Understanding Pain

- **Various meanings of pain:**
  - Biologically – Pain is a signal that the body has been harmed.
  - Psychologically – Pain is experienced as emotional suffering.
  - Behaviorally – Pain alters the way a person moves and acts.
  - Cognitively – Pain calls for thinking about its meaning, its cause, and possible remedies.
  - Spiritually – Pain is a reminder of human mortality.
  - Culturally – Pain has been used to test people’s fortitude, or to force their submission.

- In summary: Pain is a very complex process and people’s perceptions can alter their pain experience.

The Biopsychosocial Perspective

- Research indicates that physical and psychological symptoms increase together.
- Other studies have shown that patients with depression or anxiety have more physical symptoms, and as physical symptoms increase, so does the likelihood of an anxiety/depressive disorder.
- In one larger study in 2001, 22% of patients who reported persistent pain for longer than 6 months, there was a fourfold increase in associated anxiety and depressive disorders.

The Biopsychosocial Perspective

- In (1965), Melzack and Wall introduced the *Gate Control Theory of Pain*, a theory that began to emphasize the potentially significant role that psychosocial factors play in the perception of pain. Gate Control Theory included psychological factors as integral aspects of pain experience.
- Pain is now seen as a complex set of phenomena versus a specific, discrete entity.
- During the 1970s and 1980s, Engel introduced the *Biopsychosocial* perspective in relation to pain medicine.

Top six medical problems associated with Chronic Pain

- Degenerative disc – 13.10%
- Fibromyalgia – 19.70%
- Osteoarthritis – 21.30%
- Neck pain – 26.70%
- Headaches – 33.30%
- Back pain – 55.90%


The Biopsychosocial Perspective

- At the time of the Renaissance, scientific knowledge increased in anatomy, physiology, and biology, and a *Biomedical Reductionism* viewpoint was adapted.
- This dualistic perspective developed from the premise that mind and body function separately and independently (somatogenic versus psychogenic).
- The *Biomedical Reductionism* model dominated medicine until quite recently, strongly influencing the understanding of the relationship between pain and mental health.
The Biopsychosocial Perspective

- More recently (1999) Melzack expanded the GCT to include Selye's (1950) theory of stress: Neuromatrix Theory
- Injury = alteration/disruption of body's homeostatic regulation = the body's normal state is stressed = this initiates a complex reaction of neural, hormonal, and behavioral mechanisms to restore homeostasis.
- Selye and Melzack hypothesized that prolonged stress and ongoing efforts to restore homeostasis could suppress the immune system as well as activate the limbic system, which has an important role in emotional, motivational, and cognitive processes.

The Biopsychosocial Perspective

- Neuromatrix theory contends that prior stressors or concomitant current stress may explain the variations among individuals in what objectively appears to be similar physical pathology.
- Thus, the theory incorporates the pain sufferer's prior learning history as forming the neuromatrix by influencing cognitive and interpretive processes, as well as influencing individual physiological and behavioral response patterns.
- Predispositional factors interact with an acute stressor (pain) — resulting in multivariable individual responses.

The Biopsychosocial Perspective

- Disease versus Illness
  - Disease is defined by Turk and Monarch (2002), as "an objective biological event" involving the disruption of specific body structures or organ systems caused by either anatomical, pathological, or physiological changes.
  - Illness, on the other hand, is defined as a "subjective experience or self-attribution" that a disease is present. Illness refers to how a sick individual (and his/her family) lives with and responds to, symptoms and disability.

The Biopsychosocial Perspective

- "To heal does not necessarily imply to cure. It can simply mean helping to achieve a way of life compatible with their individual aspirations — to restore their freedom to make choices - even in the presence of continuing disease". (Dubos, 1978).
- Biopsychosocial model focuses on both disease and illness, with the latter being seen as a complex interaction of biological, psychological, and social factors.

The Biopsychosocial Perspective

- Pain: the subjective perception that is the result of the transduction, transmission, and modulation of sensory input.
- Nociception: Involves the stimulation of nerves that convey information about tissue damage to the brain.
- Suffering: Emotional responses that are triggered by nociception or some aversive event associated with it, such as fear or depression.
- Pain behaviors: Things that individuals do (overt behaviors) when they are suffering due to pain.

