraction
- Problems solving
- Flare management

Slide 60

**Operant Restructuring** (Flor & Turk, 2011)

- Based on premise that pain behaviors have been positively reinforced & healthy behaviors have not
- Decreases inappropriate behaviors:
  - Activity avoidance
  - Bracing & guarding
  - Excessive reliance on medications
- Example:
  - “When I first injured myself, it was appropriate to avoid activities that increased pain. Now, pain is due to a malfunction of the nervous system rather than damage to my muscles or joints. Exercise may be uncomfortable, but will increase my function and won’t damage my muscles or joints.”
Slide 61

Pacing

- Avoid over-activity "yo-yo"
- Address deconditioning
  - Determine baseline tolerance
    - E.g., 10-20% below level that causes a flare
- Use time based pacing
  - Avoid task-based or pain-based pacing
- Gradually progress activity
  - During flare, decrease to 50%, but do not stop

Slide 62

Pleasant Activity Scheduling

- People with chronic pain tend to neglect pleasant activities
  - Due to belief they do not deserve to enjoy themselves
  - As punishment for being unable to do ‘work’ activities
  - Because of decreased enjoyment overall
- Have patients identify realistic pleasant activities
  - And activities they might be able to do in the future
- Have patients schedule pleasant activities

Slide 63

Sleep Hygiene

- Relax before bedtime; avoid stressful activities
  - Practice relaxation activity: meditation, breathing...
  - Avoid television, computers etc at bedtime
- Keep bedroom comfortable (dark, warm, quiet)
- Exercise daily (not vigorously within 3 hrs of bedtime)
- Avoid caffeine, nicotine, alcohol
- Keep a routine: specific times & activities
- Reserve bedroom for sleep & intimacy
- Get up after 20 minutes unable to fall asleep
Relaxation

- Meditation
- Diaphragmatic breathing
- Progressive muscle relaxation
- Visualization
- Autogenic training
- Activity-based
  - Yoga, Tai Chi, Qigung
- Biofeedback

Biofeedback (McKee 2008, Flor & Turk 2011)

Types
- Surface electromyography (EMG)
- Heart rate, blood pressure, respiration rate
- Heart rate variability
- Skin temperature
- Electrodermal reaction (galvanic skin response, GSM)
- Games and apps

Research on effectiveness

Protocols
Biofeedback: Surface EMG

- Good for chronic pain, anxiety, headaches, myofascial pain, TMD, incontinence
- Advantages: immediate feedback makes it easy for patients to learn and progress
- Disadvantages: cost of equipment, time demands
- Cost: $2,000-4,000

Biofeedback: Heart Rate

- Good for chronic pain, anxiety, depression, HTN
- Advantages: inexpensive, most clinics have pulse oximeters, easy for patients to understand
- Disadvantages: difficult for patients to learn control
- Cost: $20-40

Biofeedback: HR Variability

- Good for chronic pain, anxiety, depression, asthma, HTN
- Advantages: immediate feedback, easy to learn control, ability to 'keep score' and set targets, equipment relatively inexpensive
- Disadvantages: few clinics own equipment or are familiar with use
- Cost: $130-180
- iPhone app: StressDoctor $5
**Slide 69**

Heart Rate Variability

Stressed:
- Jagged line

Relaxed:
- Smooth curve
- Boxes under curve
- Session score

**Slide 70**

Biofeedback: Temperature

- Good for chronic pain, migraine, HTN, Raynaud's, edema
- Advantages: inexpensive
- Disadvantages: difficult to learn, slow response
- Cost: $20-40
- Bio-Q ring
Slide 71

Biofeedback: Galvanic Skin Response

- Good for chronic pain, anxiety, headaches
- Advantages: relatively fast response, can connect to computer for visual/graphic feedback
- Disadvantages: difficult to learn, few clinics own equipment
- Cost: $100-200
- The Wild Divine

