

NON-PHARMACOLOGICAL APPROACHES FOR PAIN MANAGEMENT

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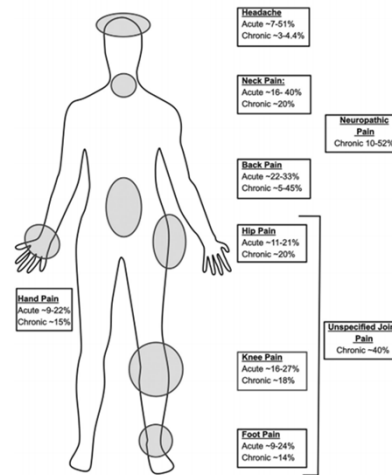
DISCLOSURES

- Scientific advisory board member – TribeRx
- No disclosures relevant for current presentation

CHRONIC PAIN AND OLDER ADULTS

- By 2050, 20% of US population will be over 65
- Prevalence of chronic pain increases with age
 - 15-20% in younger adults
 - 30-50% in older adults
 - Prevalence in nursing homes may be as high as 80%
- Despite improving survival/longevity, interventions for pain/disability/quality of life have not improved to same degree

Prevalence of Pain in Adults aged 65 years or older by site of pain



Domenichiello & Ramsden 2019, *Prog Neuro Psychopharmacol Biol Psychiatry*

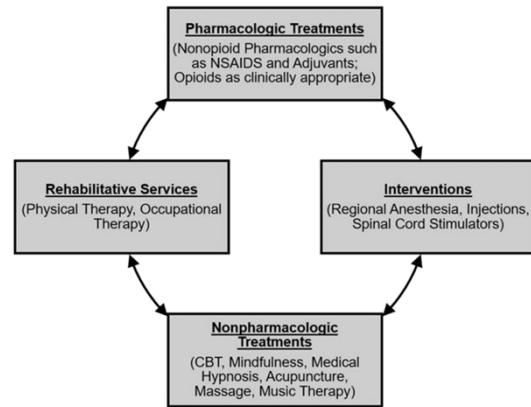
PAIN ASSESSMENT IN OLDER ADULTS

- Assessment of chronic pain in older adults is inconsistent
 - Older patients may not regularly report pain
 - Stoicism
 - Belief that pain is just “part of aging”
 - Cognitive impairment (e.g., dementia)
 - Providers may not regularly assess pain levels
 - Prioritizing management/assessment of other medical comorbidities
 - Different treatment goals for younger vs. older patients (e.g., prioritizing return to work vs. safety)



CHRONIC PAIN TREATMENT IN PRIMARY CARE

- Primary care providers report barriers to effective pain treatment
 - Lack of clear treatment guidelines
 - Limited training in assessment/treatment of chronic pain
 - High perceived difficulty/stressfulness of managing chronic pain
- Need for multidisciplinary approaches in chronic pain in geriatrics
 - Questionable long-term benefit for pharmacotherapy as sole intervention
 - Limited evidence for chronic opioid therapy in chronic pain and/or older adults
 - Patient concerns about safety of medications



Wren et al., 2019, *Children*

NON-PHARMACOLOGICAL TREATMENTS FOR PAIN

- Physiotherapy
 - Includes specific exercise training but also encouraging patients to increase levels of daily activity
 - Small-to-moderate effects on pain and disability, some benefit for QOL, depression, anxiety
 - Limited by evidence quality due to low sample sizes, insufficient long-term assessment
- Yoga
 - Positive (moderate-strong) effects on pain and disability, moderate-quality evidence
- Acupuncture
 - Shows small effects for pain relief across multiple pain conditions
- TENS
 - Demonstrates analgesic benefit, but quality of evidence is low
- Spinal manipulation
 - Good evidence for short-term pain relief and function for CLBP
 - Unclear benefit for longer-term outcomes (e.g., return to work)
- Evidence for other CAM treatments is limited
- Psychological/mind-body therapies