The Biopsychosocial Perspective

- In the past, organic pain was viewed as different from psychogenic pain.
- Psychogenic pain was considered psychologically caused and not "real" pain, as no specific organic basis could be found.
- With the DSM-IV (1994), psychogenic pain was no longer listed as a diagnostic entity.
The Biopsychosocial Perspective

- **Biopsychosocial/Interdisciplinary Approach to Treatment:** Mental health needs of the patient are carefully evaluated, along with the concurrent physical pain problems.
- Patients with chronic pain are at increased risk for: depression, suicide, anxiety disorders, and sleep disturbances.
- As pain becomes more chronic, emotional factors take on an increasingly dominant role in maintaining dysfunction and suffering.
- Affective disorders, anxiety disorders, and substance abuse disorders are the three most common psychiatric concomitant disorders associated with chronic pain.
- Untreated Posttraumatic Stress Disorder is specifically related to chronic physical and other mental health problems.
- Underlying Personality Disorders may be a strong influencing factor.

Psychological Factors

- **Depression:** Most common psychiatric diagnosis within chronic pain population.
- Due to ongoing, sometimes progressive and consistent chronic pain experience, an increase in thoughts of suicide as a means to ending one's suffering may appear to be a viable solution.
- Turk & Colleagues (2000) - Looked at pain patients who were not as depressed: patients who believed they could yet function and who felt a sense of control in spite of pain had less depression, or did not experience depression.

- **Psychological Factors**
  - *Depression:* Studies have shown that people with severe depression feel more intense pain (NIMH).
  - Individuals with depression have higher levels of cytokines – proteins that send messages to cells that influence how the immune system responds to infection and disease; including the strength and length of the response.
  - Cytokines may promote inflammation (the body’s response to injury or infection) – which may, in turn, trigger pain.
  - Recent studies hypothesize that inflammation may be a link between depression and illnesses that often occur with depression.

- **Psychological Factors**
  - *Anxiety:* A normal reaction to stress, perceived threat, or experiencing an adverse situation.
  - Chronic pain is a stressor in itself:
    - Worry that chronic symptoms signal serious or disabling disease.
    - Feelings of losing control over one’s health or life.
    - May adversely affect interpersonal interaction with friends and family.
    - May impact work productivity and general quality of life.
    - May become so distressing that it keeps people from doing the things they want to do or need to do.

- **Psychological Factors**
  - *Anxiety:* Pain-related fear and ongoing concerns about harm/avoidance appear to increase physical symptoms.
  - Anxiety is an affective state that is strongly influenced by appraisal (cognitive and interpretive) processes: fear of pain and anticipation of intense pain are not driven solely by the actual sensory perception of pain. This can be powerful negative reinforcement for consistent avoidance behaviors and increasing the levels of functional disability.

- **Psychological Factors**
  - *Post-traumatic Stress Disorder:* Some more current research shows the prevalence of post-traumatic stress disorder is higher among chronic pain patients (as high as 35%) versus the general population (3.5%).
  - With PTSD: The person becomes both emotionally and physically distressed when reminded of, or when thinking about the traumatic experience. There is increased anxiety-sensitivity: the fear of arousal-related sensations due to beliefs that the sensations result in harmful consequences. Just as with other traumas, the unpredictable and uncontrollable variables of pain cause a heightened fear response and increased feelings of helplessness.
Psychological Factors

- Early Life Trauma Common Among Chronic Pain Sufferers:
  - Sexual Abuse – 26.7%
  - Physical Abuse – 29.7%
  - Childhood Accident – 32.6%
  - Family Drug Abuse – 36.8%
  - Emotional Abuse – 48.2%
  - Loss of Loved One – 75.2%

Personality Disorders:

- Personality Disorders: “an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment” (DSM-V; 2013).
  - Borderline: Instability in interpersonal relationships, self-image, and affect, and marked impulsivity (DSM-V; 2013). (May be demanding, frustrating.)
  - Dependent: A pattern of submissive and clinging behavior related to an excessive need to be taken care of (DSM-V; 2013). (May be demanding and high user of medical services.)
  - Narcissistic: A pattern of grandiosity, need for admiration, and lack of empathy (DSM-V; 2013). (May be self-absorbed; highly demanding).
  - Antisocial: A pattern of disregard for, and violation of, the rights of others. (DSM-V; 2013). (May be substance-seeking or misusing medications.)