Slide 72

Biofeedback Games

- The Wild Divine galvanic skin response ($400-500)
- Thought Stream galvanic skin response ($160)
- MindField GSR or skin temperature attachments for iPhone attachment & app ($100)
- StressDoctor iPhone heart-rate variability app ($5)
- Thought Technology (GSR), Inner Balance (HRV)
- Nintendo HR monitor

Slide 73

Biofeedback Procedures

- Teach relaxation response using biofeedback
- Have patients practice relaxation skills without biofeedback
- Gradually expose patient to stressful positions or situations
- Have patients apply relaxation skills outside the clinic
  - Premack’s principle: identify a tension-assessment cue to trigger relaxation response
Use of “Homework”

- Emphasize importance of cognitive & behavioral activities
- Treat relaxation, etc., like a prescription that must be done regularly
- Clearly set dose and intensity, just as with exercise
- Monitor adherence to behavioral program
- Problem solve lack of adherence

Physical Activity & Exercise

- Mind-body exercises:
  - Tai chi
  - Qigung
  - Yoga
- Visualization
- Graded motor imagery
- Graded activity
- Graded exposure
Visualization (Priganc 2011)

- Simple visualization
- Mirror visual feedback:
  - Performing an exercise using mirrors to observe motion
  - Research suggests visualization may minimize increases in pain due to movement/exercise

Graded Motor Imagery

- Left-right judgment
- Motor imagery: visualization without actual movement
  - Static positions
  - Movement into positions
- Mirror visual feedback
  - Provides visual/cortical input that movement is normal and pain free
  - (Bowering, 2013; Priganc, 2011)

Graded Exercise

- Graded exercise progresses exercises using a quota
  - In spite of pain
  - Identify baseline activity tolerated
  - Meeting the quota leads to increased quota ("pacing up")
  - Inability to meet quota leads to no reinforcement
- (George 2010; Nicholas 2011)
Graded Exposure

- Graded exposure to feared activities
  - Identify feared activities
  - By interview or Fear of Daily Activities Questionnaire
  - Start with activities causing mild anxiety
  - Continue at that level until anxiety decreases
  - Progress to activities causing greater anxiety
- Example: if lumbar flexion is feared
  - Start with flexion in supine
  - Progress to flexion in sitting
  - Progress to flexion in standing
  - (George, 2010; Nicholas, 2011)
Slide 81

Chronic Pain Function

Slide 82

Challenges Working with People With Chronic Pain

- Dealing with patients’ psychosocial problems
- Dealing with patients’ negative attitudes
- Empathy fatigue
- Time management
- Insurance & Billing

Slide 83

Patient’s Psychosocial Problems

- Psychological and social problems may be beyond our training and skill level
- Suggestions
  - Refer for psychological services
  - Recommend support groups (in-person/on-line)
  - Recommend self-care books, web-sites, etc.
  - Know your limits
  - Know your scope of practice
Maladaptive Attitudes

- Misconceptions about exercise
  - Interpreting normal exertional soreness as pain flare
- Interpreting moderation as failure
- Poor body awareness
  - Inability to distinguish stress from muscle tension
  - Inability to distinguish emotional from physical pain
  - Inability to feel mild ‘warning’ discomfort
- Suggestions:
  - Education: “Sore but safe,” “Challenge tissues”
  - Mindful movement: tai chi, yoga, Feldenkrais

Maladaptive Attitudes

- Have great difficulty pacing themselves and tend to overdo activity
- Garden metaphor
- Inconsistent with home exercise program
  - Start low, go slow
  - No achievable goal is too small
- Skeptical of mind-body approach
- Pain education
Time Constraints

- How can you do all this patient education on top of everything you already do?
- Limit hands-on and modalities
  - Research shows little long-term benefit
  - Focus time on patients’ self-management skills
  - Managing their own trigger points
  - Home exercises
  - Home use of heat, TENS, traction, if needed
- Select specific, achievable goals for each visit