PSYCHOLOGICAL TREATMENT FOR PAIN IN OLDER ADULTS

- Meta-analysis of psychological interventions for pain in older adults (Niknejad et al., 2018, *JAMA Internal Medicine*)
 - Pooled analysis of 2608 older adults with chronic pain, 22 studies
 - Primarily musculoskeletal pain (others: RA, mixed pain samples)
 - Including CBT, MBTs, ACT, self-management interventions
 - Small but significant post-treatment effects:
 - Pain intensity
 - Pain interference & physical function
 - Depression & anxiety symptoms
 - Self-rated physical health
 - Coping variables (self-efficacy, reducing catastrophizing)
 - Effects of treatment roughly equivalent to outcomes non-older adults for chronic pain
 - Interventions may be enhanced by use of social support, also enhanced by multimodal therapy (e.g., PT or exercise)

PSYCHOLOGY IN PRIMARY CARE

- Psychologists increasingly present in primary care offices (co-located, or in nearby offices)
- Improves:
 - Clinical outcomes
 - Patient/provider satisfaction
 - Medication adherence
 - May concurrently improve other health outcomes (obesity, smoking, exercise)
 - Reduces medical resource use among “high-utilizer” patients
- Model for pain management in primary care
 1. PCP addresses specific patient questions about pain (fear of injury, worsening of medical condition), builds patient readiness for self-management (e.g., motivational interviewing)
 2. Brief assessment by psychologist to determine suitability of individual therapy vs. more intensive pain treatment
 1. May involve brief treatment or educationally-focused groups
 3. If indicated (for patients with high disability and/or distress), more regular, intensive follow-up with psychologist

PAIN TRANSMISSION AND CHRONIFICATION

- Early models (e.g., Melzack & Wall, 1962)
 - Dorsal horn of spinal cord is a “pain gate,” modifies nerve signals to brain
 - Biological/psychological factors “open” or “close” pain gate
 - Ascending and descending signals between brain and body alter experience of pain
- Pain as “threat signal”/“conditioned response”
 - Chronic pain patterns emerge from brain’s response to threatening cues
 - Input from nerve signals, prior conditioning
 - Pain is a protective response, becomes “overused” in chronic pain
- Pain signal can be modified by both biological and psychological factors
 - Nociception matters, but is only one component of chronic pain experience

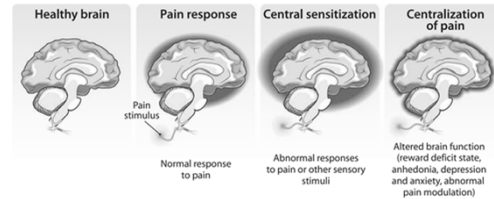
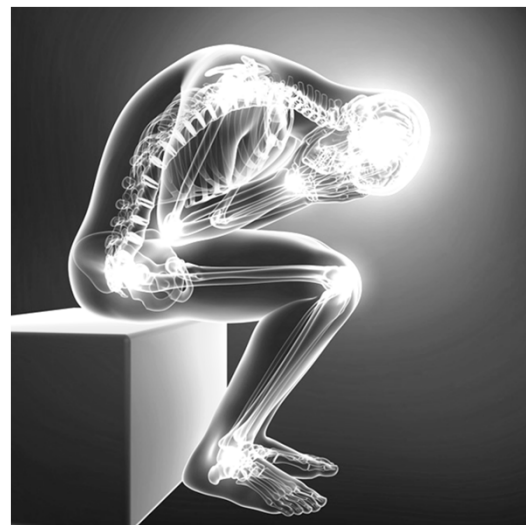


Fig. 2. Chronic pain affects the brain. Damage to peripheral nerves (or to the CNS) can produce pain that is associated with ongoing plasticity of the brain. Such plasticity can reflect increased “centralization” of pain within specific (for example, emotional) circuits. Centralization of pain includes changes that are often associated with pain such as altered cognition and affect (depression or anxiety). Understanding the processes promoting such chronification of pain is critical for successful translation of pain therapies.