Treatments for Pain

- Analgesic Medication or “pain killing” medications:
  - Nonnarcotic/nonsteroidal anti-inflammatories (e.g., aspirin, Advil, Tylenol), and some Rx medications (e.g., Celebrex).
  - Narcotic (Opioids): Short-acting (e.g., codeine, Dilaudid, Vicodin, Lortab, Percodan, Percocet), and longer-acting (e.g., methadone, Oxycontin, and Duragesic - all Rx medications).
  - Antidepressants: Due to their effects on serotonin and norepinephrine. Also can help with sleep. May be used for pain relief in the absence of depression.
  - Sedatives, Tranquilizers, and Muscle Relaxants: (e.g., benzodiazepines – Valium, Ativan, Klonopin as sedatives), and muscle relaxants such as Flexeril.

- Anticonvulsants: Formerly used only for seizures, now used with pain associated with nerve injuries.
- Topical Agents: Also related to nerve damage (e.g., Zostrix and Lidoderm [5% lidocaine patch]).
- Surgery: more so with acute pain.
- Nerve Blocks: Most common – epidural block where a local anesthetic is injected between the vertebrae into spinal nerves causing the nerves to become "numb".
- Trigger Point Injections: Hypersensitive areas of muscles, ligaments, or tendons located near motor nerves.
- Acupuncture: Chinese method 5,000 years old used to stimulate different body connecting points.
- Biofeedback: Bodily self-monitoring utilizing electrical sensors on the skin over muscles; used to help people control certain physiological processes such as heart rate and muscle tension.
- Pain Clinics and Rehabilitation Programs: Specialized pain clinics that staff physicians who combine many of the techniques described above, as well as including psychologists, and occupational and physical therapists who specialize in pain management.
Psychological Intervention

**Pain Assessment:**
- History of the person's pain:
  - When did the pain first start?
  - What were the circumstances/situation?
  - A description of the initial experience of their pain.
  - What areas of the body are affected by the pain?
  - What are current and averaged pain levels?
  - Specifically describe the type of pain.
  - List, in sequence, any medical or other interventions sought as treatment.

**Psychiatric History:**
- Any past psychiatric diagnoses; any history of abuse.
- Past psychiatric hospitalizations or suicide attempts.
- Past medications; any history of medication misuse or abuse.

**Current Mental Status**
- What is the patient's current mood and affect - and how has their pain influenced this?
- How has the pain affected presentation (demeanor, alertness, hygiene, orientation), or movement.
- How is concentration, memory, and decision-making affected by pain?
- How is the patient's speech and thought process in relationship to their pain?

Psychological Intervention

**Social Functioning:**
- How has pain influenced:
  - What is the patient's current living arrangement?
  - Who does the patient view as supportive persons in their life?
  - What types of work has the patient done (or is currently doing)?
  - What types of interests, hobbies, or activities has the patient enjoyed, and is the patient currently able to engage in these things?
  - Are there any new behaviors or interests the patient would like to pursue?
  - How has pain influenced any of these aspects of the patient's life?

Psychological Intervention

**Diagnosis Findings and Diagnostic Impression**
- Summarize biopsychosocial information; taking into account any past and current diagnoses. This section includes patient’s view of the psychological process in the management of their pain, and the level of motivation / attitude / or possible resistance toward treatment.

**Diagnostic Impression**
- Some common diagnoses related to chronic pain are:
  - 300.82 Somatic Symptom Disorder With Predominant Pain (specify if: persistent, or if: mild, moderate, or severe).
  - 293.83 Depressive Disorder Due to a Medical Condition (i.e.; Chronic Pain).
  - 293.84 Anxiety Disorder Due to a Medical Condition (i.e.; Chronic Pain).

Psychological Intervention

**Pain Level versus Pain Tolerance**
- Six Factors that *decrease* pain tolerance:
  1. Fatigue.
  2. Weakness.
  3. Negative Mental State.
  4. Negative Affective (Mood) State.
  5. Long-term Stress.
  6. Inappropriate pain medication use.