Avoiding Therapist Burnout

- Suggestions:
  - Remember: you control the treatment, but the patient is responsible for the outcome through his/her active engagement
  - Be aware of your triggers and limits
  - Be compassionate with yourself
  - Be at ease with pain you cannot relieve
  - Think about what went right in your day
  - Communicate with colleagues and support system
  - (Stebnicki, 2000: Empathy fatigue)

Billing & Insurance

- How do we bill for behavioral management?
  - 97112 Neuromuscular reeducation
  - 97535 Self-care/home management training
  - 97110 Therapeutic exercise
- Insurance problems
  - Time-based approval (e.g., 6 wks): advocate for a given number of visits
  - Visit limits: spread visits out, e.g., 1x/wk
Psychosocially Informed PT

Behavioral Management of Chronic Pain

Foster N E, and Delitto A PHYS THER 2011;91:790-803

Case Study: Jake
38 y/o man c/o 4 yr hx of chronic neck, upper back and UE pain that had become more severe in the past 2 years
Gradual onset, no specific precipitating factors
Pain intensity 4-9/10, average 5/10
Constant, dull, throbbing, aching, intermittently shock-like
Aggravates: working at a computer for greater than 30 min, carrying anything
Eases: rest, ice, heat
Interference scale: 1 none - 10 maximum
  General activity 7
  Mood 9
  Normal work 6
  Relationships 4
  Enjoyment of life 9
  Normal MRI
Slide 91

Previous treatment:
4 different courses of PT that included manual therapy, stretching, strengthening, ultrasound, traction, hand and wrist splints
Chiropractic, acupuncture and massage

Slide 92

Patient perspective:
“None of it helped and as the years progressed I got worse and worse. I felt like I was aging exponentially. I was withering away and losing weight. I was in total despair and thought to myself that at this rate, I was destined for a life of sickness. I tried very hard to think positive, but at times the weight of pain and worry was overwhelming.” Jake

Slide 93

Treatment directed at chronic pain mechanisms:
• 3 visits individual treatment:
  • introduced mindfulness,
  • body awareness,
  • surface EMG biofeedback,
  • breathing,
  • relaxation
  • cognitive restructuring
• Pain education class
• Mindfulness based stress reduction program
Patient perspective:
“I learned that there wasn’t anything wrong with my body. At first I didn’t believe it. The pain was real! Then I was taught a different way of looking at pain. My nerves were the problem. It became clear that my pain was a manifestation of my stress and it was compounded by the way I reacted to the pain and life situations.” Jake

Patient perspective:
“Understanding the biology of pain helped a lot. At the start of all of this, when my pain increased, I panicked and thought there was something wrong. I kept doing less and less because I thought I was hurting myself. Now, I know sensitive nerves had a major role in my pain. I stopped freaking out. Instead of panicking, I told myself to stay calm. I stretched, relaxed and did deep breathing. It really made a difference.” Jake
Patient perspective:
"After a few weeks I found amazing results. The pain decreased and I could do more. By the time I finished the course I was virtually pain free. I also learned a new way of looking at the world. I had gone my whole life without living in the moment. Now I don’t even stress about things that drove me crazy before. I am more compassionate, patient and deliberate.”
Jake

In Conclusion...
• Clinical Practice Guideline approach:
  – Use biopsychosocial approach
  – All patients should participate in exercise
  – Include cognitive behavioral approach
  – Psychosocial problems do not invalidate pain complaint
  – Treatment should be sensitive to culture
• Active self-management is essential
  Institute for Clinical Systems Improvement (ICSI) Assessment & Management of Chronic Pain: www.icsi.org/guidelines_and_more/gl_os_prot/

We would like to thank:
Orthopedic Section Leadership
• Tess Vaughn, PT, COMT, DPT, OCS, Education Committee Chair
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Leslie’s colleagues: faculty and students at Clarkson University and staff at Canton-Potsdam Hospital
Slide 99