Boorsook, Hargreaves, Bountra, & Porreca, 2014, *Science Translational Medicine*

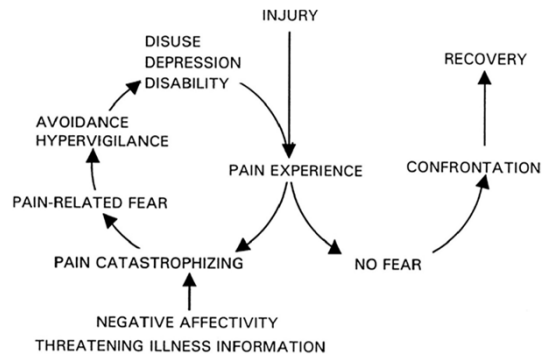
CHRONIC PAIN: A COMPLEX SIGNAL

- Experience of pain has 3 components
 - Sensory
 - Emotional
 - Evaluative/cognitive
- All pain has a psychological component
- Acute versus chronic pain
 - Distinct patterns of brain activation for acute and chronic pain
- Pain is a “teaching signal” or “protective response”
 - Useful in acute pain/injury, harmful in chronic pain
- Effective treatments require “biopsychosocial” approach



FEAR-AVOIDANCE MODEL OF CHRONIC PAIN

- Vlaeyen & Linton, 2000, 2012
- Model of chronic pain development/maintenance
 - Pain produces unhelpful psychological responses
 - Catastrophizing
 - Fear
 - Interpretation of pain as sign of worsening illness/bodily damage
 - Negative emotional responses produce avoidant behavior
 - Causes deconditioning/sensitization of tissues/CNS
 - Reduces function in daily life
 - Worsens psychological distress (e.g., depression)
 - Combined factors contribute to worsened pain ("vicious cycle")



MIASKOWSKI 2019 – PAIN PRACTICE

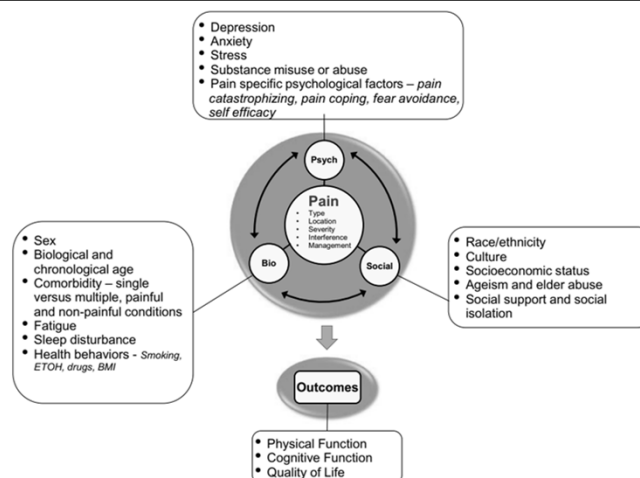


Figure 1. A conceptual framework for understanding chronic pain in older persons.

PSYCHOLOGICAL TREATMENTS IN CHRONIC PAIN

- Multiple approaches to treat psychological factors in chronic pain
 - Cognitive-behavioral therapy (CBT)
 - Pain self-management
 - Mindfulness-based stress reduction (MBSR)
 - Acceptance and commitment therapy (ACT)
 - Graded activity/exposure
 - Hypnosis
 - Emotional awareness and expression therapy (EAET)

COGNITIVE-BEHAVIORAL THERAPY (CBT) FOR PAIN

- “Gold standard” treatment for chronic pain
 - Small-to-moderate effects on pain catastrophizing, mood, disability
 - Small effect sizes for pain intensity
 - Validated in most chronic pain conditions
 - Easily adapted to class format
- Useful as a “toolbox” approach to provide skills for pain coping
 - Behavioral skills (relaxation, activity pacing, communication)
 - Behavioral activation (scheduling of pleasurable events)
 - Sleep improvement strategies
 - Cognitive reappraisal strategies