**Pain Level versus Pain Tolerance**
- Six factors that *promote* pain tolerance.
  1. Being rested.
  2. Improving general strength.
  3. Having a positive mental state.
  4. Having a positive mood state.
  6. Appropriate medication use.
Psychological Interventions

- **Relaxation Response (RR):** Techniques that bring about a relaxation response will help to restore the recuperative capabilities.
  1. Focusing one’s mind on a repetitive phrase, word, breath, or action (i.e.; meditation, diaphramatic breathing, progressive muscle relaxation, relaxing music).
  2. Adopting a passive attitude toward the thought’s that go through one’s head.

Positive Behavioral Activation

- Continuing to be active while experiencing pain requires consideration of three factors:
  1. **Pacing** – Selecting an activity the pt. would like to do, or do more of. Pacing is about conserving energy over an extended time period.
  2. **Adaptation** – This is about finding new ways to accomplish routine tasks, or using assisting devices to help do routine/familiar activities.
  3. **Delegation** – Also helps conserve energy; job sharing - (you carry the laundry upstairs and I’ll fold it).

Positive Behavioral Activation

- **Aerobic exercise** (3x/week) can improve general health, particularly heart and lung function. People in pain tend to refrain from movement or exercise.
  - Some ideas for aerobic exercise include: riding a stationary bike, walking a treadmill, using indoor cross-country ski equipment, yoga, or tai chi (the latter two are very good for pain pts. as these forms of exercise require slow, purposeful, and coordinated breathing that work well with limited movement). Water exercises are also particularly helpful (70% of gravity’s effects are lost).

Pleasurable Activities:

- Try to do something purposeful, interesting, and enjoyable on a regular basis (i.e.; taking the dog for a walk around the block; taking an online class; seeing friends on a regular basis).

Psychological Interventions

- **Group Therapy for pain management:**
  - Basic approaches and major goals:
    1. Teaching pain coping skills.
    2. Educating patients about their pain or disease.
    3. Providing social support.

Cognitive Interventions

- **Self-Talk or Automatic Thoughts:** Based on the premise that moods, emotions, and many feelings are sustained (and possibly created) by self-talk.
  - For instance: Optimists and Pessimists.
    - **Optimists** – Tend to routinely engage in more positive self-talk.
    - **Pessimists** – May tend to go through a torrent of negative and self-defeating thoughts throughout the day.
  - It may be more useful not to judge thoughts as “good” or as “bad”, but as whether they are helpful or unhelpful.

Chronic Pain as a Form of Chronic Stress

- **Chronic Stress:** A chronically stressed state can make it difficult to reestablish homestasis (balance), due to exhaustion of recuperative abilities.

Manifestations of chronic stress:

- Reduced immunity to disease
- Diarrhea and/or constipation
- Sleep disturbance and fatigue
- Headaches
- Poor concentration
- Shortness of breath
- Weight loss/gain
- Increased muscle tension
- Anxiety/depression
Individual Characteristics:

1. Threat

10 Types of Cognitive Distortions

Disqualifying the Positive

Magnification and Minification

Core beliefs

All

Catastrophizing

Emotion

Behaviors

Automatic thoughts

Three Types of Primary Appraisals/Sequelae:

Personality/psychopathology factors

Intermediate beliefs

Secondary Appraisals/Implications:

Cognition

Three Types of Primary Appraisals/Sequelae:

Overgeneralization

Beliefs about one’s control over pain

Social roles

Biological factors

Mental Filtering

Jumping to Conclusions

Stress-Appraisal-Coping

Model of Pain (Thorn/2004)

Three Types of Primary Appraisals/Sequelae:

1. Threat

2. Harm/Loss

3. Challenge

1. Threat – perception that danger outweighs coping ability.

2. Harm/Loss – perception that harm has occurred from the stimulus.

Emotion: grief, sadness, depressive emotions – psychological dysfunction.

Cognition: increases thoughts of loss/helplessness – distorting a more realistic appraisal of stressful circumstances.

Behaviors: Increases passivity and reduces physical activity/other daily living activities – may lead to loss of work, income, quality of life, as well as relationship difficulties.

Stress-Appraisal-Coping

Model of Pain (Thorn/2004)

Three Types of Primary Appraisals/Sequelae:

1. Threat

2. Harm/Loss

3. Challenge

3. Challenge – perception that ability to cope is not outweighed by the potential danger.

Emotion: produces feelings of commitment or conviction – may, in some situation, promote eagerness or excitement.