Resources in the Handout

• Books for both the PT and patients
• Web sites for both the PT and patients
• Reference list for this presentation

Slide 100

Please stay for the Pain Special Interest Group Business Meeting
Helpful Books/Resources
- Schubiner, H. *Unlearn Your Pain*. Available through Dr. Schubiner’s website: www.unlearnyourpain.com (patient resource)
- Vierck E, Kassan S, Vierck CJ. *Chronic Pain for Dummies*, for Dummies, 2011. (patient resource)

Helpful Websites

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<tr>
<th>Organization/Purpose</th>
<th>Website</th>
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<tr>
<td><strong>American Academy of Pain Medicine</strong>. Professional organization for physicians has some patient educational material.</td>
<td><a href="http://www.painmed.org">www.painmed.org</a></td>
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<tr>
<td><strong>American Chronic Pain Association</strong>. Provides education and peer support for patients and families.</td>
<td><a href="http://www.theacpa.org">www.theacpa.org</a></td>
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<tr>
<td><strong>American Pain Foundation</strong>. Educational material for patients and families, including material specifically for military &amp; veterans with chronic pain.</td>
<td><a href="http://www.painfoundation.org">www.painfoundation.org</a></td>
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<tr>
<td><strong>Australian Transport Accident Commission</strong> has an extensive selection of physical and psychosocial outcome measures.</td>
<td><a href="http://www.tac.vic.gov.au">http://www.tac.vic.gov.au</a> Go to Provider Resources, Clinical Resources, then Outcome Measures</td>
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<tr>
<td><strong>Carolyn McManus</strong>: Information regarding programs at Swedish Medical Center, for veterans and also audio guided relaxation programs</td>
<td><a href="http://www.CarolynMcmanus.com">www.CarolynMcmanus.com</a></td>
</tr>
<tr>
<td><strong>Change Pain</strong>: A modular approach to understanding pain and its management. Educational resources for clinicians.</td>
<td><a href="http://www.change-pain.co.uk/">http://www.change-pain.co.uk/</a></td>
</tr>
<tr>
<td><strong>Institute for Clinical Systems Improvement (ICSI)</strong>:</td>
<td><a href="http://www.rcsi.org/guidelines_and_more/gl_os_prot/">www.rcsi.org/guidelines_and_more/gl_os_prot/</a></td>
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**International Association for the Study of Pain (IASP).** Professional organization for researchers, clinicians and educators. Has some public education resources. www.iasp-pain.org

**Mayday Pain Project.** Educational information for providers, patients, and specific sections for caregivers. www.painandhealth.org

**California Department of Industrial Relations:** Medical Treatment Utilization Schedule (MTUS) Medical Treatment Guideline for chronic pain. http://www.dir.ca.gov/dwc/MTUS/MTUS_RegulationsGuidelines.html select "Chronic pain medical treatment guidelines"

**Neil Pearson, PT,** a Canadian physical therapist discusses nervous system sensitization in a 3 part video www.Lifesnow.ca

**Pain Treatment Topics.** Educational material for clinicians, patients and families. Links to resources on many other sites. Comprehensive section on pain assessment tools. www.pain-topics.org

**Pain.com.** Educational modules and articles for clinicians. www.pain.com

**PainAction.** Educational material for patients. Includes self-management tools. Integrated with clinician educational site PainEDU.com www.painaction.com

**PainDoctor.com.** Educational material for patients and families. www.paindoctor.com

**PainEDU.org.** Educational material for clinicians and educators. Includes downloadable PowerPoint lectures. Integrated with patient education site PainAction. www.painedu.org

**UMass Center for Mindfulness** listing of mindfulness based stress reduction programs: http://w3.umassmed.edu/MBSR/public/searchmember.aspx

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**Behavioral Approaches to Chronic Pain Management**

**References**