CBT Thought Record

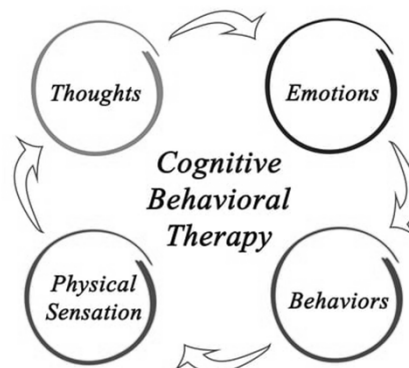
Where were you?	Emotion or feeling	Negative automatic thought	Evidence that supports the thought	Evidence that does not support the thought	Alternative thought	Emotion or feeling
Where were you? What were you doing? Who were you with?	Emotions can be described with one word. E.g.: angry, sad, scared Rate 0-100%	What thoughts were going through your mind? What memories or images were in my mind?	What facts support the truthfulness of this thought or image?	What experiences indicate that this thought is not completely true all of the time? If my best friend had this thought what would I tell them? Are there any small experiences which contradict this thought? Could I be jumping to conclusions?	Write a new thought which takes into account the evidence for and against the original thought.	How do you feel about the situation now? Rate 0-100%

PSYCHOLOGYTOOLS.org

Image retrieved from www.psychologytools.org

CBT FOR PAIN MECHANISMS

- Reduced catastrophizing/fear of pain
- Increased active coping (e.g., exercise)
- Reduced avoidant behaviors
- Reduced reliance on short-term coping strategies
- E.g., medications as “first line” coping response



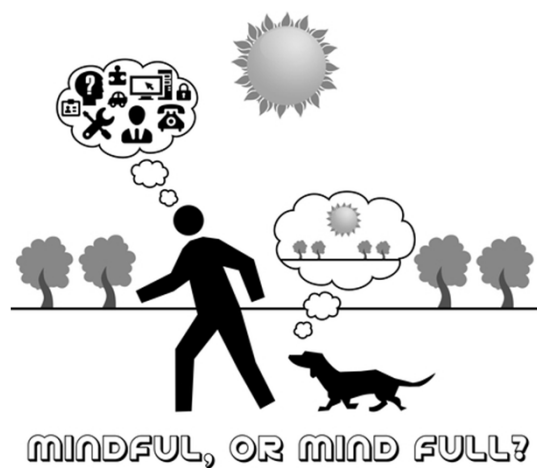
PAIN SELF-MANAGEMENT

- Typically based on CBT for pain, often incorporates exercise
 - Shows small-moderate effects on pain and disability
 - Unclear duration of treatment effects
- Efficacy research is limited overall
 - Appears better for arthritis than other pain conditions in older adults
- Typically weekly classes, 6-8 weeks
 - Can be conducted with non-psychologist facilitator
- May be more cost-effective
- Quality of treatment may be more variable unless manualized approach is adopted



MINDFULNESS-BASED STRESS REDUCTION (MBSR)

- Meditation-based approach to managing pain
 - Based on Buddhist and yogic meditation practices
- Pain is an “alarm signal” that leads to unhelpful “automatic” responses
- Emphasizes mindful awareness, non-judgment of bodily sensations, and detached self-observation

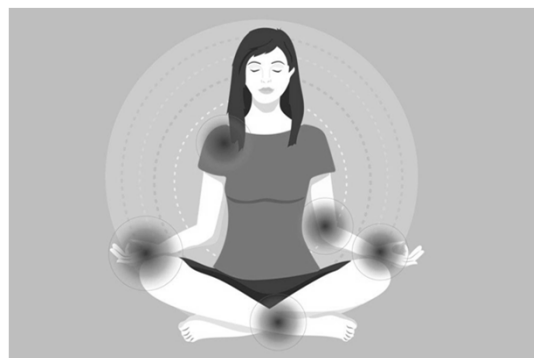


MINDFULNESS-BASED STRESS REDUCTION (MBSR)