Cognition: leads to beliefs that effective coping strategies are possible.

Pain-related stimuli are viewed as challenging/something to overcome mentally – self-identification as a “well person with pain”.

Behaviors: increased pain self-management and engagement in daily activities – leading to lessened disability.

Stress-Appraisal-Coping

Model of Pain (Thorn/2004)

Secondary Appraisals/Implications:

Intermediate beliefs – attitudes developed from personal, cultural, or environmental factors.

Beliefs about pain – regarding the nature of pain, cause of pain, appropriate treatments – influencing level of distress/disability.

Beliefs about one’s control over pain – attitudes based on self-efficacy and LOC (locus of control: internal versus external).

Automatic thoughts – frequent, situation-driven thoughts that occur without conscious awareness & influence coping strategies.

Catastrophizing: negative and distorted predictor of perceived pain levels, disability, and adaptation to chronic pain conditions.

Other cognitive distortions.

Cognitive Interventions

10 Types of Cognitive Distortions (David Burns, MD):

1. All-or-None Thinking: Tend to evaluate situations or personal qualities in extreme, black-or-white categories.

2. Overgeneralization: Tendency to see a single negative event as a never-ending pattern of defeat.

3. Mental Filtering: Tendency to dwell solely on a single negative event, and thus perceive the whole situation as negative.

4. Disqualifying the Positive: Tendency to transform neutral or even positive experiences into negative ones.

5. Jumping to Conclusions: Refers to jumping to a negative conclusion that is not justified by the facts of the situation.

6. Magnification and Minification: Tendency to exaggerate the importance of a negative event, while denying the importance or value of positive personal qualities.
Cognitive Interventions

10 Types of Cognitive Distortions (David Burns, MD):

7. Emotional reasoning - Refers to taking one's emotions as evidence for the truth.
8. Labeling - Refers specifically to identifying a mistake or negative quality and then describing an entire situation or individual in the terms of that quality.
9. Personalization - Refers to taking responsibility for a negative event or outcome even when circumstances are beyond the individual's control.
10. "Should" Statements - Tendency to "second-guess" one's actions or thinking, setting the individual up for feeling pressured or resentful.

Cognitive Interventions

- Changing One's Thoughts:
  - Challenging Self-talk (Automatic Thoughts):
    - Identify negative, self-defeating types of thoughts.
    - Examine these thoughts for distortions, irrational beliefs, and self-defeating attitudes.
    - Finally, challenge the accuracy of the thoughts.
    - Replace with constructive alternative thoughts.

- Clarifying the Problem and What to Do:
  - State the problem.
  - State why it is a problem. Identify (develop a plan):
    - What one can do.
    - What does one need?
    - How does one feel?

Cognitive Interventions

- Implementing a Daily Inventory to help in coping with/managing pain:
  - What does your body have to tell you today, right now?
  - How do you feel (emotionally) right now?
  - What are your limitations today?
  - Am I beating myself up today?
  - If I am having a bad day today, how can I keep my head above water?

Cognitive Interventions

- Stress-Appraisal-Coping Model of Pain (Thorn/2004):
  - Theoretical model asserts that the patient's cognitions impact their adjustment to pain through:
    - Appraisal of pain and related stressors.
    - Thoughts/beliefs about pain and about the self as a person in pain.
    - Coping options ultimately chosen by the patient.
    - Cognitive Restructuring:
      - The cognitive therapy technique utilized to assist patients to evaluate, challenge, and construct alternative thoughts to help them cope more effectively with their pain.

Cognitive Interventions

- Stages of Gaining Acceptance:
  1. Denial of Limitations.
  2. Rebellion Against and Anger About Limitations and Pain.
  3. Despondency, Depression, and Passivity.
  5. Acceptance.

Cognitive Interventions

- Growing from a person struggling and suffering with pain – To a person who is thriving despite pain.
  - Listen to my body and take appropriate steps to respond.
  - Develop and achieve reasonable/manageable goals.
  - Pace my activities and rest cycles.
  - Increase the variety of pleasurable activities in my life.
  - Improve my relationships with others.
  - Learn to "think myself" into feeling better. (restructure negative, unhelpful thinking patterns – (challenge and confront) – replace with positive, constructive and reinforcing thoughts and beliefs).