- Typical structure – 8-10 weekly classes
 - Introduction to mindful meditation/awareness training
 - Guided body scan – awareness/acceptance of bodily sensations
 - Mindful yoga – approaching limits with gentleness
 - Introduction to meditation and stress in everyday life
 - Responding to stress/illness in mindful ways
 - Mindful communication
 - Diet/mindful awareness of intake (of food, substances, emotions)
 - Review course content

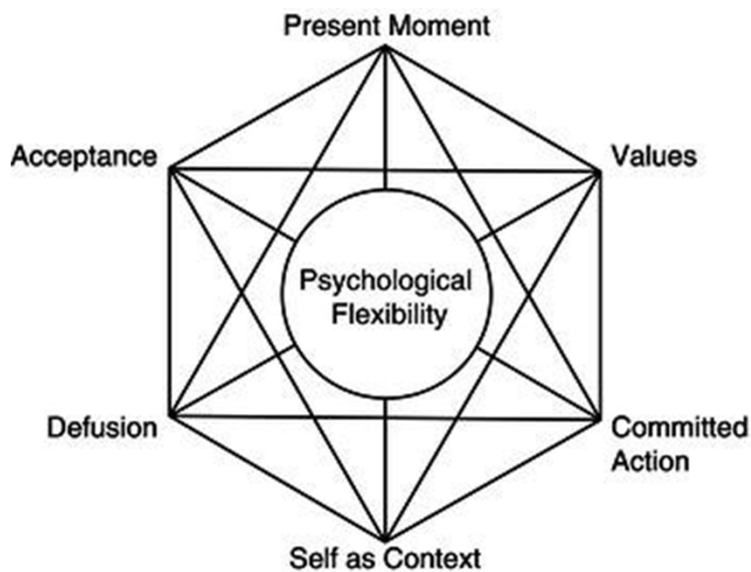
MINDFULNESS-BASED STRESS REDUCTION (MBSR)

- Typically requires all-day meditation retreat and daily practice
- Benefits of MBSR
 - Decreases unhealthy reactions to pain
 - Increases ability to stay in the present
 - Interrupt automatic processes (catastrophizing, unhealthy behaviors) that increase pain and distress
 - Increases acceptance of pain/psychological flexibility
 - Reduces pain catastrophizing
- “Mindful lifestyle” instead of “toolbox”



ACCEPTANCE AND COMMITMENT THERAPY (ACT)

- Focuses on changing responses to thoughts, rather than changing thoughts themselves
- ACT focuses on:
 - Non-judgment, recognition and acceptance of thoughts
 - Increasing the ability to stay focused and in the present
 - Acting in ways that are consistent with personal values, not just on immediate relief from pain
 - “Meaningful function” instead of “pain relief” as primary goal
- Overlaps with MBSR
- Also known as “contextual CBT”



ACT – TYPICAL SESSIONS

- Introductions and foundations for treatment
 - Short vs. long-term benefits of treatment/coping
 - Avoiding pain vs. living well
- Behavior change and mindfulness
 - Interrelationships between pain, thoughts, emotions, and behaviors
- Values and acceptance
 - Acceptance of pain
 - Defining a meaningful life
 - Identifying problematic values
- Values clarification and goals
 - Goals versus values
 - Using values to set meaningful goals

ACT – TYPICAL SESSIONS (2)

- Defusion
 - Activity pacing/cycling
 - Discussion of mind's responses to threat
 - Distinction between self and thoughts
- Committed Action
 - Dealing with avoidance/ambivalence
 - Defusing/separating thoughts from behavior
- Willingness
 - Primary vs secondary suffering
 - Commitment and barriers to action despite setbacks
- Wrap-up/Conclusions
 - Preparation for setbacks/relapse



ACT – RESEARCH SUPPORT

- Emphasizes acceptance of pain and mindfulness
 - Unlike MBSR, does not require daily meditation
 - Meditation is still emphasized, however
- Medium effect sizes for mood, disability, work status, and physical performance
 - Smaller effects for pain and depression
- Current (smaller) evidence base suggests similar level of efficacy as CBT overall

GRADED EXPOSURE/ACTIVITY FOR PAIN

- Graded activity or in-vivo exposure
 - Largely physical movement-based
 - Decreases perceptions of physical activity as harmful
 - Slow, safe, and gradually increasing exposure to movement
- May involve development of fear hierarchy related to pain/activity
- Often conducted by a physical therapist and a psychologist



GRADED EXPOSURE/ACTIVITY FOR PAIN

- Has shown benefits for:
 - Reducing pain intensity
 - Reducing functional disability
 - Reducing pain-related fear and catastrophizing
 - Reducing anxiety/depression
- Most studied in LBP
 - Some evidence for CRPS, whiplash, mixed chronic pain
- Improvements appear to be due to reductions in catastrophizing and perceived harmfulness of activity

HYPNOSIS FOR CHRONIC PAIN

- Uses both traditional aspects of pain psychotherapy (relaxation) and suggestion
 - Reduce pain intensity
 - Reduce pain-related difficulties
- Hypnotic Process
 - Introduction
 - Hypnotic Induction
 - Deepening Procedure
 - Imagery Suggestions/Metaphors
 - Therapeutic Suggestions
 - Reducing pain
 - Increasing sleep
 - Changing location or meaning of pain
 - Increasing comfort or ability to ignore pain
 - Changing attentional focus away from pain
 - Reorienting Procedure

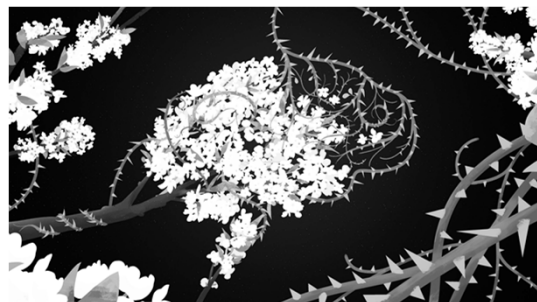


HYPNOSIS – RESEARCH SUPPORT

- ~70% of patients report pain reduction, either in session or during practice
 - 20-30% report long-term relief
- Can be added to other treatments
 - Appears to add incrementally to relief in pain intensity/frequency/duration
- Always a voluntary process, can be taught as self-hypnosis

EMOTIONAL AWARENESS AND EXPRESSION THERAPY

- Targets unexpressed/repressed emotions and centralized pain
 - Prior traumas/adverse life events, styles of emotional expression learned in childhood
 - Large comorbidity of chronic pain and PTSD
 - Estimated 0-57% of patients with chronic pain have PTSD, higher proportion with centralized pain (e.g., fibromyalgia)
 - Negative emotional responses (to pain and other stimuli) and avoidance may reinforce pain circuit
- Therapy targets healthy experiencing and expression of difficult emotions
 - Anger, fear, guilt, shame, need, love
 - Meditation, expressive writing, and dynamic therapy exercises
- Limitations include small evidence base, no comparative efficacy
 - Unclear how to implement in patients with active & untreated psychiatric conditions (e.g., PTSD, major depression)
 - Few practitioners trained in this approach



SUMMARIZING THE LITERATURE

- CBT has strongest research support overall
 - Useful for high catastrophizing/fear of pain, poor sleep, poor stress coping
 - Not ideal for patients with high levels of inflexibility or unwilling to self-manage
 - “Why should I cope with this? I want a cure!”
- Graded exposure/activity approaches useful for high fear of pain/perceived harmfulness of activity
 - PT + Psych may be more beneficial for patients needing intensive treatment
- Hypnosis may enhance outcomes of other interventions

SUMMARIZING THE LITERATURE

- MBSR, ACT - generally comparable outcomes to CBT, but fewer studies
 - May be better for patients with higher levels of psychological distress or that are unwilling to self-manage
 - Non-directive therapies, unlike CBT
- MBSR and ACT are similar, and differences may be subtle
 - ACT may be preferable for patients unwilling to do daily meditation or if they may benefit from re-establishing long-term goals
 - MBSR may be preferable for patients who are unwilling to consider “accepting” pain

SPECIAL CONSIDERATIONS FOR OLDER ADULTS

- Research base is smaller, but still shows benefit of psychological approaches in older adults
 - May require larger focus on behavioral activation/change, due to skepticism about role of thoughts/emotions
 - Emphasize learning new “skills for toolbox” for living with pain
- Clarifying that aging does not equal pain
 - Even in older adults, pain is due to illness, not aging itself
- Specific focus on addressing fear of falling
 - Older adults report fear of falling as key factor in reducing activity or exercise
 - Emphasis on learning strategies to reduce risk & consequences of falling, still maintaining function and conditioning body
- Chronic pain in dementia
 - Pain is often (further) underassessed
 - Psychosocial treatments may still be effective
 - Likely improved with social/cognitive support, implementation into daily routine

CONSIDERATIONS FOR PRIMARY CARE

- Emphasizing self-management (through gradual behavior change) increases likelihood of long-term success
 - Improving sleep, activity level, mood, diet may facilitate future improvements
 - Urge patients to make changes gradually to avoid getting overwhelmed
- Where possible, identifying available mental health resources for patients is key
 - Specialty psychology services are uncommon, so other methods may include social work or counseling students in less-populous areas
- Whenever possible, it is valuable to reassure to patients that movement/activity are safe and that their medical conditions are not likely to worsen if they are active
 - Pain does not always equal damage, especially in chronic pain!
- For more motivated patients, consider recommending a self management-focused book or phone app
 - Emphasizing role of patient's own self-management in helping improve their condition

EDUCATING PATIENTS ABOUT CHRONIC PAIN

- Good pain treatment requires multiple approaches
 - Medicine, exercise, psychological/mind-body therapy, complementary treatments
- All pain has a psychological component
- Seeing a psychologist does not mean pain is not real (or an exclusion for medical treatment)
- Nervous system activity connects “physical” pain to “psychological” pain
- If unaddressed, psych symptoms worsen response to medical treatment
 - Getting mental health care enhances medical treatment
- Focus is on function and quality of life, despite ongoing pain
 - “Pain as a lagging indicator”
 - Improving sleep, mood, function increases likelihood of pain relief

RESOURCES FOR PRIMARY CARE

- Self-management programs
 - https://www.cdc.gov/arthritis/interventions/self_manage.htm#CDSMP
 - <https://www.cdc.gov/arthritis/interventions/physical-activity.html>
 - <https://www.cdc.gov/arthritis/interventions/programs/index.htm>
- Mindfulness class finder
 - <https://www.umassmed.edu/cfm/mindfulness-based-programs/mbsr-courses/find-an-mbsr-program/>
 - <https://w3.umassmed.edu/CFMInstructorSearch/#/index/search>
- Exercise resources
 - Silver Sneakers - <https://tools.silversneakers.com/>
 - Sit and Be Fit - <https://www.sitandbefit.org/>
 - Gentle yoga videos searchable on YouTube
- Finding psychological providers for chronic pain
 - Psychology Today Therapist Search function - <https://www.psychologytoday.com/us/therapists>
 - Searchable by location, insurance, and providers specialized in “chronic pain”
 - State psychological associations usually have similar search functions

PATIENT EDUCATION

- American Chronic Pain Association (www.theacpa.org)
- CBT handouts: <https://psychologytools.com/download-therapy-worksheets.html>
- Books
 - Manage Pain Before it Manages You – Caudill
 - Pain Survival Guide – Turk & Winter
 - Quiet Your Mind and Get to Sleep – Carney & Manber
 - The Chronic Pain Solution – Dillard & Hirschman
 - Full Catastrophe Living – Kabat-Zinn
 - The Feeling Good Handbook – Burns
- Phone apps
 - Insight Timer – Meditation - free
 - Calm, Headspace – Relaxation and meditation – proprietary
 - Curable – Biopsychosocial app for chronic pain - proprietary

QUESTIONS?



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